BRILLIANT STUDENTS TOP EXAMINERS MOCK SERIES 1 EXAMS *(ALL SUBJECTS TESTED)*

BRILLIANT STUDENTS TOP EXAMINERS MOCK SERIES 1 EXAMS

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BRILLIANT STUDENTS TOP EXAMINERS MOCK SERIES 1

NAME: ……..

SCHOOL: ……..……

ADM NO: …….. SIGN: ……. DATE: ……..

443/1
AGRICULTURE
PAPER 1
TIME:2 HOURS

INSTRUCTIONS TO CANDIDATES

a) Write your name, school and index number in the spaces provided above

b) Sign and write the date of the examination in the spaces provided above

c) This paper consists of THREE sections A,B and C

d) Answer all the questions in section A,B and any TWO in the section C

For examiners use only

SECTION	QUESTION	MAXIMUM SCORE	CANDIDATES SCORE
A	1 -20	30	
B	21– 25	20	
C		20	
		20	
TOTAL SCORE		**90**	

SECTION A(30 MARKS)

Answer all the questions in the spaces provided

1.State **two** ways in which agriculture contributes directly to the development of industries **(1mk)**

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2.Give **two** advantages of shifting cultivation **(1mk)**

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3.Name **two** processes of rock weathering **(1mk)**

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4.State **three** advantages of drip irrigation **(1 ½ mks)**

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5.Give **three** ways in which trees improve soil productivity **(1 ½ mks)**

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6.Name **two** methods which can be used to detect nutrients deficiency in a crop field **(1mk)**

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7.State four effects of excessive application of nitrogen fertilizer on crop growth **(2mks)**

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8.Give **three** factors that affect the efficiency of pesticides (1 ½ mks)

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9.(a) What is land fragmentation in farming? **(1mk)**

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(b)State **two** causes of land fragmentation in Kenya since independence **(1mk)**

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10. State **two** advantages of establishing a mixed grass- legume posture instead of planting a pure grass pasture

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11. Give any **two** financial statement which may be prepared on a farm **(1mk)**

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12. List **four** agricultural support services available to a livestock farmer (2mks)

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13. State **thre**e ways by which land as a factor of production could be made more productive **(1 ½ mks)**

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14. Outline **two** ways of controlling damping off diseases on vegetable seedlings in a nursery **(1mk)**

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15. State **three** functions of the coffee Board of Kenya **(1 ½ mks)**

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16. Differentiate between soil structure and soil texture **(1mk)**

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17. State **four** effects of strong wind on crop production **(2mks)**

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18. State **four** effects of pests with both piercing and sucking mouth parts on crops **(2mks)**

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19. State **fou**r pieces of information contained on a land title deed **(2mks)**

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20. Give **four** factors that may influence the supply of a commodity in a market **(2mks)**

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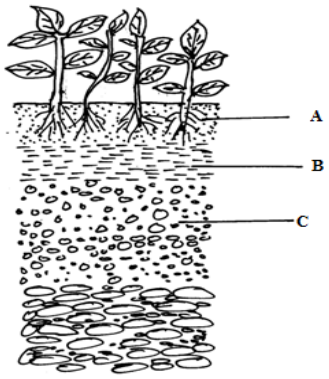
21. The diagram below illustrates a feature observed after digging the soil several metres deep. Study the diagram carefully and answer the questions that follow.



(a) Identify the features that the diagram above represents in the study of soil(1mk)

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(b) Name the parts of the diagram labeled A,B and C **(3mks)**

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(c) State two ways in which the knowledge of the above feature would be of benefit to a farmer **(2mks)**

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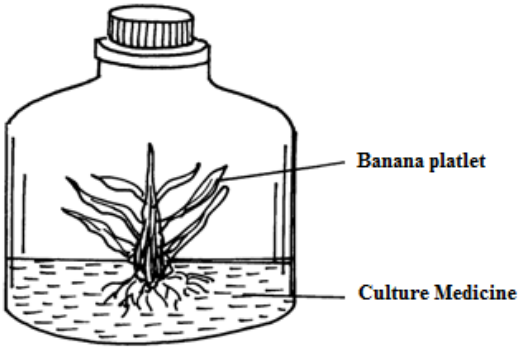
22. The diagram below illustrates materials and a method of vegetative propagation .Study it and answer the questions that follow



(a) Identify the method of propagation illustrated above **(1mk)**

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(b) Give two advantages associated with the method above **(3mks)**

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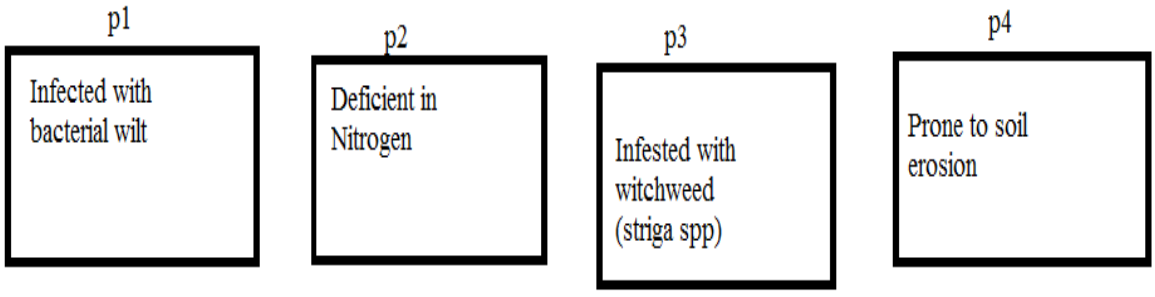
(c) A farmer has four plots p1,p2,p3 and p4 as shown on the diagrams below. Each of the plots has an agromic problem as indicated



The farmer intends to grow maize ,Irish potatoes ,peas and Rhodes grass. Plan a rotational programme for the first year of rotation

Crop	plot
Rhodes grass	_____
Irish potatoes	_____
Peas	_____
Maize	_____

23. A plot of land measures 6.6 m long by 3.6 wide .This plot is prepared for planting cabbages at a spacing of 60cm by 60cm.The outermost rows starts at 30cm from the edges all round the plot. Showing your working calculate.

(i) The number of the rows falling on the width side of the plot **(1mk)**

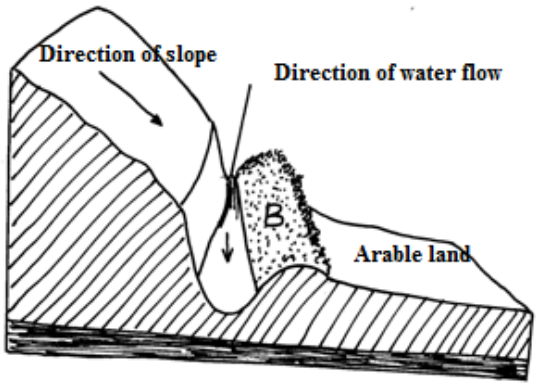
(ii) The number of cabbages seedlings that should be planted on the plot

24. On 5-1-2001 Tamu Farm purchased on credit the following items from a K.F.A shop

20 bags of dairy meat,70kg @ sh 1,100 per bag 16 bags of bran,70 kg each @ sh 700 per bag 18 bags of D.S.P fertilizer,each 2kg @ sh.300 per bag 45 nags of seed maize ,each 2kg @ sh .300 per bag 8 shearing knives (medium sized @ sh .300 per knife.

(a) Prepare the purchase order that Tamu Farm made to K.F.A **(6mks)**

25. The illustrations below show a newly constructed cut-off drain .Study it and answer the questions that follow.



(a)

(i) Identify the parts of the cut-off drain labeled A and B

A……

B……..

(ii)Describe the procedure of constructing a cut-off drain

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(iii)How can the part of the structure labeled B be stabilized after it has been constructed

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(iv)State any one factor that would determine the width and depth of the cut-off drain

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SECTION C(40 MARKS)

Answer any two questions from section in the spaces provided after question 24

26. Describe the field production of dry beans

(a) (Phaseolus vulgaris) under the following sub- headings

(i)Varieties common in Kenya **(2mks)**

(ii)Selection and preparation of planting materials (3mks)

(iii)Planting and weeding **(8mks)**

(b) Describe the management of trees grown under various agro-forestry system **(7mks)**

27. (a)Discuss the importance of budgeting in agricultural production **(10mks)**

(b)Explain the role of agricultural co-operative in Kenya **(10mks)**

28. (a)Describe five methods a farmer can use in harvesting water on the farm **(5mks)**

(b)Explain seven ways by which soil loses fertility **(7mks)**

(c)State the uses of water in the farm **(8mks)**

BRILLIANT STUDENTS TOP EXAMINERS MOCK SERIES 1

NAME: ……..

SCHOOL: ……..……

ADM NO: …….. SIGN: …….. DATE: ……..

443/2

AGRICULTURE

PAPER 2

TIME: 2 HOURS

INSTRUCTIONS TO CANDIDATES

a) Write your name, school and index number in the spaces provided above
b) Sign and write the date of the examination in the spaces provided above
c) This paper consists of THREE sections A,B and C
d) Answer all the questions in section A,B and any TWO in the section C
e) All the questions should be answered in the spaces provided

FOR EXAMINERS USE ONLY

SECTION	QUESTION	MAXIMUM SCORE	CANDIDATES SCORE
A	1 -17	30	
B	18 – 21	20	
C		20	
		20	
	TOTAL	**90**	

SECTION A:30 MARKS

Answer ALL questions in this section in the spaces provided

1. Name **two** viral diseases that affect each of the following livestock

(a)Cattle **(1mk)**

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(b)Poultry **(1mk)**

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2. Name **one** intermediate host for each of the following livestock parasite.

(a) Liverfluke (Fasciola spp) **(½ mk)**

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(b)Tape worm (Taenia spp) **(½ mk)**

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3. State **four** importance of colostrums to a newly born calf **(2mks)**

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4. State **four** harmful effects of ticks in livestock rearing **(2mks)**

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5. Give the difference between raddling and crutching in sheep management **(1mk)**

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6. State **four** importance for castrating a male goat **(2mks)**

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7. State **four** limitations of using hydroelectric power on the farm **(2mks)**

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8. State **four** reasons for care and maintaining a wheelbarrow in good working condition **(2mks)**

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9. Name **two** predisposing factors of foot rot diseases in livestock **(1mk)**

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10. Name **two** hormones that affect milk let down in dairy cattle **(1mk)**

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11. State **four** conditions that may lead to a farmer using animal drawn ox-plough than tractor drawn mould board plough **(2mks)**

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12. State **four** uses of concrete in construction of farm building and structures **(2mks)**

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13. Give f**our** microbial activities in the rumen of cattle **(2mks)**

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14. State **four** reasons for swarming of bees ` **(2mks)**

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15. List **four** problems associated with air cooled engines **(2mks**

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16. State **fou**r effects of lack of proteins in livestock **(2mks)**

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17. Name **four** light chicken breeds **(2mks)**

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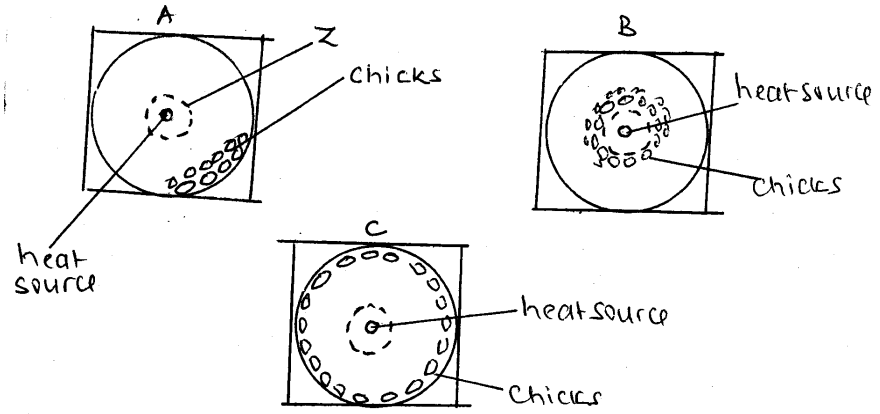
SECTION B(20 MARKS)

Answer all the questions in this section in the spaces provided

18. The following illustration shows the behavior of chicks in a brooder. Study them carefully and answer the questions that follow.



(a) Explain the cause of behavior observed in chicks for each of the illustrations labeled A ,B and C **(1½ mks)**

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(b) A part from what is seen in C state other four observations that will be seen in chicks **(2mks)**

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(c) Name the part labeled Z **(½ mk)**

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(d) Give **one** reason for making the brooder wall round in shape (1mk)

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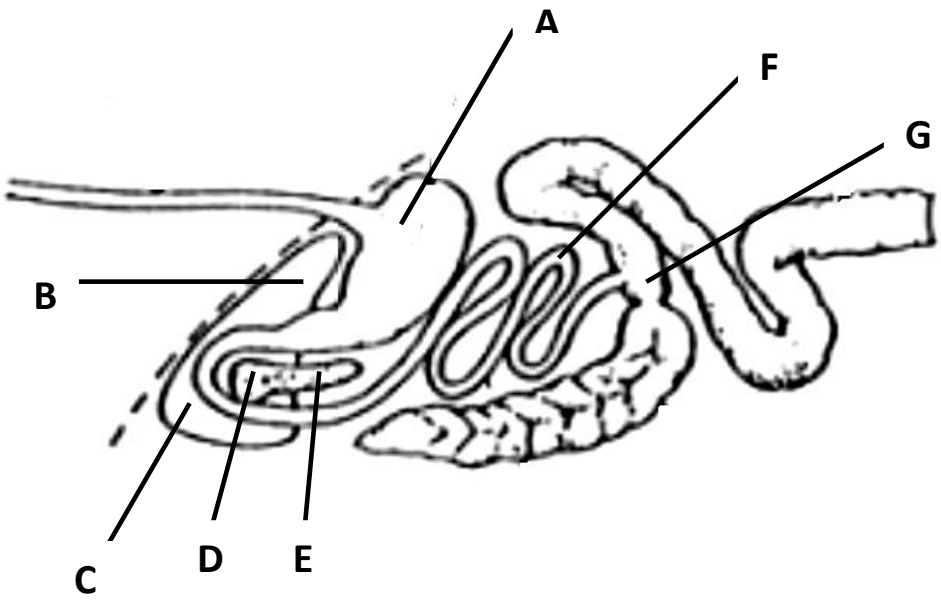
19. The diagrams below show the digestive system of cattle .Study it and answer the questions that follow.



(a) Name the parts labeled B,C and G

B…….(½ mk)

C……. .(½ mk)

G……..(½ mk)

(b) State one function of the part labeled D and G

D **(½ mk)**

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……..

B **(½ mk)**

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(c) Give one enzyme that is produced by the part labeled E and F

E……(½ mk)

F……(½ mk)

d) Name three microbial products at part labeled A **(1 ½ mk)**

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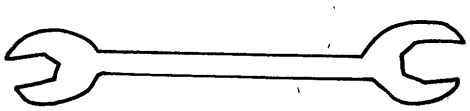
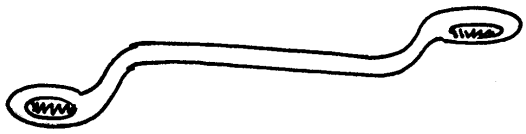
20. The illustration below shows tools used in farm workshop

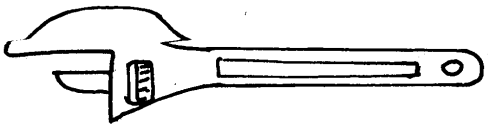
A



B



C



(a) Identify tools A,B and C

A……..(½ mk)

B……..(½ mk)

C…….(½ mk)

(b) State the main function of the tools above **(1mk)**

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(c) State **one** advantage of tool C over tool A **(1mk)**

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(d) State **three** maintenance practices carried out on tool C above **(1 ½ mk)**

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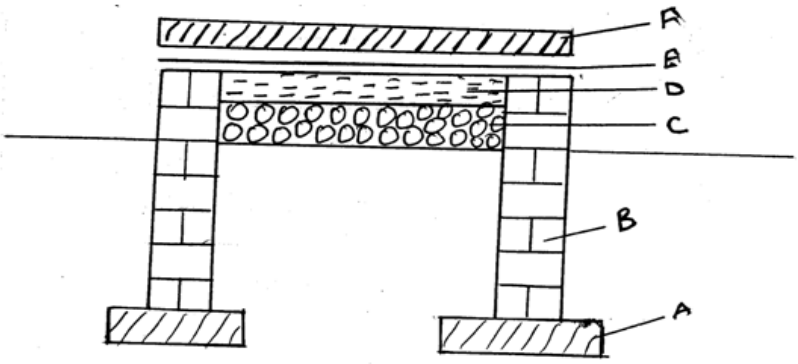
21. The diagram below represents foundation of a permanent house. Use it to answers the question that follow.



(i)Name the parts

B……(½ mk)

C……(½ mk)

D……(½ mk)

F……..(½ mk)

(ii) State two factors that determine the thickness of the part labeled A **(1mk)**

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(ii) State two functional of part E **(2mks)**

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SECTION C (40 MARKS)

22. (a)Describe two feeding practices in artificial rearing of a dairy calf **(10mks)**

(b)Describe mastitis disease under the following sub- headings

(i)Causal organism **(1mk)**

(ii)Three signs infection **(3mk)**

(iii)Six control measures **(6mks)**

23. (a) Describe **five** signs of internal parasite infestation in livestock **(5mks)**

(b)Explain **five** factors that should be considered when sitting homestead on the farms **(5mks)**

(c)State **five** difference between petrol and diesel engine **(5mks)**

(d)Describe **five** uses of dead fences on the farm **(5mks)**

24. (a) Giving a relevant example in each case, describe the role of the various component of a balanced diet in livestock nutrition **(10 mks)**

(b)Explain the importance of each of the function difference between a disc plough and a moldboard plough in land preparation **(10 mks)**

BRILLIANT STUDENTS TOP EXAMINERS MOCK SERIES 1

NAME: ……..

SCHOOL: ……...……

ADM NO: …….. SIGN: ……. DATE: ……..

231/1
BIOLOGY
THEORY
Paper 1
Time: 2 Hours

INSTRUCTIONS TO CANDIDATES

1) Write your name, index number and school in the spaces provided above

2) Sign and write the date of the examination in the spaces provided above

3) Answer ALL the questions in the spaces provided on the question paper

4) Candidates should answer the questions in English

FOR EXAMINER'S USE ONLY

QUESTION	MAXIMUM SCORE	CANDIDATE'S SCORE
1-27	80	

1. Name the cell organelles responsible for:

a) Protein synthesis **(1 mk)**

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……..

b) Destroying worn-out organelles and damaged cells **(1 mk)**

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2. Distinguish between haemolysis and plasmolysis **(2 mks)**

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3. State three roles of the placenta during pregnancy **(3 mks)**

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4. Name two classes of phylum Arthropoda with a cephalothorax **(2 mks)**

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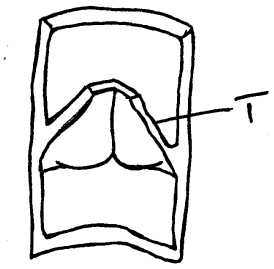
5. The diagram below represents a blood vessel.



a) Name the type of vessel **(1 mk)**

……

……..

b) Identify structure T **(1 mk)**

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……..

c) What is the function of structure T **(1 mk)**

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……..

……..

6. a) Salivary amylase does not digest starch in the stomach. Give a reason.

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b) Name any two digestive enzymes secreted by the pancreases **(2 mks)**

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7. State three roles of a fruit in a plant. **(1 ½ mks)**

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8. a) Name the principal site of gaseous exchange in the lungs of humans (I mk)

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b) State two ways in which the structure named in a) above is adapted to its function **(2 mks)**

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9. Give a reason why water logging favours denitrification **(2 mks)**

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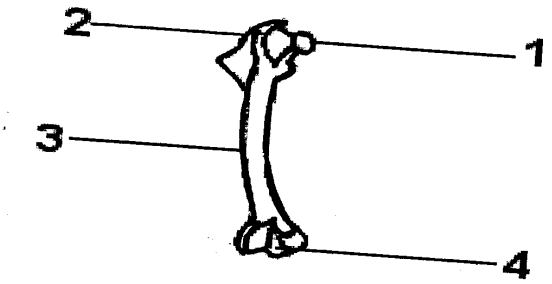
10. The diagram below represents a bone obtained from the hind limb of a goat.



a) Identify the bone **(1 mk)**

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……..

b) Name the part labeled 3 **(1 mk)**

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……..

c) Name the type of joint formed at the part labeled 4 **(1 mk)**

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11. The diameter of the field of view was estimated to be 50mm under a certain magnification. Six cells were observed along the diameter of the field of view. What was the diameter of the cell in Microns **(2 mks)**

12 a) Distinguish between homologous and analogous structures

……

……..

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……..

b) Give an example in each case **(2 mks)**

Homologous structure

……

……..

Analogous structure

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……..

13. Name the types of response shown by the following:

a) Movement of ants away from naphthalene bails **(1mk)**

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b) Euglena moving near the surface of water **(1mk)**

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……..

c) Irish potatoes' adventitious roots growing downwards **(1 mk)**

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14. Hemophilia is a sex-linked characteristic. A normal man married a carrier woman for this characteristic.

a) Using letter H for normal and h for haemophilia, work out the genotype of the offspring **(3mks)**

b) What is the probability of one of the sons being haemophiliac? **(1 mk)**

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15. State three methods by which plants get rid of their excretory wastes (3 mk)

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16. a) Name two hormones that regulate glucose level in blood **(2 mks)**

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b) Name the organ that produces the named hormones above **(1 mk)**

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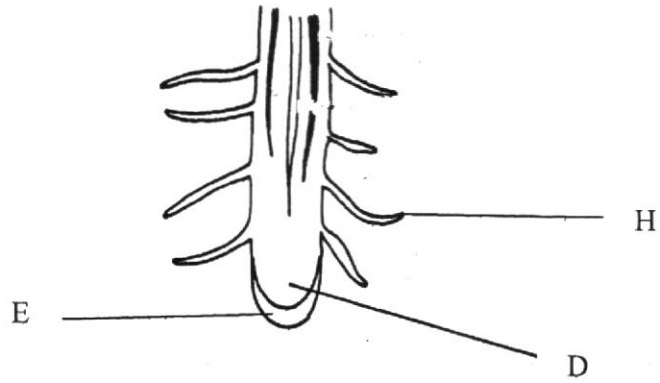
17. T he following diagram shows a longitudinal section through a root apex



a) Identify' the parts labeled H and D **(2mks)**

H……..

D……

b) State the function of E **(1mk)**

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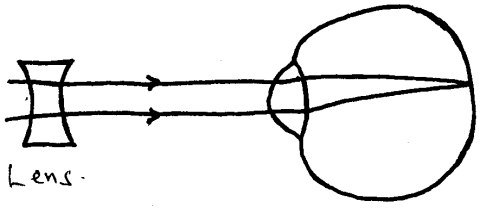
18. The diagram below illustrates a certain eye defect



a) Name the eye defect (1 mk)

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b) i) State one cause of the above eye defect **(1 mk)**

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ii) What role does the lens play in the correction of the defect? (2 mks)

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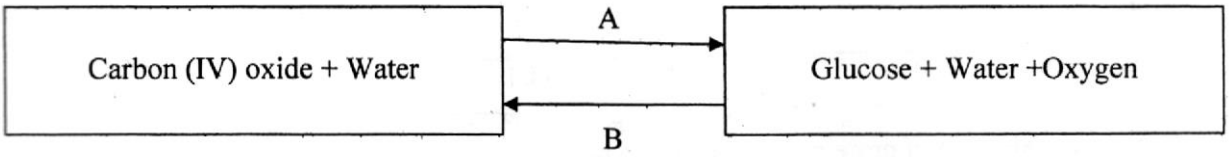
19. The scheme below shows two interrelated processes A and B that occur in the same cell.



a) Identified processes A and B

A……

B……..

b) Name the organelle where process A takes place **(1mk)**

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……..

20. The scientific name of a lion, wolf and leopard are Panthera leo, Canis lupus and Panthera padus respectively. All the three belong to the family Carnivora,

a) Which of the organisms are closely related? **(1 mk)**

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b) What does Canis refer to? **(1 mk)**

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c) Explain why the lion and the leopard cannot procreate **(1 mk)**

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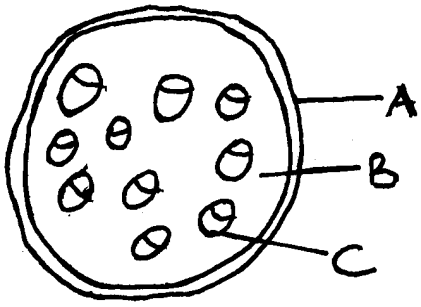
21. Examine the diagram below which has been drawn from a plant section



a) Name the plant organ from which the section was obtained **(1 mk)**

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……..

b) Name the parts labeled A and B **(2 mks)**

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22. Use the table below to answer the following questions

Material	Plasma Concentration	Glomerular filtrate concentration	Urine Concentration
Proteins	80	0	0
Inorganic ions	7	7	15
Glucose	1	1	0
Urea	0.3	0.3	20
Amino acids	0.5	0.5	0
Uric acid	0.04	0.04	0.5

a) Explain the absence of proteins and glucose in urine **(2 mks)**

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b) One of the symptoms of diabetes mellitus is the presence of glucose in urine. Give the name of this condition. **(1mk)**

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c) State the reagent used to test for the presence of glucose in b) above **(1mk)**

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23. During the first stage of respiration, a glucose molecule is broken down to yield a small amount of energy

a) What name is given to this process? **(1mk)**

……

……

b) State where the process takes place in the cell **(1mk)**

……

……

24. Name the branch of Biology that deals with the study of ;

a) Insects (1mk)

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b) Fungi (1mk)

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c) Parasites

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25. List down three support tissues in old dicotyledonous plants. **(3mk)**

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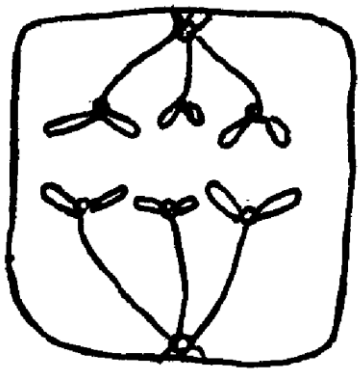
……..

26. The diagram below shows a cell undergoing a stage in cell division



a) Identify the stage **(1 mk)**

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b) Give a reason for your answer in a) above **(1 mk)**

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c) Draw a diagram to show the next stage of the cell division **(2 mk)**

27. Name the organism that:

a) Causes malaria

……

……..

b) Transmits malaria (1mk)

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BRILLIANT STUDENTS TOP EXAMINERS MOCK SERIES 1

NAME: ……..

SCHOOL: ……..……

ADM NO: …….. SIGN: ……. DATE: ……..

231/2
BIOLOGY
THEORY
Paper 2
Time: 2 Hours

INSTRUCTIONS TO CANDIDATES

1.Write your name, index number and school in the spaces provided

2.Sign and write the date the examination was done in the spaces provided

3.This paper consists of two sections, section A and section B. Answer ALL the questions in section A in the spaces provided on the question paper. In section B, answer question 8

4.(compulsory) and either question 7 or 8 in the spaces provided after question 8

5.Be brief and precise. Unnecessary information and wrong spellings especially of technical terms shall be penalized

6.This paper consists of 8 questions on 8 printed pages. Candidates are advised to check the question paper carefully to ensure that all the pages are printed as indicated and no questions are missing

7.All answers must be written in the English language

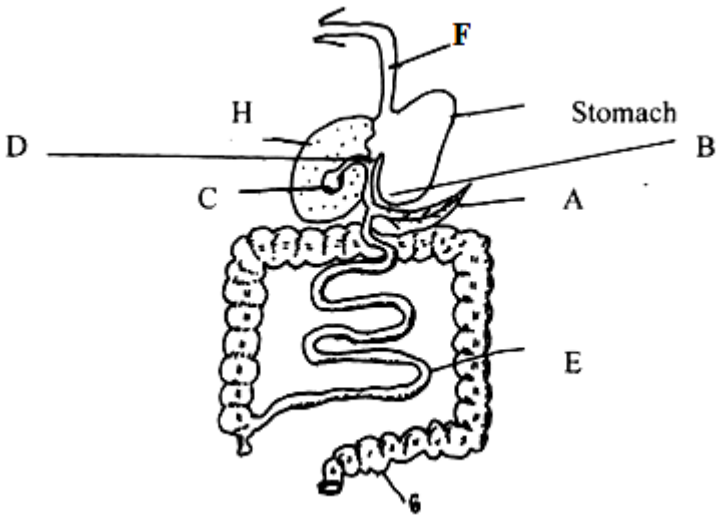
FOR EXAMINER'S USE ONLY

QUESTION	MAXIMUM SCORE	CANDIDATE'S SCORE
1-27	80	

SECTION A (40 MKS)

Answer ALL the questions in this section in the spaces provided on the question paper.

1.The diagram below shows part of the mammalian digestive system



a) Name the parts labeled A, B and D **(3 mks)**

A…….

B ……..

D…….

b) State the functions of the parts labeled C and E (2 mks)

……

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c) What are the adaptations of the stomach to its function **(2 mks)**

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d) Name a deficiency disease resulting from lack of proteins in the diet **(1mk)**

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2. a) What is diffusion? (1mk)

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b) How do the following factors affect the rate of diffusion?

i) Diffusion gradient **(1 mk)**

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ii) Surface area to volume ratio **(1 mk)**

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iii) Temperature **(1 mk)**

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c) Outline four roles of active transport in the human body **(4 mks)**

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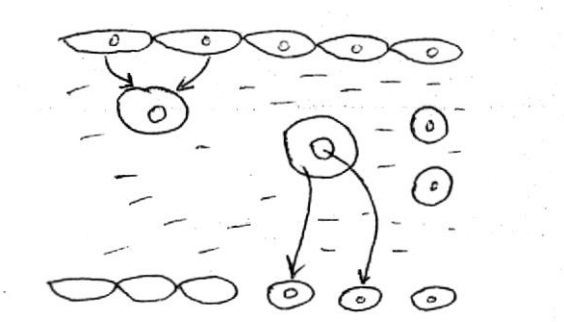
3. Use the diagram below to answer the questions that follow.



a) Name the gas that diffuses

i) To the body cells **(1 mk)**

……

……..

ii) From the body cells **(1mk)**

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……..

b) Which compound dissociates to release the gas mentioned in a) ii) above? **(1 mk)**

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……..

c) i) What is tissue fluid? **(2 mks)**

……

……..

ii) What is the importance of tissue fluid? **(1 mk)**

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……..

……..

d) Name the blood vessel (s) in the human body with the highest concentration of:

i) Glucose after a meal rich in carbohydrates. **(1 mk)**

……

……..

ii) Carbon (IV) oxide. **(1 mk)**

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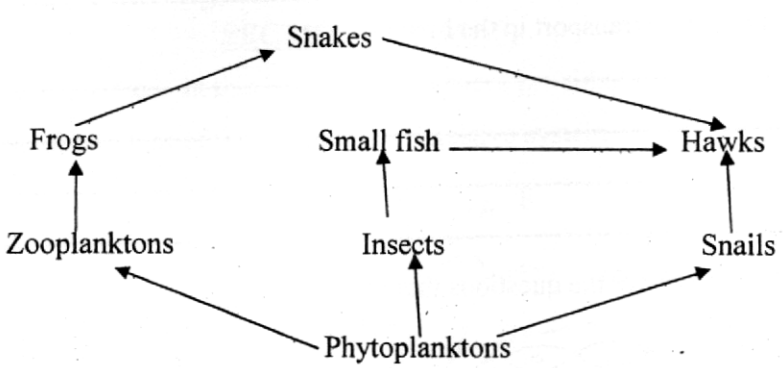
……..

4. The flow chart below shows a feeding relationship in an aquatic ecosystem



a) Name the:

i) Producers in this ecosystem **(1mk)**

……

……..

ii) Organisms that occupies the highest trophic level **(1mk)**

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……..

b) Write a food chain that ends with the hawk as a secondary consumer (1mk)

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c) If all the frogs died, state two short-term effects on this ecosystem. **(2mks)**

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d) Oil spills on water bodies leading to the death of fish. Explain. **(2 mks)**

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e) Give one other cause of water pollution other than oil spills. **(I mk)**

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5. Black colour is due to a dominant gene in rats. Two black rats were crossed and their F_1, generation was in the ratio of 3 black: 1 white. Using letter B to represent the gene for black colour and b for white colour, give the:

a) i) Genotypes of the parents. **(2 mks)**

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……..

……..

ii) Gametes of the parents **(2 mks)**

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……..

iii) Genotypic ratio of the F1 generation **(3 mks)**

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b) What is meant by the term test cross as used in genetics? **(1 mk)**

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SECTION B(40 MKS)

Answer question 6 (Compulsory) and either question 7 or 8 in the spaces provided after question 8.

6.An experiment was carried out to investigate the population growth of rats in a laboratory. Twenty young rats were placed in cage. The amount of food available to the rats each day was kept constant. The results obtained are shown in the following table

Time in Months	0	2	4	6	8	10	12	14	16	18
Number of Rats	20	20	65	115	310	410	390	190	145	160

a) Using the grid provided on page 6, draw a graph of the number of rats against time **(6 mks)**

b) With reference to the graph, account for the changes in the population of rats between:

1) 0 to 2 months **(2 mks)**

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ii) 2 to 10 months **(2mks)**

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c) Between which two months was the population change greatest **(1 mk)**

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d) Calculate the rate of population change over the period you have mentioned in c) above. **(3 mks)**

e) What population changes would be expected if the investigation was continued for a further 24 months. **(2 mks)**

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f) State four factors that would cause rapid human population growth **(4 mks)**

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7. Describe the adaptations of the human skin to its functions. **(20 mks)**

8. a) Define evolution **(2mk)**

b) Discuss the various evidences of organic evolution **(18 mks)**

BRILLIANT STUDENTS TOP EXAMINERS MOCK SERIES 1

NAME: ……..

SCHOOL: ……..……

ADM NO: …….. SIGN: …….. DATE: ……..

231/3

BIOLOGY PRACTICAL

PAPER 3

Time: 1 ¾ Hours

INSTRUCTIONS TO CANDIDATES

- Answer all the questions in the spaces provided.
- You are required to spend the first **15** minutes of **1 ¾** hours allowed for this paper reading the whole paper carefully before commencing your work.
- Candidates may be penalized for recording irrelevant information and for incorrect spelling especially of technical terms.

FOR EXAMINER'S USE ONLY

Question	Max Score	Candidate's Score
1	12	
2	13	
3	15	
TOTAL	40	

1. You are provided with a nutritional supplement labelled S, distilled water and a boiling tube. Put about 6ml of the distilled water in the boiling tube and add the nutritional tablet to dissolve it. Use the reagents provided to find out the food substances present in the tablet**.** **(12 mks)**

Food substance	**Procedure**	**Observation**	**Conclusion**

2.a) (i) You are provided with a pestle, mortar, scapel, **specimen Q** and **R**. Cut from each a cube, each measuring 1cm by 1cm. put them each in a different test tube having 10mls of solution **X**. Record the observations in the table below? **(2 marks)**

Specimen	**Observation**
Specimen **Q**	
Specimen **R**	

(ii) Account for the observations in the experiment involving specimen **Q** and **R**? **(2 marks)**

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b) i) Using the remaining portion of **specimen Q**, Cut 2 other pieces measuring 1cm by 1cm ,Crush them separately to form a paste and put them in boiling tubes labelled **A** and **B**.

To the paste in boiling tube labelled **A**, add 5mls of solution **X**. Record the observation in the table below.

To the paste in boiling tube labeled **B** add 10mls of distilled water and boil for 5 minutes then allow it cool then add 5mls of solution **X**. Record the observation in the table below. **(2 marks)**

BOILING TUBE	OBSERVATION
A	
B	

ii) Account for the observations in the experiment involving boiling tube **A** and **B (4 marks)**

Boiling tube **A**

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Boiling tube **B**

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iii) Name the biological substance being investigated and its significance to the living tissues **(2 marks)**

Biologicalsubstance ……

Significance

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iv) Name the factor being investigated in question 2(b) above **(1mark)**

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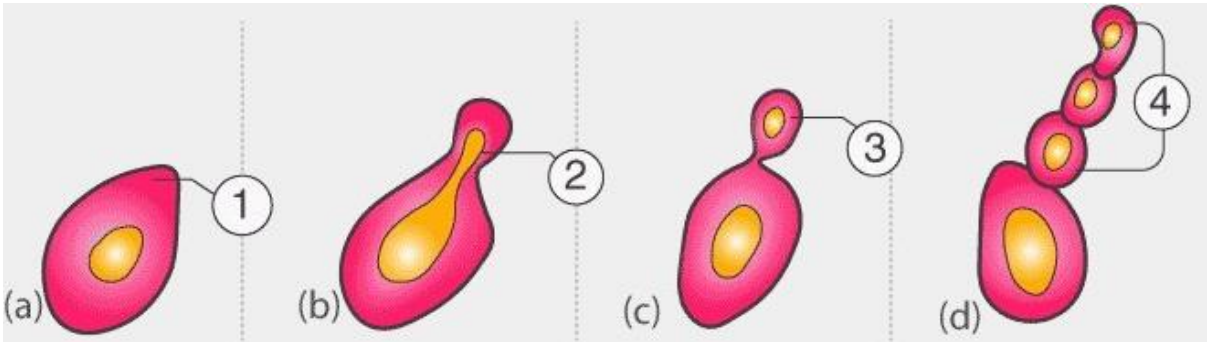
3.The diagrams below show a method of reproduction.



(a).Name the mode of reproduction above and give an example of organism where it occurs **(2mks)**

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(b).Briefly explain how the process occurs **(4mks)**

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(c) Study the following photograph and answer the questions that follow

(d)Describe the features of the above photograph with respect to the following **(3mks)**

(i) Androecium

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(ii) Gynoecium **(3mks)**

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(e) (i)Suggest the agent of pollination of the flower **(1mk)**

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(ii)Explain how it is adapted to pollination agent you have named in (b)(i)above **(2mks)**

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BRILLIANT STUDENTS TOP EXAMINERS MOCK SERIES 1

NAME: ……..

SCHOOL: ……...……

ADM NO: …….. SIGN: ……. DATE: ……..

565/1
BUSINESS STUDIES
PAPER 1
TIME: 2 ½ HOURS

INSTRUCTIONS TO CANDIDATES

- Write your name and index number in the spaces provided.
- Sign and write the date of examination in the spaces provided.
- Answer all questions in the spaces provided in this booklet.
- Candidates should check the question paper to ascertain that all pages are printed as indicated and the no questions are missing.

For Examiners Use Only

Question	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Marks															

Question	16	17	18	19	20	21	22	23	24	25
Marks										

TOTAL MARKS

1.Highlight four factors that will make a new product not to be successfully sold at the market **(4mks)**

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2. Given below are some factors that influence the operation of a business. Indicate with a tick (√) in the appropriate column the business environment associated with each of the factor s **(4mks**)

Factors	Internal	External
Rainy season		
Economic recession		
Employees strike		
Rival firms		

3.Identify the principle of insurance described in each of the following circumstances (4mks)

a) James went to insure his neighbor`s house but the insurer refused to accept to provide cover**……**

b) Benta`s vehicle insured against theft was destroyed in an accident and the insurer refused to compensate**……**

c) After full compensation, the insurer took the remains of Peter`s vehicle

……..

d) Rose insured her second hand vehicle as a brand new one and the insurer declined to offer protection**……**

4.State four services that your school provides you as a student **(4mks)**

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5.For each of the following transaction, indicate the account to be debited and the account to be credited **(4mks)**

Transaction	Account debited	Account credited
(a) Bought equipment in cash	_____	_____
(b) Sold goods on credit to Linda	_____	_____
(c) Took cash from cash box for personal use	_____	_____
(d) Converted a personal van into business use	_____	_____

6. State how the following types of unemployment may occur in a country (4mks)

(a) Disguised

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(b) Frictional

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(c) Cychical

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(d)Seasonal

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7. Outline four principles that govern the operation of co-operative societies **(4mks)**

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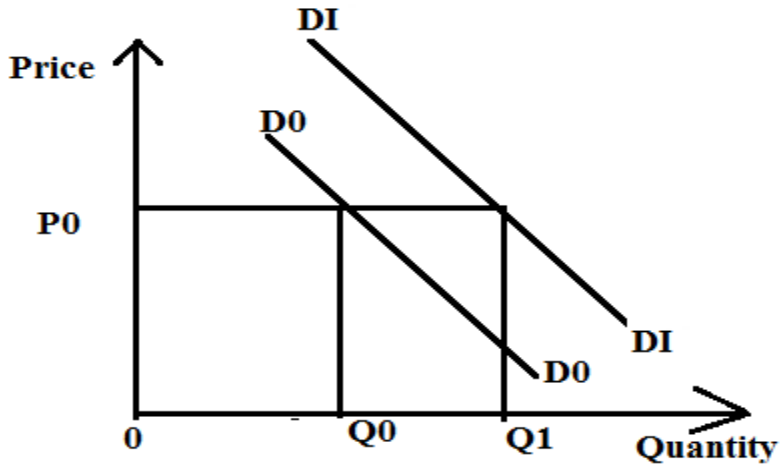
8. The diagram below shows a change in demand of a product



State four causes of the changes in demand **(4mrks)**

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9. Give four types of books of original entry **(4mks)**

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10. Outline four function of Kenya commercial Bank (KCB) **(4mks)**

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11. The following is an extract of a cash book from Ramo Traders

Ramo Traders
Cash book for the month of January 2010

Date	Details	Cash	Bank	Date	Details	Cash	Bank
2010				2010			
Jan 1	Bal blf	2500	4500	Jan 2	Stationery	520	
Jan 5	Sales	1200		Jan 8	Wages		2400
Jan 10	Cash		1500	Jan 10	Bank	1500	

(a) Determine the balance carried down on 10th January **(2mks)**

(i)Cash_____

(ii)Bank_____

(b) Give the name of the transaction on 10th January 2010 **(1mk)**

(c) Describe the transaction on 8th January 2010 **(1mk)**

12. Give the uses of the following office machines **(4mks)**

(a) Dictaphone

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(b) Guillotine

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13. Outline four ethical issues a business should observe concerning its employees **(4mks)**

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14. Highlight four problems associated with Monopoly markets structure **(4mks)**

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15. Outline four circumstances under which human wants can be fully satisfied **(4mks)**

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16. Highlight four reasons why most countries are getting rid of direct production **(4mks)**

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17. Mwanaisha owns and runs a retail shop in her village. State four features of this form of business organization **(4mks)**

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18. The following information was extracted from the books of Wanjala Traders

Rate of stock Turnover	3
Opening stock	80,000
Closing stock	100,000
Mark up	20%
Determine Gross profit	**(4mks)**

19. State four measures that the county government of Kakamega could undertake so as to attract its investors to locate their industries within its boundaries **(4mks)**

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20. Give four measures that could be undertaken to conserve forests in Kenya **(4mks)**

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21. State the purpose of the following documents used in International trade **(4mks)**

(a) Commercial invoice

……..…

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(b) Letter of credit

……..…

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(c)Airway bill

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(d)Import Licence

22. Highlight four benefits to a large consumer who buys directly from the producer **(4mks)**

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23. Outline four reasons why a transporter of goods from Mombasa to Nairobi may prefer rail transport to road transport (4mks)

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24. On 1st December 2013 ,Boda Boda Traders bought 200 torches at sh 50 each from Furaha wholesalers .A trade discount of 10% was allowed and 2% cash discount if payment was made within three weeks .Calculate the amount paid if payment was made on 18th December 2013 **(4mks)**

25. State the term given to each of the following statement **(4mks)**

Statement	Term
(a) The transfer of an enterprise from public ownership to private ownership	_____
(b) The possibility of occurrence of the events which may cause a loss to the insured	_____
(c) The value of the foregone alternative where choice has been made	_____
(d) The total monetary value of all goods and services produced in a country over a period of one year	_____

BRILLIANT STUDENTS TOP EXAMINERS MOCK SERIES 1

NAME: ……..

SCHOOL: ……...……

ADM NO: …….. SIGN: ……. DATE: ……..

565/2
BUSINESS STUDIES
PAPER 2
TIME: 2 ½ HOURS

INSTRUCTIONS TO CANDIDATES

- ***Answerv any five questions***
- ***Write your answer in the booklet provided***
- ***All questions carry equall marks***

For Examiners Use Only

Question	1	2	3	4	5	6
Marks						
TOTAL MARKS						

SECTION A

1.(a)Explain five ways in which insecurity negatively affects running of business activities in Kenya. **(10mks)**

(b)Explain five reasons why mobile banking services are becoming increasingly popular in Kenya.**(10mks)**

2.(a)The table below shows the trends in inflation rates in a country

Year	inflation rates
2010	7%
2011	15%
2012	21%

Explain four causes that would have triggered the increasing inflation trends in the country **(8mks)**

(b)The following trial balance was extracted from the books of Goldmine Traders as at 31st December, 2014.

Goldmine Traders

Trial Balance

As at 31st Dec, 2014

	Debit Shs.	**Credit shs.**
Sales		1,200,000
Purchases	500,000	
Carriage inwards	30,000	
Carriage outwards	15,000	
Returns	40,000	50,000
Discounts	35,000	20,000
Commission	10,000	17,000
Rent Expense	100,000	
Salaries	450,000	
Capital		1,363,000
Land and Buildings	2,600,000	
Furniture	100,000	
Stock (1st Jan 200 9)	600,000	_____
	2,665,000	2,665,000

(a) Depreciation is to be charged at 5% p.a on furniture

(b) Rent prepaid Kshs 10,000

(c) Salaries accrued Kshs.15,000

(d) Closing stock Kshs.200,000

Required: Prepare a trading and profit and loss account for the year ended 31st December 2014

12mks)

3.(a)Outline six differences between oligopoly market and perfect competition market situations **(12mks)**

(b)Explain four elements that constitute Micro-environment of a business **(8mks)**

4.(a)Highlight five ways of preparing goods for sale in a warehouse **(10mks)**

(b)Record the following transactions in a double column cash book **(10mks)**

2011

Sept.1 Cash in hand Ksh.11, 000 and cash at bank Ksh. 18, 8000

Sept.4 Sold goods for Ksh 5,000 cash

Sept. 6 Received a cheque from Mercy, a debtor, Ksh 5,800

Sept.7 Deposited Ksh.8000 into the Bank from the cash till

Sept.10 Ochieng' a creditor, was paid ksh 12,000 by cheque.

Sept.12 Goods were sold for ksh 24,000 and ksh 16,000 was received by cheque while the balance was to be received later

Sept.15 Furniture was bought for ksh 9,600 by cheque

Sept.18 Ksh 12,000 was withdrawn from bank for business use.

Sept.21 Bought goods worth shs 22000 and sh,2800 paid by cheque and the rest by cash

Sept.29 Cash shs. 4800 paid to Ambulwa, a creditor.

5.(a) With the help of a diagram ,describe excess supply and excess demand **(10 mks)**

(b) Explain five principles of insurance **(10mks)**

6.(a)Explain five importance of entrepreneurship to the economy **(10mks)**

(b)Explain five measures that may be taken by the government to promote the volume of exports **(10mks)**

BRILLIANT STUDENTS TOP EXAMINERS MOCK SERIES 1

NAME: ……..

SCHOOL: ……..……

ADM NO: …….. SIGN: ……. DATE: ……..

233/1

Chemistry

Theory

Time: 2 Hours

INSTRUCTIONS TO CANDIDATES

1. Write your name and index number in the spaces provided above.

2.Sign and write the date of examination in the spaces provided above.

3.Answer all the questions in the spaces provided in the questions paper.

4.Mathematical tables and silent electronic calculators may be used.

5.All working must be shown where necessary.

QUESTION	MAXIMUM SCORE	CANDIDATE'S SCORE
	80	

1.Identify the laboratory apparatus used for each of the following purposes in a chemistry laboratory?

i) Holding and supporting pieces of apparatus such as burettes during experiments. **(1mk)**

……..…

……

ii) Scooping solid chemical substances during experiments **(1mk)**

……..…

……

iii) Storage of liquid chemicals in a laboratory.

……..…

……

2.Pure air contains about 1% argon.

i) State the name of the group of elements to which argon belongs. **(½ mk)**

……..…

……

ii) Write the electronic configuration to argon? **(½ mk)**

……..…

……

iii) Why is argon used in lamps? **(1mk)**

……..…

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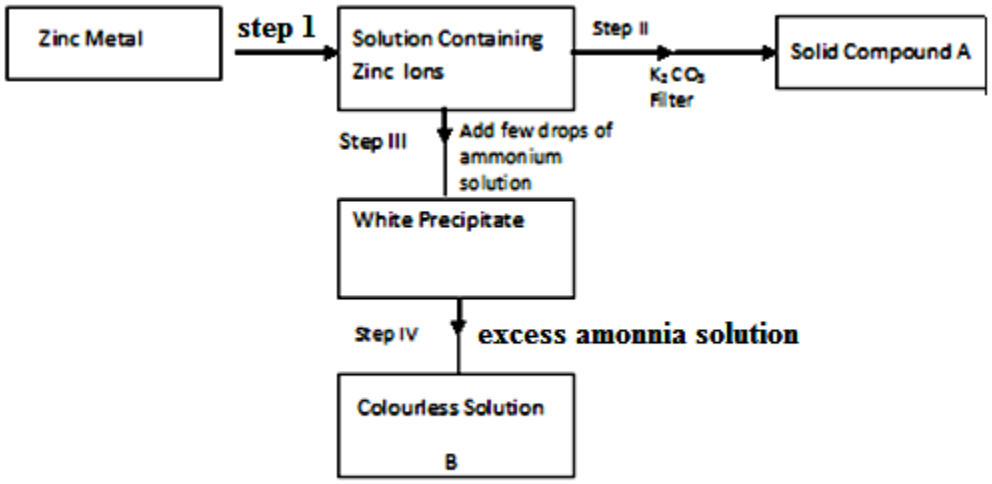
iv) An Isotope of argon has a mass number of 40. Calculate the number of neutrons in this Isotope of argon. (1mk)

3.Study the flow chart below and answer the questions that follow:



a) Name the reagent in step I **(½ mk)**

……

……

ii) Compound A **(½ mk)**

……

……

b) Write an ionic equation for the reaction in step (IV) **(1mk)**

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……

4.30 cm^3 of the solution containing 2.88gdm^{-3} of an alkali MOH completely reacts with 40 cm^3 of 0.045M sulphuric (Vi) acid .

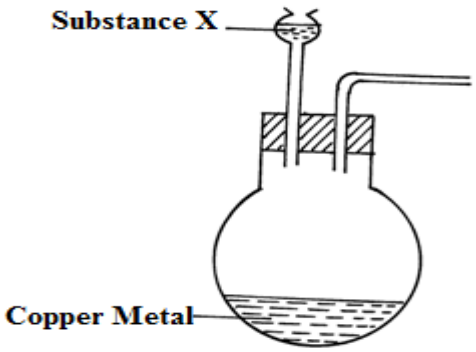
a) Calculate the molarity of the alkali. **(2mks)**

b) Calculate the relative atomic mass of x in the alkali (0 = 16, S= 32,H = 1. **(2mks)**

5.The table below gives some information about the melting and the likely structures in substances V,W, and X.
Complete the table by filling the missing Information in the spaces numbered. I,II and III (3mks)

Element	Structure	Example	Melting point
V	Grant Metallic	(i)	High
W	II	F_2	Low
X	III	Si	Very high

6.The arrangement below is used to prepare nitrogen (iv) oxide.



(i) Complete the diagram to show the collection of the gas. **(1mk)**

(ii) Identify substance X. **(1mk)**

……..…

……

(iii) Write a balanced equation for the reaction that occurs in the conical flask. **(1mk)**

……..…

……

7. Given the standard electrodes potentials.

Half reactions	Elvolts
$Zn^{2+}_{(aq)} / Zn_{(s)}$	-0.76
$Cu^{2+}_{(aq)} / Cu_{(s)}$	+ 0.34
$Cr^{3+}_{(aq)} / Cr_{(s)}$	- 0.74
$Co^{2+}_{(aq)} / Co_{(s)}$	+ 0.28

From the following cell combinations copper- Zinc half cells.

Chromium cobalt half cells.

i) Which reaction is faster? Explain by use of electrode potentials? **(2mks)**

……

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……

……

ii) Write the cell representation for the chromium – cobalt half cells. **(1mk)**

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8. A freshly picked red flower petal was placed in a gas jar containing moist sulphur (IV) oxide gas.

i) State the observation made after sometime. **(1mk)**

……

……

ii) Consider the reaction shown below.

$$2H_2S_{(g)} + SO_{2(g)} \longrightarrow 3S_{(s)} + 2H_20_{(1)}$$

From the above reaction. Identify the reducing agent. Explain. **(2mks)**

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iii) Using the equation, show how calcium hydroxide is used to control pollution caused by sulphate (iv) oxide in a sulphuric (vi) acid plant. **(1mk)**

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9. The relative rate of diffusion of two gases X and Y are in the ratio 3:2 respectively. Given that the relative formula mass of X is 48, calculate the relative formula mass of Y. **(2mks)**

10. a) In the fractional distillation of liquid air explain how each of the following components are removed prior to liquifaction of air.

i) Dust particles (1mk)

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……

……

ii) Carbon (iv) Oxide (1mk)

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iv) Water Vapour (1mk)

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c) Explain why removal of carbon (iv) oxide should occur before compression and condensation of air into liquid state. (1mk)

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11. An element R has an atomic number 12.

a) Write the electro configuration of the ion of R. **(1mk)**

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b) Write the formula of the nitride of R. **(1mk)**

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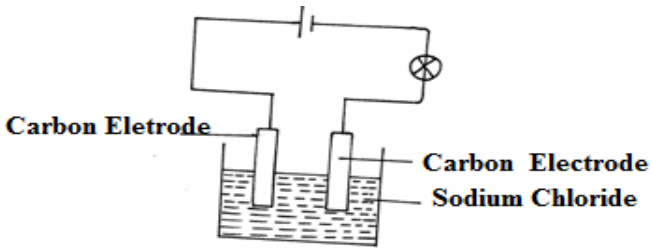
……

c) The nitride of R dissolves in water. Write a balanced equation to show what happens. **(1mk)**

……

……

12. The set up below was set up to electrolysis molten sodium chloride.



a) State the observation that was made at the anode during the electrolysis. **(½ mk)**

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……

b) Name the electrode of which reduction occurs **(½ mk)**

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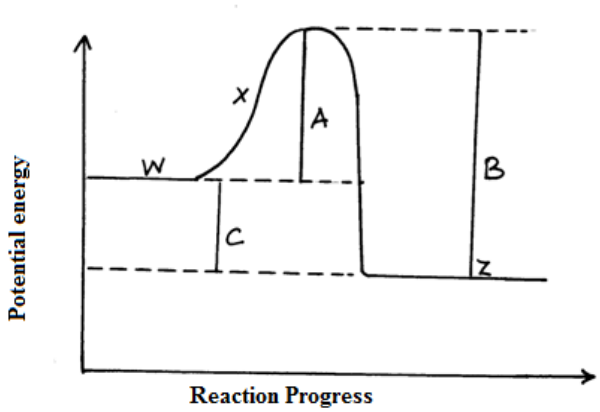
……

c) Write an equation for the reaction that occurs at anode electrode. **(1mk)**

……

……

13. Use for diagram below to answer the questions that follows:-



a) Name the letter that corresponds to:_

i) Activation energy of the reaction **(1mk)**

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……

ii) Change in energy for the overall reaction. **(1mk)**

……

……

b) The reaction exothermic or endothermic. Explain. **(2mk)**

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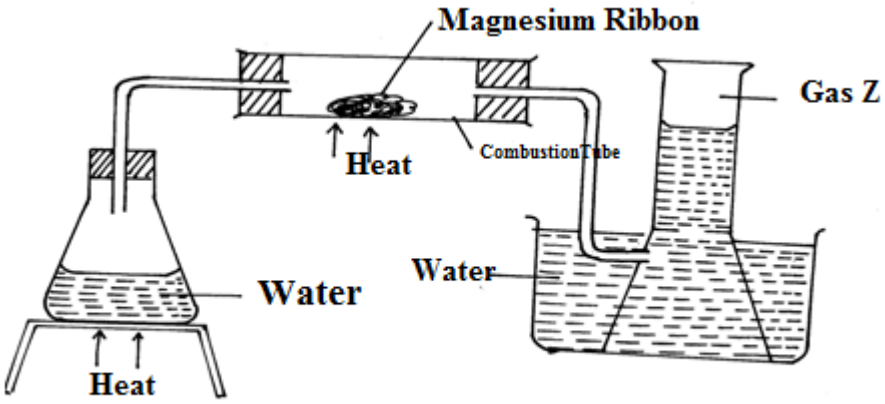
14. The solubility of potassium nitrate is 155g/100g of solvent at 75^0C and 38g/100g potassium nitrate will crystallizes out if 50g of a saturated solution at $75c^0$ was cooled to 25^0c. **(3mks)**

15. Study the set up below and answer the question that follows.



a) Write an equation for the reaction which takes place in the combustion tube. **(1mk)**

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……

b) What property of gas Z to allows it to be collected as shown in the diagram. **(½ mk)**

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c) Identify gas Z **(½ mk)**

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16. a) Give the IUPAC names of the following compounds.

i) ……

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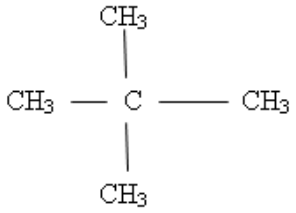
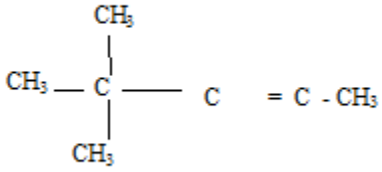
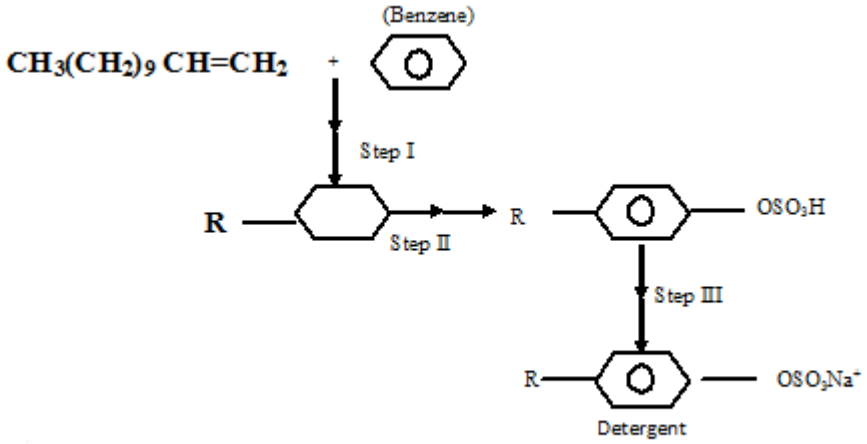


ii) ……

……



b) The flow chart below shows the three main steps in the preparation of a detergent.



i) State the condition for step I **(½ mk)**

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……

(ii) Name the reagent for the reaction in step (II) **(½ mk)**

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……

iii) For step III Name :

a) The reaction **(½ mk)**

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……

b) The reagent used **(½ mk)**

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……

17. You are provided with dilute sulphuric (vi) oxide nitric acid and lead (ii) Oxide. Explain how you can prepare a sample of lead (ii) sulphate. **(2mks)**

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18. a) Distinguish between allotropes and Isomers. **(2mks)**

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b) Other than sulphur , Name two elements that are allotropic. **(2mks)**

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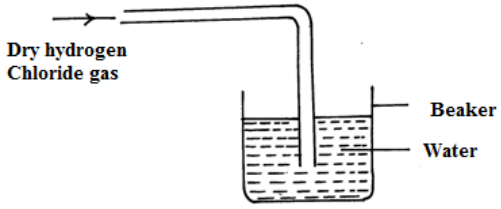
19. The diagram below shows preparation hydrochloric acid.



i) State one mistake in the diagram **(1mk)**

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……

ii) Hydrogen chloride gas does not have any effect on litmus paper unlike hydrochloric acid. Explain. **(1mk)**

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……

iii) State one use of hydrogen chloride gas. (1mk)

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……

20. A radioactive element R decays emitting two alpha(α) and Beta(β) Particle to form $^{214}_{81}Si$

a) What is the atomic number of R? **(1mk)**

……

……

……

b) After 224 days 1/16 of mass of R remained. determine the half life of R? (2mks)

21. The table below shows atomic numbers of elements represented by the letter R to Y. The letters are not the actual chemical symbols of the elements.

Elements	R	S	T	U	V	W	Z	Y
Atomic Number	3	7	8	9	10	11	12	13

i) Two elements that belong to the same period of the periodic table. **(½ mk)**

……..…

……

……

ii) Two elements in the same group **(½ mk)**

……..…

……

……

iii) Write down the formula of the compounds when Z combines with U. (1mk)

……..…

……

22. Using dots(.) and crosses (x), draw electronic structures to show the bonding in the following compounds.

i) Water **(1mk)**

ii) Calcium oxide **(1mk)**

23. a) State the Le chatelieur's principle. (1mk)

……..…

……

……

b) One of the steps in the commercial manufacture of nitric (v) acid is the oxidation of ammonia according to the equation.

$$4\ NH_3\ (g) + 50_{2(g)} \rightleftharpoons 4No\ (_{g)} + 6\ H_2\ 0_{(i)}\ DH = 908\ KJmol^{-}.$$

How would true position of the equilibrium change in the following circumstances? Explain.

i) An increase in pressure (1 ½ mk)

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ii) A decrease in temperature (1 ½ mk)

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iii) The addition of a catalyst (1mk)

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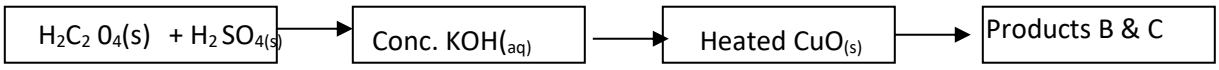
24. The flow chart below shows the preparation of carbon (ii) Oxide and its reaction.



a) Name the type of reaction taking place between $H_2C_2O_4$ and concentrated H_2SO_4

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……

b) Write an equation for the production of B and C. (1mk)

……

……

c) State two uses of carbon (II) Oxide . (1mk)

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25. Paper chromatography of a plant extracts gave the following results.

	Solvent	Number of sports
Quinine	1	
Cocaine	6	
Papain	4	
Titanium	2	

Which of the extracts.

i) Is more pure. Explain. (1mk)

……..…

……

ii) Is most dense. Explain?

……..…

……

26. 50 cm^3 of methane gas (CH_4) was exploded until 170 cm^3 of oxygen and under complete Combustion.

a) Write an equation for the complete combustion of methane. **(1mk)**

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……

b) Determine the amount of oxygen that remained unreacted. **(2mks)**

27. The main reaction of the contact process is $2SO_{2(g)} + O_{2(g)} \rightleftharpoons 2SO_{3(g)}$ $\Delta H = -98KJ$

a) Name two factors that would favour maximum yield in this reaction. **(1mk)**

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b) Which substance can be recycled in this process. **(1mk)**

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b) Why is SO_3 formed dissolves in sulphuric acid and not in water.

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BRILLIANT STUDENTS TOP EXAMINERS MOCK SERIES 1

NAME: ……..

SCHOOL: ……...……

ADM NO: …….. SIGN: ……. DATE: ……..

233/2

Chemistry

Theory

Time: 2 Hours

INSTRUCTIONS TO CANDIDATES

1. Write your name and index number in the spaces provided above.

2.Sign and write the date of examination in the spaces provided above.

3.Answer all the questions in the spaces provided in the questions paper.

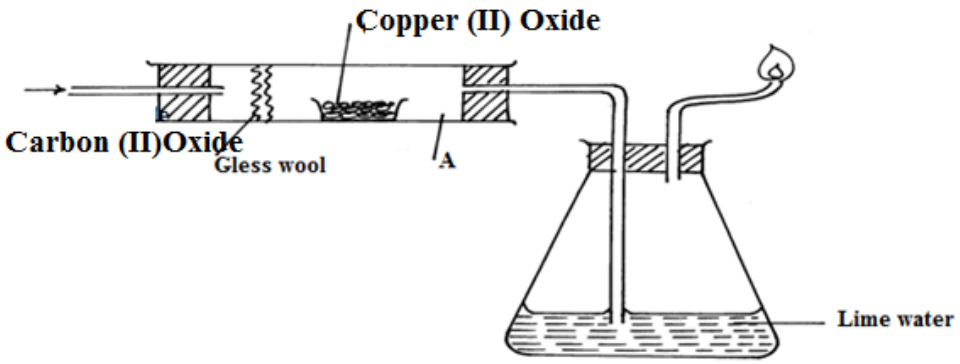
4.Mathematical tables and silent electronic calculators may be used.

5.All working must be shown where necessary.

QUESTION	MAXIMUM SCORE	CANDIDATE'S SCORE
	80	

This paper consists of 10 printed pages Check the Question paper to ensure that all pages are printed as indicated and no question are missing.

1.The figure below is used to investigate the effect of carbon (II) Oxide on copper (II) Oxide. Study it and answer the questions that follow.



a) Write a chemical equation of the reaction for the preparation of carbon (II) oxide in the laboratory.**(1mk)**

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b) What precaution should be taken when preparing carbon (II) Oxide? **(2mks)**

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c) State the observations made in apparatus A and B at the end of the experiment? **(2mks)**

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d) Write the chemical equation for the reaction in apparatus A. **(1mk)**

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e) State the reducing agent in (d) above. (1mk)

……

……

f) State two application of carbon (II) Oxide **(2mks)**

……..…

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……

……

g) Carbon (IV) oxide in air forming a Gas P.

(i) Name the gas P **(1mk)**

……..…

……

(ii) State two applications of the gas P **(2mks)**

……..…

……

……

2. The table below shows some information concerning elements S, T,V, U and W,. The letters are not the actual symbols of the elements.

	Elements	Formula of C	Period
S	S_20	2	
T	T_2O_3	3	
U	UO_2 or UO_3	3	
V	Does not form oxide	3	
W	W_2O	4	

a) Write down:

i) The electron arrangement of element W. **(1mk)**

……..…

……

ii) The formula of the ion formed by element T. **(1mk**)

……

……

b) Two of the oxides, S_2O and UO_3 were separately dissolved in distilled water. Compare the PH values of resulting solutions. **(2mks)**

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……

c) Compare with explanations, the following.

i) The reactivity of S with that of W. **(3mks)**

……

……

……

……

……

ii) The electrical conductivity of element T with that of magnesium. **(2mks)**

……

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iii) The meeting point of element V with that of element x which is just below U in the group. **(2mks)**

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……

d) Identify element V. **(1mk)**

……

……

3. a) The following table gives the standard electrode potential for a number of half.-reactions

$Zn^{2+}_{aq)} + 2e^- \longrightarrow Zn_{(s)}$	-0.76
$Fe^{2+}_{(aq)} + 2e^- \longrightarrow Fe_{(s)}$	-0.44
$I_{2(s)} + 2e- \longrightarrow 2I^-_{(aq)}$	+ 0.54
$Fe^{3+}_{(aq)} + e \longrightarrow Fe^{2+}_{(aq)}$	+ 0.77
$Ge^{4+}_{(aq)} + e- \longrightarrow Ge^{3+}_{(aq)}$	+ 1.61

i) Write a cell equation for the reaction that would give the highest emf. **(2mks)**

ii) The strongest reducing agent. Give reason. **(2mk)**

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……

……

iii) Which substances in the table could be used to convert iodide ions to iodine(1mk)

……

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iv) Write an equation for the reaction you would expect to occur when an iron nail is placed in a solution of iron (II) sulphate. (1mk)

……

……

b) In the production of aluminum for aluminum oxide, 100 A was passed for 5 hours. How much aluminum was obtained? (1F = 96500C,Al = 27) **(2mks)**

c) With an example ,define

i) Primary cell **(2mks)**

……

……

……

ii) Secondary cell **(2mks)**

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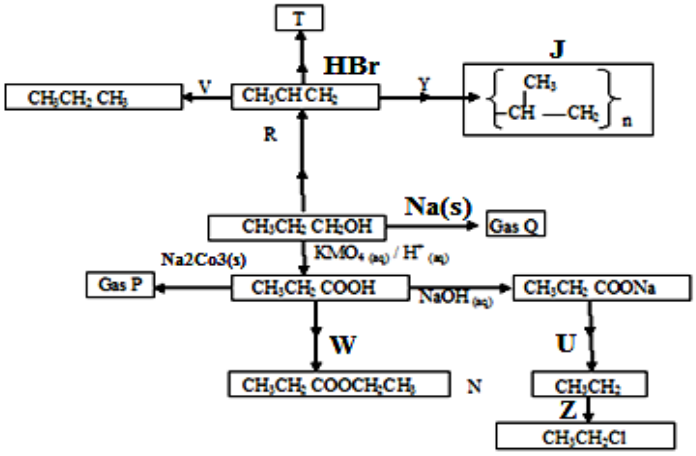
……

……

4. Study the reaction scheme below and answer the questions that follow.



a) Name

i) Gas P……

ii) Gas Q……

iii) Substance J……

b) Write the structural formula of T **(1mk)**

……..…

……

c) State the characteristics property of substance N **(1mk)**

……..…

……

……

d) Name process Y

……

e) Name the type of reaction represented as Z. **(1mk)**

……

f) Name the reagent and condition for reaction

i) V …… **(2mks)**

……

ii) U…… **(2mks)**

……..

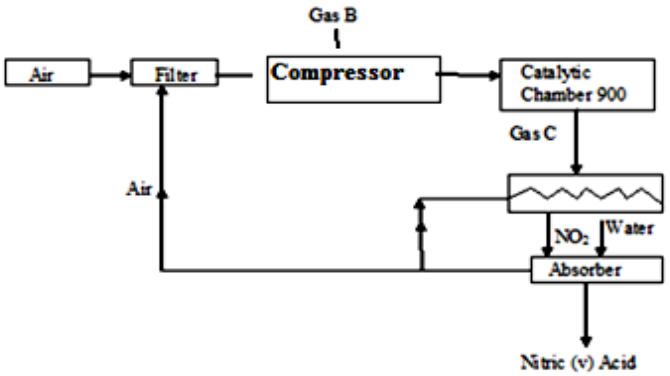
iii) W…….. **(2mks)**

……..

g) Name Process R

…… **(1mk)**

5. a) The flow chart below shows the industrial manufacture of nitric (v) acid. Study it and answer the questions that follow:



i) Identify substances B and C **(2mk)**

B……

C…….

ii) Write an equation for the reaction that occurs in the catalytic chamber. (1mk)

……...…

……

(iii) Using an equation or otherwise. Explain the reaction that takes place in the absorber. **(1mk)**

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……

(iv) Explain why nitric (v) acid is stored in brown bottles. **(1mk)**

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(v) Explain what happens when drops of concentrated nitric (v) acid are put on dry, warm sawdust. **(2mks)**

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(vi). Give one industrial use of nitric (vi) acid. **(1mk)**

……...…

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b) Chlorine and ammonia gas react producing products depending on the reagent in excess. Write the equations for the reactions when:-

i) Chlorine is in excess **(1mk)**

……...…

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ii) Ammonia is excess. **(1mk)**

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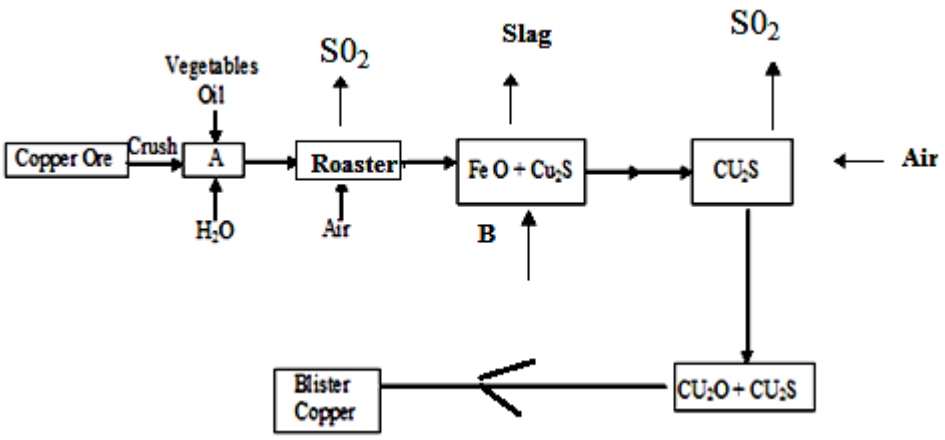
6.Study the flow diagram below on extraction of copper and answer the questions that follow.



a) Name the copper ore used for the extraction of copper. (1mk)

……

……

b) The amount of copper in the copper ore is small state the method used to separate the impurities from the ore in chamber A.

c) i) Which substances is fed into the roaster from chamber A? **(1mk)**

……

……

ii) Write an equation for the reaction that takes place in the roaster. **(1mk)**

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d) Name B and state it's function. **(2mks)**

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e) Why is blister copper not fit for making electrical conductors? **(1mk)**

……

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g) When copper is reacted with concentrated nitric (v) acid & blue solution is formed.

i) Name the blue solution. **(1mk)**

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……

ii) Name and write the formula of the substance formed when the blue solution reacts with excess aqueous ammonia. **(2mks)**

……

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……

7. The solubility in grammes of sodium nitrate in 100g of water are given for various temperatures in ^{0}c.

Temp (^{0}C)	10	20	30	40	50	60	70	80	90	100
Solubility in g/100g of H_2O	73	80	88	96	104	114	124	148	162	180

a) i) Plot the solubility curve for sodium Nitrate.(Temperature on x-axis) **(3mks)**

ii) Determine the temperature at which the solubility of the salt is 150g/100g of water. **(1mk)**

b) Given 100g of a saturated solution of sodium Nitrate at 10^0C, Determine the mass of .

i) Solute in the solution

ii) Solvent in the solution. **(1mk)**

iii) Salt that will be dissolved by the amount of solvent i2n (b) above at 12^0 C. **(1mk)**

iv) Salt which must be added to the solution to form a saturated solution at 80^0 C? **(1mk)**

c) If a solution containing 140g of salt in 100g of solvent initially at 95^0 is cooled to 45^0C.

(i) At what temperature will crystals start forming? **(1mk)**

……..…

……

(ii) How much salt will crystallize out? **(1mk)**

……..…

……

BRILLIANT STUDENTS TOP EXAMINERS MOCK SERIES 1

NAME: ……..

SCHOOL: ……...……

ADM NO: …….. SIGN: ……. DATE: ……..

233/3
CHEMISTRY PRACTICAL
Paper 3
TIME: *2 ¼* **HOURS**
INSTRUCTIONS TO CANDIDATES:

- Answer all the questions in the spaces provided in the question paper.
- You are **NOT** allowed to start working within the first 15 minutes of the 2 ¼ hours allowed for this paper. This time is to enable you read the question paper and make sure you have all the chemicals and apparatus that you may need.
- All working **MUST** be clearly shown.
- Mathematical tables and silent scientific calculators may be used.
- Candidates should check to ascertain that all papers are printed as indicated and that no questions are Missing

For Examiner's Use Only:

Question	Maximum score	Candidate's score	Examiner's initials
1	14		
2	10		
3	10		
4	06		
Total score	40		

1.You are provided with:

- Solution A_1, potassium iodate solution
- Solution A_2, acidified sodium hydrogen sulphite solution
- Solution A_3 starch indicator
- Distilled water in a wash bottle.
- Stop watch / stop clock

You are required to find out the effect of concentration of potassium iodate A_1 on the rate of reaction with acidified sodium hydrogen sulphite A_2.

Note: the end point of reaction of potassium iodate with acidified sodium hydrogen sulphite is indicated in the formation of a blue coloured complex using starch indicator.

Procedure 1:

(a) Using a 10 cm^3 measuring cylinder to pour 5 cm^3 of aqueous sodium hydrogen sulphite into the conical flask.

(b) Use another 10 cm^3 of measuring cylinder to pour 5 cm^3 of starch solution into the same conical flask.

(c) Using a burette pour 15 cm^3 of distilled water into the same beaker.

(d) Using a burette pour 20 cm^3 of aqueous potassium iodate into the beaker and immediately start the stop watch.

(e) Swirl the mixture in the conical / flask and continue to swirl until a sudden blue colour change is seen.

(f) Stop the stop-watch and record time taken seconds for the sudden blue colour change to appear.

(g) Rinse the beaker with water.

Experiment 2:

(h) Repeat procedure 1 using 17 cm^3 of distilled water and 18 cm^3 of aqueous potassium iodate.

(i) Repeat procedure 1 using 21 cm^3 of distilled water and 14cm^3 of aqueous potassium iodate.

(j) Repeat experiment 1 using 23 cm^3 of distilled water and 12 cm^3 of aqueous potassium iodate.

(k) Repeat experiment 1 using 25 cm^3 of distilled water and 10 cm^3 of aqueous potassium iodate.

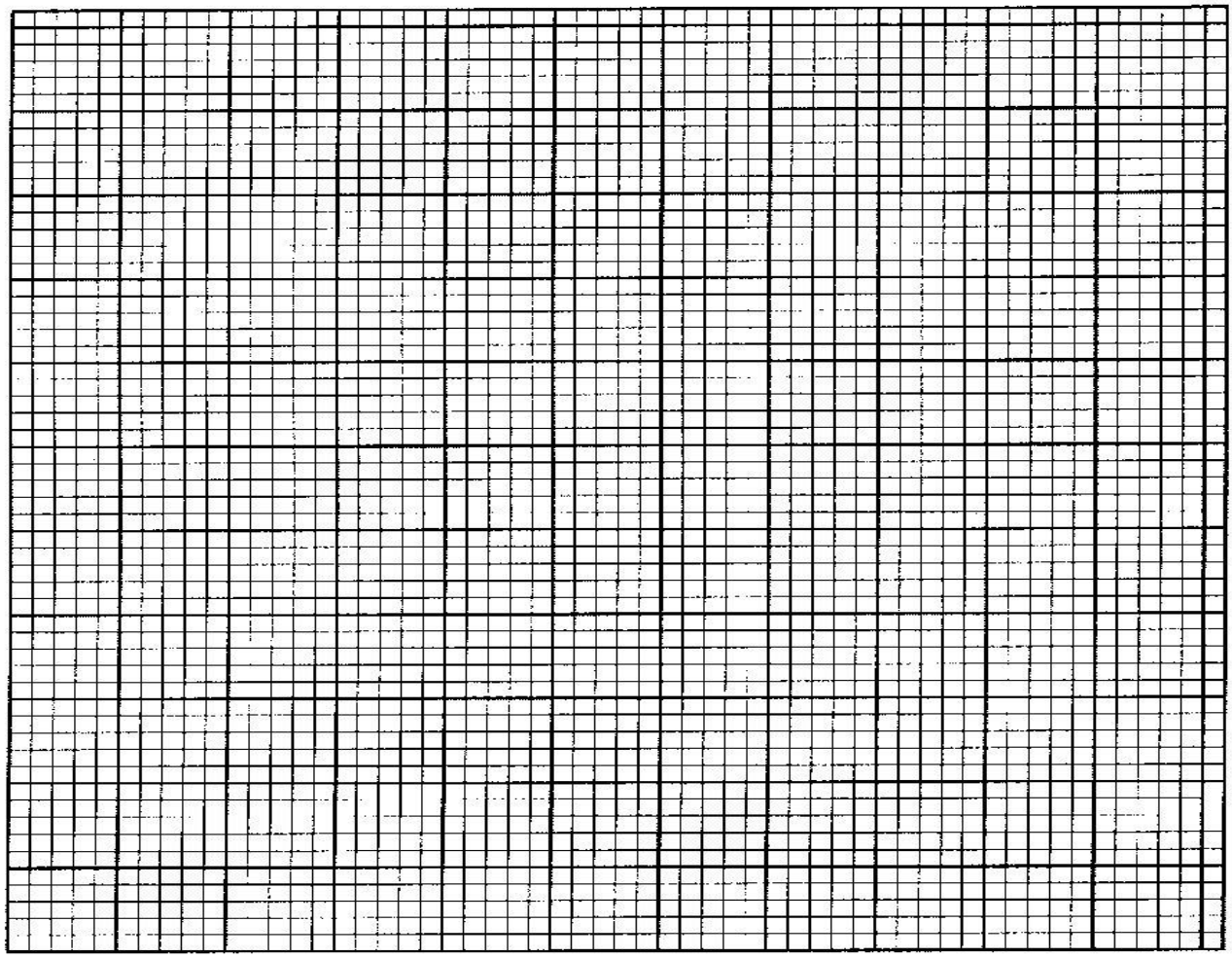
(a) Complete the table below.

Table I

Experiment	1	2	3	4	5
Volume of Sodium hydrogen sulphite ($Na\ HSO_3$) used	5	5	5	5	5
Volume of distilled water used (cm^3)	15	17	21	23	25
Volume of potassium iodate (KIO_3 (aq) used in cm^3	20	18	14	12	10
Time taken to change colour (secs)					

(4 marks)

(b) On the grid below plot a graph of time taken (secs) for the colour change (vertical axis) against volume of aqueous potassium iodate used (cm^3). **(3 marks)**



(c)(i) From your graph determine the time taken for the blue colour to appear if 16 cm^3 of aqueous potassium iodate was used. (Show clearly on the graph how you worked out your answer). **(1 mark)**

(ii) Calculate the volume of distilled water required if 16 cm^3 of aqueous potassium iodate was used. **(1 mark)**

(d) On the graph sketch the graph that could be expected if the above experiment s were done at a higher temperature. Explain. **(1 mark)**

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…….

(e) Calculate the concentration of potassium iodate solution in moles per litre in the final reaction mixture in the experiment 1. **(2 marks)**

(f) How does the concentration of potassium iodate solution A_1, affect its rate of reaction with acidified sodium hydrogen sulphite A_2? Explain your answer. **(2 marks)**

2.**You are provided with**:

- Solution B, which is 0.05M acidified potassium manganate (VII) solution ($KMnO_4$).
- Solution C, containing 5.0g/l of a dibasic acid, $H_2A.2H_2O$

You are required to:

- Determine the concentration of dibasic acid H_2X, solution C and then the formula mass of X.

Procedure II

1.Fill the burette with solution B.

2.Using a clean pipette, place 25 cm^3 of solution C into a clean conical flask. Heat this solution to about 70^0C.

3.Titrate using solution B until a permanent pink colour just appears. Shake thoroughly during titration.

4.Record the reading in table I below.

5.Repeat the titration one more time to complete the table below.

(a) Complete the table I below.

Table I

	I	II
Final burette reading (cm^3)		
Initial burette reading (cm^3)		
Volume of solution b used cm		

(3 marks)

(b) Determine the average volume of solution B used. **(1 mark)**

(c) Calculate:

(i) The number of moles of manganate (VII) ions in the average volume of solution B used above. **(1 mark)**

(ii) Given that 2 moles of manganate (VII) ions react with 5 moles of dibasic acid $H_2X.2H_2O$. Calculate the number of moles of the dibasic acid $H_2X.2H_2O$ in the 25 cm^5 of solution C**.(2 marks)**

(iii) The concentration of solution C in moles per litre. **(1 mark)**

(iv) Calculate the formula mass of X in the dibasic acid $H_2A.2H_2O$ (H = 1, O = 16) **(2 marks)**

3. You are provided with solution Q. Carry out the tests below. Write your observations and inferences in the spaces provided.

Place about 2 cm^3 of the solution in five separate test-tubes.

(a) To the first portion, add aqueous sodium hydroxide drop wise until in excess.

Observations	**Inferences**
(1 mark)	**(1 mark)**

(b) To the second portion, add aqueous ammonia dropwise until in excess.

Observations	**Inferences**
(1 mark)	**(1 mark)**

(c) To the third portion, add 3 drops of dilute hydrochloric acid.

Observations	**Inferences**
(1 mark)	**(1 mark)**

(d) To the fourth portion, add 3 drops of barium nitrate solution.

Observations	**Inferences**
(1 mark)	**(1 mark)**

(e) To the last portion, add 3 drops of lead (II) nitrate solution then warm the mixture.

Observations	**Inferences**
(1 mark)	**(1 mark)**

4.You are provided with solid **R**. Carry out the tests below. Write your observations and inferences in the spaces provided.

i). Place one third of solid R on a metallic spatula. Burn it in non-luminous flame of the Bunsen burner.

Observations	**Inference**
(½ mark)	**(½ mark)**

ii). Place the remaining solid in a test-tube. Add about 6 cm^3 of distilled water and shake the mixture well. Retain the solution for the next procedure.

Observations	**Inference**
(½ mark)	**(½ mark)**

(I) In another 2 cm^3, add 2 drops of acidified potassium manganate (VII).

Observations	**Inference**
(1 mark)	**(1 mark)**

(II) To about 1cm^3, add 3 drops of acidified potassium dichromate (VI) and warm.

Observations	**Inference**
(½ mark)	**(½ mark)**

(III) To about 2 cm^3 of the solution, add 1g of solid D; sodium hydrogen carbonate.

Observations	**Inference**
(½ mark)	**(½ mark)**

BRILLIANT STUDENTS TOP EXAMINERS MOCK SERIES 1

NAME: ……..

SCHOOL: ……...……

ADM NO: …….. SIGN: ……. DATE: ……..

451/1
COMPUTER STUDIES
PAPER 1
(THEORY)
TIME:2 ½ HOURS

INSTRUCTIONS TO CANDIDATES

- Write your **name** and **index number** in the spaces provided above.
- This paper consists of **TWO** sections **A** and **B**.
- Answer **ALL** the questions in section **A**.
- Answer question **16** (Compulsory) and any other **THREE** questions from section **B.**
- All answers should be written in the spaces provided.
- Answer all questions in English

SECTION	QUESTION	CANDIDATES SCORE
A	1 – 15	
B	16	
	17	
	18	
	19	
	20	
	TOTAL SCORE	

1.Give importance of having the following in computer laboratory **(3mks)**

(i) Standard furniture in the laboratory.

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(ii) Antiglare screen

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(iii) UPS

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2.Distinguish between ROM and RAM **(2mks)**

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3.Explain the following computer crimes **(2mks)**

(i) Fraud

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(ii) Alteration

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4.(a)Explain the following statements

(i) Firewalls **(1mk)**

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……

(ii) Data encryption **(1mk)**

……

……

5.Differentiate between the following terms as used in word processing **(3mks)**

(a) Drop Cap and Case

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……

……

(b) Superscript and subscript

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……

(c) Indent and tab

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6.(a) Use the table below to answer the question that follows.

Actual character	**Symbolic character**	**Actual character**	**Symbolic character**
A	R	O	A
B	S	P	@
C	Q	Q	+
D	N	R	P
E	L	S	H
F	U	T	$
G	#	U	J
H	!	V	M
I	Z	W	K
J	B	X	%
K	T	Y	;
L	Space	Z	Y
M	C	.	F
N	W	Space	G

What is the meaning to the following message? **(1mk)**
@PZMRQ;GZHGZC@AP$ RW$ F

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(b) A computer novice to you for expert advice on the printer to use. He wanted to know the difference between impact and non impact printers and TWO examples of each.
What would be your advice?
Difference. **(1mk)**

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Examples

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7.Describe the following terms as used in internet

(a) Webpage **(1mk)**

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(b) Blog **(1mk)**

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(c) Hyperlinks **(1mk)**

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(d) Web portal **(1mk)**

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8.(a) Give four advantages of DTP over a word processor **(2mks)**

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(b)Differentiate between the following

(i) Kerning and tracking **(2mk)**

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(ii)Margins and column guides **(2mks)**

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9.Explain the term simulation **(1mk)**

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10. Differentiate between baseband and broadband signal as used in networking **(2mks)**

(a) Baseband signal

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(b) Broadband signal

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11. Explain how the operating system controls the following resources **(3mks)**

(i) Processor

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(ii) Main memory

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(iii) Input and output devices

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12. What is deadlock in reference to operating systems (1mk)

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13. (a) The most popular type of electronic data storage currently use magnetic disk storage such as hard disk or Winchester disk. Give two reasons as to why they are popular (2mks)

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(b)Outline two advantages of hard disk over floppy disk (2mks)

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14. The following numbers was entered by a computer user into a system 5.66894 and the first time it displayed 5.66 on the screen, he entered it again and it displayed 5.67;explain the type of errors that occurred during data processing. (2mks)

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15. Explain two ways of protecting data and information against unauthorized access **(2mks)**

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SECTION B (60 MARKS)

Answer *question 16 and any other three questions.*

16. (a) State any three differences between an Interpreter and a Complier **(3mks)**

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(b)State the stage of program development in which **(2mks)**

(i) A flowchart would be drawn.

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(ii) The programmer would check whether the program does as required

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(iii)User guide would be written

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(iv)The requirement specification would be written

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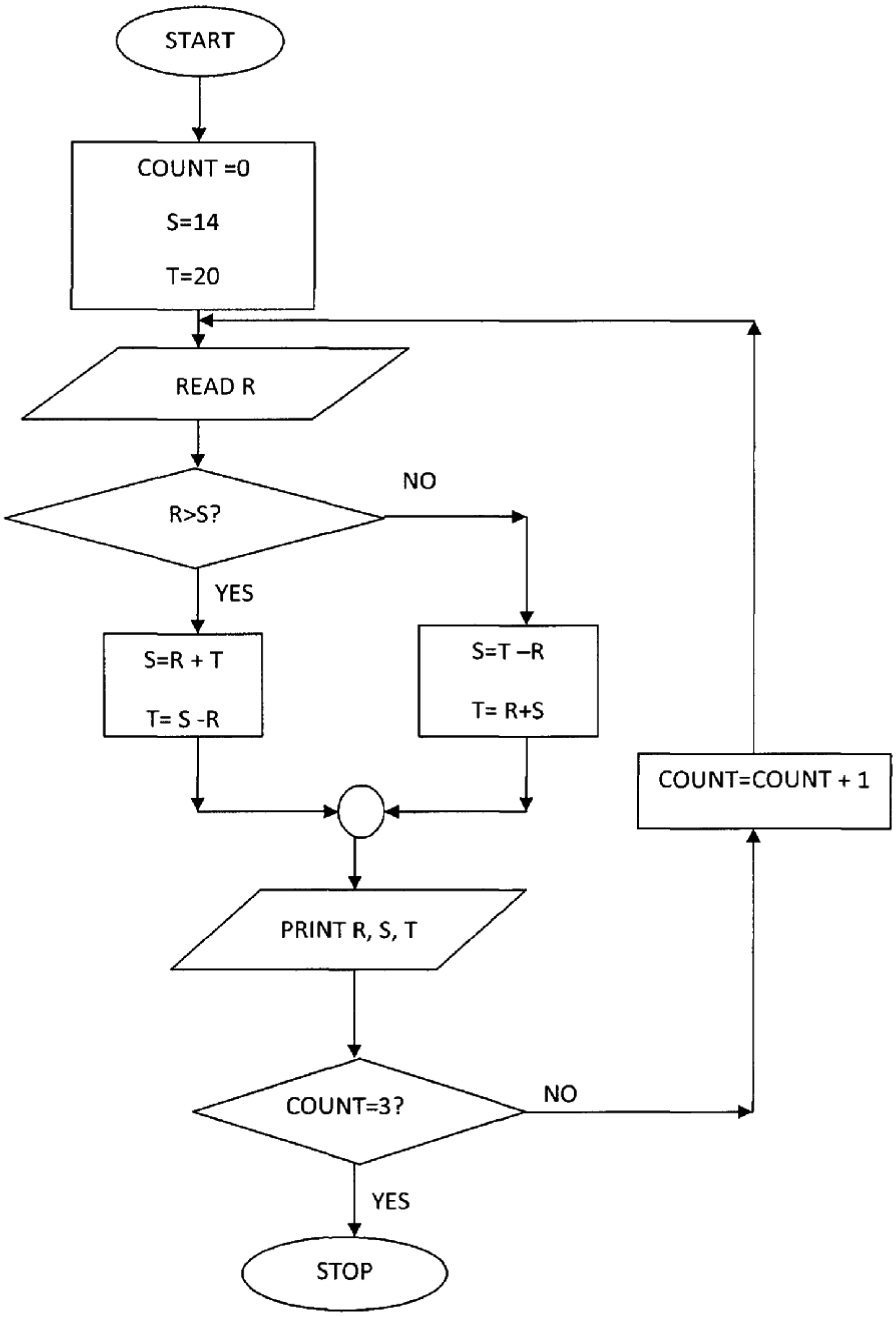
(c)Study the flowchart below and answer the questions that follow



(i) What would be the output if the following values were input 40,20,15,1 **(2mks)**

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(ii) Write a pseudo code for the flowchart in question 16c) **(8mks)**

17. (i)Differentiate between sequential file organization and serial file organization **(2mks)**

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(ii)Identify two limitations serial file organization brings to data processing **(2mks)**

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(b)Work out using two's complements

(i) 57_{10}-29_{10} **(3mks)**

(ii) 11001_2+(-111101_2) **(3mks)**

(c) Find the BCD equivalent of 37_{10} **(2mks)**

(d) Explain two reasons why Twos complements is more popular in representing negative numbers in computer systems **(2mks)**

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(e)What advantage do the octal and hexadecimal number systems bring in computing? **(1mk)**

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18. (a)A computer user was using a network link to access computer outside a LAN. When he could not access the contents of a particular computer he guessed the password and was allowed to access.

(i) Name the likely computer crime he was committing (2mks)

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(ii) Describe two intervention measures which the network administrator of the intruded network could be used to detect and curb the crime? (2mks)

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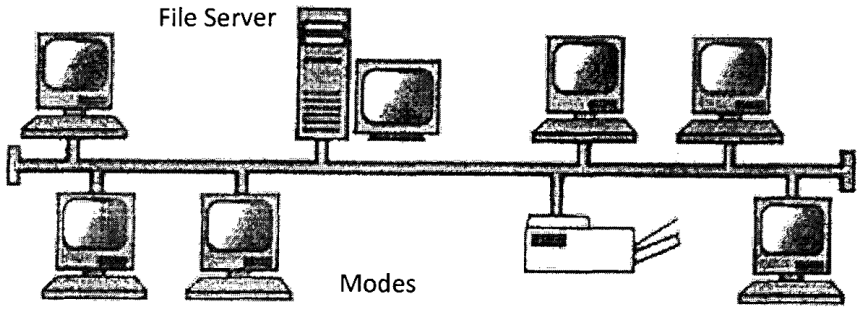
Study the figure below and answer the questions that follow.



(b(i)Identify the network topology depicted in the diagram above **(1mk)**

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(ii)State two advantages of the above network topology **(4mks)**

Advantages

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Disadvantages

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(c)A new journalist has a digital camera attached to a laptop, a microphone and a high speed broadband internet connection for reporting back to the broadcasting house.

(i) Identify this type of internet service at work for this journalist **(1mk)**

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(ii) List down any two advantages of using this kind of internet service **(2mks)**

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(iii) What is a broadband connection? **(1mk)**

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(iv) How were the devices listed below used by the journalist? **(2mks)**

(a) Digital Camera

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(b) Microphone

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19. (a) What is Virtual reality **(2mks)**

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(b)Explain the following interactive equipment used in virtual reality **(2mks)**

(i) Head gear

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(ii)Body suit

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(c)(i) What is Artificial Intelligence? **(2mks)**

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(ii)Explain three components of an experts system **(6mks)**

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(d)Most computerized security systems make use of Biometric analysis ,name three physical features of human beings that can be considered in this analysis **(3mks)**

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20. (a)Explain the following terms

(i) Database **($^1/_2$ mk)**

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(ii) Database management system **($^1/_2$ mk)**

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(iii) Hierarchical database **(1mk)**

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(iv) Relational database **(1mk)**

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(v) Network database **(1mk)**

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(b)List four advantages of using an electronic system for storage of data over the file approach **(4mks)**

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(c)Study the spreadsheet below and answer the questions that follow

	A	B	C	D
1	WESTERN COMPBOOK CENTRE SALES			
2	BOOKTITTLE	*PRICE PER BOOK*	*BOOKS SOLD*	
3	DBASE IV	400.00	145	
4	LOTUS FOR DUMMES	460.00	15	
5	OFFICE WORD IN 3 DAYS	300.00	65	
6	LEARN C++IN 3 DAYS	700.00	100	
7	TEACH YOURSELF PASCAL	700.00	200	
8	COMPUTER STUDIES	500.00	300	
9	THE CLEVER FOOL COMUTER	300.00	10	
10				

(i) Write down the formula that can be used to find the price of the most costly book **(1mk)**

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(ii) Write down the formula that can be used to determine the total sales for the book titled COMPUTER STUDIES **(1mk)**

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(iii) Write down the formula that can be used to determine the average price of the books **(1mk)**

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(iv) Write down the formula in cell D6 that can be used to find the new price per book if they went up by a percentage written in cell B 10 and the formula has to be entered only in cell D3 then be copied to others. **(1mk)**

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(v) Write down the output in D7 if in B6 is 10% **(1mk)**

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(d)State any four advantages of using an electronic spreadsheet as compared to a traditional worksheet **(2mks)**

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BRILLIANT STUDENTS TOP EXAMINERS MOCK SERIES 1

NAME: ……..

SCHOOL: ……...……

ADM NO: …….. SIGN: ……. DATE: ……..

451/2
COMPUTER STUDIES
PAPER 2
TIME:2 ½ HOURS

INSTRUCTIONS TO CANDIDATES

- Type your name and index number at the top right hand corner of each print out and your CD
- Write the version of software used for each question attempted
- Write your name and index number on the CD
- Password should not be used while saving in the CD
- Answer ALL the questions
- All questions carry equal marks
- Hand in all printouts and the CD

FOR OFFICIAL USE

QUESTION	MAXIMUM SCORE	STUDENT SCORE
1	50	
2	50	
TOTAL	**100**	

Question 1

Scenario

You have been asked by the cabinet secretary for Transport to create a spreadsheet and a chart to show the number of serious traffic accidents in Kenya over a period of years. You've found the raw statistics at the Kenya Government Website, but now you need to work with the data. In particular, the secretary wants you to create a chart to show;

- For accidents resulting in fatalities, what percentage involved alcohol and what percentage did not
- For accidents resulting in injuries what percentage involved alcohol and what percentage did not
- For accidents resulting only in property damage, what percentage involved alcohol and what percentage did not.

Figure 1 below represents the raw statistics downloaded from the government website.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	TABLE1												TABLE 2			
2		MAJOR TRAFFIC CRASHES												**Fatality**	**Injury**	**Damage**
3		All Crashes						**Alcohol Related Crashes**					**Alcohol**			
4	Year	Total	Fatality	Injury	Damage		Year	Total	Fatality	Injury	Damage		**No Alcohol**			
5	1986	20854	108	7814	12932		1986	987	26	516	445					
6	1987	23625	128	8624	14875		1987	1051	35	520	496					
7	1988	26072	129	8963	16980		1988	1103	27	519	557					
8	1989	26894	127	8888	17879		1989	1018	26	497	495					
9	1990	26640	154	9745	16741		1990	1215	31	595	589					
10	1991	21840	119	9046	12675		1991	951	27	496	428					
11	1992	21835	121	9359	12355		1992	847	21	439	387					
12	1993	21471	110	9564	11786		1993	853	29	461	363					
13	1994	19851	118	9172	10569		1994	773	16	416	341					
14	1995	16581	132	8939	7524		1995	686	12	412	262					
15	1996	13285	117	7913	5240		1996	655	17	408	230					
16	1997	12445	131	7642	4686		1997	633	9	387	237					
17	1998	11542	113	7016	4413		1998	744	17	457	270					
18	199	10567	90	6570	3907		1999	676	12	408	256					
19	2000	11094	116	6846	4132		2000	651	15	422	214					
20	2001	10848	133	6125	4590		2001	468	15	270	183					
21																
22																
23																
24																

(a) Use suitable application software to capture the data in figure 1.Format the data accordingly

Save this file as **AutoAccidents1**. **(22mks)**

(b)

(i) Delete columns Fand G **(1mk)**

(ii) Type the label"**Total**" in cell A21, "Average" in cell A23, "**Lowest"** in cell A24. **(1mk)**

(iii) Insert functions in row 21,22,23 and 24 to get the sum number of crushes that occurred in the reported years **(1mk)**

(iv) To avoid confusing the number of accidents in each year with the total of the accidents over the whole range of years, change the labels in cells B4 fro **Total** to **Numbers** **(1mk)**

(v) Format all the numbers in range B5:120 so that a comma separator at the thousand's place.(Example:3,789 instead of 3789). **(1mk)**

(vi) Save this file as **Auto Accidents2**. **(1mk)**

(c) (i) The data in this table has different sections. To make it easier to tell what each section is about, merge and center the following ranges so that the labels are centered over corresponding data;

B2:12 **(1mk)**

B3:E3

F3:13

MAJOR TRAFFIC CRASHES IN KENYA **(1mk)**

(iii)In order to visually separate data on all crashes from those that were alcohol-related: Create an outline border around the cells in the B 3:E21,and around cells in range F3:21. **(1mk)**

(i) To increase readability, make all of the sections labels in the B2:14 range bold **(1mk)**

(ii) To make the labels look neat and tidy, adjust the width of the column A through column 1 to fit their contents **(1mk)**

(iii) Save this files as **Auto Accidents 3** **(1mk**

(d)

(i) You will use **Table 2** (the grey shaded table to the right of Table) to analyze the crashes that involved alcohol vs. crashes that did involve alcohol. Use cell references and formulae to fill in the fatality, injury and damage values for:

(a) Alcohol related crashes **(1mk)**

(b)Non alcohol related crashes **(1mk)**

(ii)Create a **Blue** outline border around the cells in the range L5:P21 **(1mk)**

(iii)Save this file as **Auto Accidents 3** **(1mk)**

(e)Use table 2 data (range M2:P4)to

(i) Create a 100% Stacked Column chart with 3D effect **(1mk)**

(ii)Title the chart "Alcohol vs.**Non Alcohol Related Crashes**" **(1mk)**

(iii)Place the legend at the bottom **(1mk)**

(iv) Place the chart: directly under Table 2 and directly to the right of Table 1 .Resize the chart to fit inside the empty blue box.(i.e the boundary outline created in question d)ii above. **(1mk)**

(v) Save this file as **Auto Accidents4** **(1mk)**

(f) Change page set up so that:

i. It has a landscape orientation **(1mk)**

ii. It is scaled/resized to fit on one page by one page(i.e on one page only) **(1mk)**

iii. It has 1 inch margins all round (left,right,top and bottom) **(1mk)**

iv. Customize the header so that it; has your full name in the left section. Your index number in the section and current date in the right section **(1mk)**

v. Save this file as AutoAccidents5 **(1mk)**

(g) Print the spreadsheet **(1mk)**

Your finished products should resemble the one in figure 2 below.

Question 2

Witu Company is an organization that has employed several workers .In order for it to monitor the performance of its workers and the different duties assigned to its workers, the company needs a database to organize the information required.

(a) Create a database file and name it records 2016 **(2mks)**

(b) (i)Using the table below create the appropriate fields and split the data into two tables ,one for storing employees records and the other for storing employment records and give them appropriate names

(8mks)

EMPLOYEE NO.	NAME	DEPARTMENT	MARITAL STATUS	SALARY	AGE
2213	JOHN CLAY	TRANSPORT	MARRIED	8,000.00	35
2214	ROSE JOHNS	CUSTOMER CARE	MARRIED	10,000.00	40
2215	PETER ROGERS	HEALTH	MARRIED	50,000.00	45
2216	JED OTIENO	FINANCE	SINGLE	20,000.00	25
2217	VINCENT JED	TRANSPORT	SINGLE	8,000.00	20
2218	ALLAN LIMO	CLEANING	SINGLE	4,000.00	22
2219	PETER OLOO	MARKETING	MARRIED	80,000.00	35
2220	HUSSEIN KIMAN	FINANCE	SINGLE	15,000.00	26
2221	ROBERT KIBANI	SECURITY	SINGLE	5,000.00	28
2222	JANE LESSOS	SECRETARY	MARRIED	6,000.00	31
2223	LUCY OJWANG	CUSTOMER CARE	MARRIED	8,000.00	30

(ii) Create screens for each table for inputting the data in the table above **(12mk)**

(iii)For each of the tables, choose the most appropriate primary key **(2mks)**

(iv)Create a relationship between the two tables **(2mks)**

(c.)Create a query to display the files Name, Department and Salary for those employees who earn more than 10,000.00.Save as experts **(5mks)**

(d)(i)Generate a tabular report with landscape orientation from the table to display the fields in the following order **(5mks)**

EMPLOYEE NO., NAME, SALARY, DEPARTMENT, AGE

(ii)Sort records in the report in alphabetical of the name field **(2mks)**

(ii)Compute the total of salary for all the employees and place it below the salary column. Save as **Expenses** **(5mks)**

(iv)Create a query to display the workers years of birth and save it as YOB **(3mks)**

(e)Print the two **tables ,experts, expenses** and **YOB** **(2mks)**

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BRILLIANT STUDENTS TOP EXAMINERS MOCK SERIES 1

NAME: ……..

SCHOOL: ……...……

ADM NO: …….. SIGN: ……. DATE: ……..

313/1
CHRISTIAN RELIGIOUS EDUCATION
PAPER 1
TIME: 2 ½ HOURS

INSTRUCTIONS TO CANDIDATES

*i) Write your **Name** and **Index** no in the spaces provided*

ii) *Answer **Any five (5)of the given** questions* in the material provided

FOR EXAMINER'S USE ONLY

QUESTION	1	2	3	4	5	6
MARKS						
TOTAL						

1.(a) Outline **Eight** similarities between the biblical concept of sin and the traditional African view of evil **(8mks*)***

(b) State **six** teachings about man from the the Genesis stories of creation **(6mks)**

(c) Give **six** ways in which God speaks to Christians today **(6mks)**

2.(a)Narrate the breaking of the Sinai Covenant (Exodus 32:1-29) **(7mks)**

(b)State **seven** ways through which the Israelites worshipped God in the wilderness **(7mks)**

(c)Outline **six** reasons why Christians are encouraged to repent their sins **(6mks)**

3.(a)Highlight on the factors that led to religious schism between Judah and Israel **(7mks)**

(b)Narrate the incidence when Ahab took Naboth's vineyard (1kings21) **(7mks)**

(c)State six lessons Christians learn from the story of Naboth and the Vineyard about church –state relationship **(6mks)**

4.(a) State **six** importance of prophets in Israel **(6mks)**

(b)Explain **seven** relationships between the Old Testament prophecies and the New Testament **(7mks)**

(c) Identify **seven** attributes of God that Christians learn from the vision prophet Amos saw during his call **(7mks)**

5.(a) With reference to Jeremiah's teachings explain **four** symbolic acts related to hope and restoration **(8mks)**

(b) State **six** factors that led Nehemiah to engage in prayer **(6mks)**

(c)Outline **seven** causes of human suffering today **(7mks)**

6.(a)Sate Eight importance of kinship system in traditional African society **(8mks)**

(b)Explain the changes that have taken place in African understanding of land **(6mks)**

(c)State how modern trends have affected burial rites in traditional African communities. **(6mks)**

BRILLIANT STUDENTS TOP EXAMINERS MOCK SERIES 1

NAME: ……..

SCHOOL: ……..……

ADM NO: …….. SIGN: ……. DATE: ……..

313/2
CHRISTIAN RELIGIOUS EDUCATION
PAPER 2
TIME: 2 ½ HOURS

INSTRUCTIONS TO CANDIDATES

i) Write your Name and Index no in the spaces provided

ii) ***Answer Any five (5)of the given questions*** **in the material provided**

FOR EXAMINER'S USE ONLY

QUESTION	1	2	3	4	5	6
MARKS						
TOTAL						

1. (a)Outline Isaiah's prophecy about the Messiah on the suffering servant in Isaiah 53 **(7mks)**

(b)What is the role of John the Baptist as a link between the old and the New Testatement. **(7mks)**

(c)List **six** ways in which Christians are persecuted in the modern society **(6mks)**

2.(a)Narrate the parable of the sower (Luke 8:5-8) **(6mks)**

(b)State **Eight** qualities of a true disciple of Christ (luke 6:27-49) **(8mks)**

c) Give reasons why modern preachers use parables in their preaching **(6mks)**

3.(a)List the injustices that occurred during Jesus trial **(7mks)**

(b)Describe the ascention of Jesus (Luke 24:50-53)

(c) State **seven** ways in which Christians are preparing for the second coming of Jesus Christ. **(7mks)**

4.(a)Describe the New Testament teaching on the unity of believers based on the image of the bride **(6mks)**

(b)Identify **six** signs which confirmed the manifestation of the Holy Spirit on the day of Pentecost**.(6mks)**

(c) State ways in which Christians are using the fruits of the Holy Spirit to spread the gospel. **(6mks)**

5.(a)Explain the Traditional African understanding of marriage. **(7mks)**

(b)List **six** forms of abuse that children go through in child labour. **(6mks)**

(c) Give **seven** uses of leisure. **(7mks)**

6.(a)State **six** reasons why some Christians are reluctant to donate blood. **(6mks)**

(b) Describe **six** ways through which water is polluted in Kenya. **(6mks)**

(c)Explain **four** reasons why Christians support organ transplant. **(8mks)**

BRILLIANT STUDENTS TOP EXAMINERS MOCK SERIES 1

NAME: ……..

SCHOOL: ……...……

ADM NO: …….. SIGN: ……. DATE: ……..

101/1
ENGLISH
PAPER 1
(FUNCTIONAL SKILLS)
TIME: 2 ½ HOURS

INSTRUCTIONS TO CANDIDATES

a) Write your name, index number and the name of your school in the spaces provided.

b) Answer ALL the questions in this paper in the spaces provides.

Question	Maximum score	Candidate's score
1	20	
2	10	
3	30	
Total	60	

1.FUNCTIONAL WRITING

You are the secretary of the Mambo Leo Youth Empowerment group which has eight members. The group is holding the second meeting of the year in which the following agenda will be discussed.

- Income generating project
- Elections
- Chairman person's report

Write an email, notifying members about the meeting. **(20mks)**

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2.**THE CLOZE TEST** **(10MRKS)**

Read the following passage and fill in the blank spaces with the most appropriate words.

As schools get to the homestretch of the last _____ of the year, class eight and form four candidates will be gearing up for the October/November KCPE and KCSE examinations _____**.**This is a very delicate period for them because all their efforts could go to waste if proper guidance is not provided.

Having spent eight and four more years respectively preparing for their 3_____ examinations, candidates need to be guided appropriately as we inch 4_____ the examination period. It is important to understand the role each education stakeholder must play. Today I want to address myself to one of the key players; the parents.

First, parents must speak to their 5_____with empowerment. Avoid disagreeing language that could cast doubt in the child's preparedness. Bear in 6_____that your relationship with your child is not depended on KCPE or KCSE, or does 7_____**?** Secondly, parents must be there for their children. 8_____parents will cause emotional and psychological burdens to candidates. Sometimes a well prepared candidate performs dismally because of parental issues. Fourthly, parents must 9_____**all** the required examination materials for their children. Buy them new materials for there is some energy that comes with doing an examination with brand new stationery. They should not just be 10_____ but sufficient. Fourthly, visit your child who is in boarding school for this gives them much needed parental support.

3.ORAL SKILLS **(30MKS)**

a) Read the following narrative and answer the questions that follow.

Once the gazelle helped the hare out of a hole where he had tripped and fallen. It so happened that the gazelle fell into a hole the next day and when the hare was passing by, the gazelle cried out to him for help.

"What!" Shouted the hare. "It's you again in the hole? I will not help you out. The trouble with you is that you go jump-jumping and leap-leaping in the air instead of looking where you are going. Goodbye my friend."

In his pride, the hare forgot that the path he was travelling was full of hunters' traps. Suddenly, he was trapped. As he cried for help, the gazelle who had managed to get out of the hole by himself passed by.

"What goes around comes around." Said the gazelle as he sauntered away with happiness.

i. How would you make this story interesting when narrating it **(6mks)**

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ii. Pick three features that show this is an oral narrative? **(3mks)**

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iii. What do you think is the possible reaction of the audience when the hare is speaking? Give a reason for your answer. **(2mks)**

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b) Say whether the following statements end with a rising or falling intonation (5mks)

i. What a beautiful house you have!**.....**

ii. Who put this books here?**.....**

iii. Stop where you are!**.....**

iv. Did you talk to the principal?**.....**

v. Is this the key you were looking for?**.....**

c) Provide homophones for the following words. **(5mks)**

Key **……**

Berry**……**

Gate**…….**

Aunt**…….**

Lead (metal)**…….**

d) Mary was delivering a speech on the importance of trees. She stopped mid-way trying to look for words and broke down to tears as she walked off stage. What could have been the possible reason for this stage fright? (4mks)

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e) State the fifth stage of riddling session and explain why the stage is necessary. **(2mks)**

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f) Explain how one is expected to dress when going for an interview. **(3mks)**

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BRILLIANT STUDENTS TOP EXAMINERS MOCK SERIES 1

NAME: ……..

SCHOOL: ……...……

ADM NO: …….. SIGN: ……. DATE: ……..

ENGLISH
101/2
COMPREHENSION, LITERARY APPRECIATION AND GRAMMAR
TIME: 2 ½ Hours

INSTRUCTIONS TO CANDIDATES

- Write your **Name**, **Admission number** and **class** in the spaces provided above.
- **Sign** and write the **date** of examination in the spaces provided above.
- Answer **all** questions in this paper.

FOR EXAMINERS USE ONLY.

QUESTION	MAXIMUM SCORE	CANDIDATE'S SCORE
1	20	
2	25	
3	20	
4	15	
TOTAL SCORE	**80**	

1.Comprehension (20marks)

Read the passage below and then answer the questions that follow

People must be careful the kind of personal information they post on sites. It is difficult to imagine life in what seems like a century ago without the internet and the cell phone. Just how did we manage our lives before the age of instant communication at a fraction of the cost of the landline?

As a little child in 1960's, I could not visualize what my teenage sons do with technology today.

Could I have even dreamt of a cell phone, a device that I could have taken to school with me and been able to chat with my friends wherever I was and whenever I wanted? You know the answer. However, today's heaven of instant communication can easily turn into the hell of deadly sin. I mean quite literally.

Instant communication devices and portable entertainment products could of course be addictive to anybody, but such addiction can be particularly destructive to young people in school. They can distract students from homework and house chores. They can also damage ear drums. Think of the **ubiquitous** iPod which the youth equate to oxygen without which life is unsuitable!

I have even seen some grown men behaving like teenagers with iPods! Last year, a person was killed by a vehicle that spun out of control and hit him as he crossed the road somewhere in the United States. The footage showed clearly that the victim could have heard or seen the rogue vehicle had his ears not been plugged up to loud music.

While I do not want to sound like a Neanderthal, I nevertheless would like to reflect on the perils of this new gadgetry and technology. The first obvious point is that not all technology is good. Think of the A-Bomb for example, and you get my point.

I disagree with those who argue that it is not technology that is bad, but the users who misapply it. This is how some scientists justify their abdication of social responsibility. Thus we do not have to buy every little silly gadget that market puts out. Haven't you noticed that the companies always time the release of these gadgets to Christmas, or some other consumer holiday? They surely know how to apply peer pressure and pit children against parents as a marketing tool. Sometimes I wonder whether capitalism can be any more devious!

To be sure I cannot gainsay the benefits of new technologies. The computer and the internet are without doubt the greatest inventions of our age. Information and knowledge that was inaccessible just several decades ago is now a click away even in the remotest village in the world. And it is all quite cheap. Access to information and knowledge is being democratized in a way that was unthinkable just a few decades ago. Think about the revolution of the cell phone for the individual communication and business transactions. Landlines are becoming virtually obsolete. It is this revolution that should lift millions out of poverty in the near future.

But these advances come with perilous clouds over them. I particularly, I want to focus on social networking sites and the dangers of the instant transmission of information and images. We have known for a long time that the internet is the new Wild West where everything goes.

Countries that are afraid of democracy and dissent, like China or Syria, limit, monitor, control, censure or deny access to the internet. They claim they must keep at bay pornography and sexual predators like pedophiles who troll the interment with demonic schemes. These are real problems, but do not think that censorship is the answer. Cyber surveillance by law enforcement and the prosecution of these malignant forces is the only effective and civilized response.

But individuals must themselves act responsibly. Ultimately, the **pivot** of any democracy responsible citizen action. This is where parents, civil society and the media come in. Take Face Book, the wildly popular social networking site, for example. Some of the things I have seen there are downright stupid, dangerous, malevolent or just plain crazy. Teenagers on these sites sometimes communicate with imposters bent on luring the naïve to a dead end. How many times have we seen reports of some 60-year-old pervert posing as a teen? Even scarier, how many times have we read about such rendezvous ending in a fatality? There are other less deadly, but very destructive dangers. Prospective employers are increasingly looking into social networking sites for personal information about applicants. Even some colleges are snooping around for information about prospective students. There are reports that some people have been rejected because of the personal information they posted to the sites. Such information has ranged from **lurid** pictures to abusive language.

This means that young folks must be very careful about posting intimate details including personal pictures and other personal data such as birth dates, personal ID numbers and home address on such sites. Such information about yourself can only hurt you if displayed for the entire world to see. Teenagers need to be particularly careful about the new fad of "**sexting**". This is an epidemic in New York among teenagers. Teens and other young people are sending nude pictures of themselves to their friends or lovers. A large number of such pictures have been shared widely beyond the intended audience. In one case, a child whose nude pictures were revealed took her own life. It can cause untold grief.

Questions

1.Why not censor modern technology? **(2mks)**

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2.What is the purpose of a cell-phone? **(2mks)**

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3.make notes on the dangers of modern technology. **(6mks)**

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4.What is the attitude of the author towards modern technology? **(2mks)**

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5.How do scientists justify their innovations. **(1mk)**

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6.What is implied by the expression "perilous clouds" **(2mks)**

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7.Write the following sentence in indirect speech. **(1mk)**

I wonder whether capitalism can be more devious!

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8.Explain the meaning of the following words; (4mks)

i) Lurid

……

……

ii) Pivot

……...…

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iii) Sexting

……...…

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iv) Ubiquitous

……...…

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Read the extract below and answer the questions that follow. (25 marks)

"Who? Not me," Resian said vehemently "I don't want to be a parent. At least not in the foreseeable future. I want to study. When I'll have obtained my degree, other peripheral matters such as a husband, children and such may be considered."

They were walking back to the homestead talking animatedly when they were accosted by a tall heavyset young man with a thick dark beard and moustache. He wore a pair of faded jeans and a dirty blue shirt. On his face was a wide impudent grin. Taiyo glanced at the young man and looked away. She moved closer to Resian and nudged her to change direction. But the man walked directly to Taiyo. On seeing the man approaching, a heavy knobkerry in his hand, Resian almost fainted.

"Please do not harm us," she pleaded. "We do not have any money with us."

"Who told you I want any money?" the man jeered as he strode menacingly towards them. "Are you

not the *intoiyenemengalana* from Nakuru town?" he asked laughing contemptuously. "I want to have a good look at you and know what kind of stuff you are made of!" He roughly grabbed Taiyo's arm.

"Leave my sister alone!" Resian hissed indignantly lifting her eyes and glaring into his. "Let go her arm at once!"

"Let go of my hand," Taiyo demanded, trembling with anger. "We are not the kind of women you have in mind!"

"What women!" the man retorted acidly. "Soon, you will be able to differentiate decent women from *intoiyenemengalana."*

Taiyo tried to wrestle her arm from the man's grip without success. But suddenly, he seemed to change

his mind. With a sour smile, he spat and glared at the girls. Then, releasing Taiyo's hand, he told them: "You have not seen the last of me. Soon you will come to know that there is no place in our society for women of your ilk." He turned and disappeared down the road as suddenly as he had appeared.

The two girls sighed heavily and shook their heads as they watched him walk away. Although they had put up brave faces, they were terribly shaken.

"Thank God his intention was not to rape us," Resian said tears streaming down her face. "We would have been helpless in the hands of such a brute."

Taiyo bit her lower lip struggling to maintain control. "His intention could have been worse than rape," she said, tears of anger and indignation welling up in her eyes.
They quickened their steps to their uncle's home. True, the incident had taken the sparkle from the day that had begun so joyfully, but they reasoned that it could have been worse.

The girls debated as to whether to inform their parents of the ordeal. They knew their mother would understand and empathize with them. But judging from past experience, their father would be less supportive. He would blame them for having dared venture into an unknown territory without his approval. Finally, they decided to keep the incident to themselves.

(a) Briefly discuss the events leading to Resian's question "Who?" in the excerpt. **(3marks)**

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(b) "Thank God his intention was not to rape us," Resian said tears streaming down her face. "We would have been helpless in the hands of such a brute." *(Rewrite as a reported speech*) **(1mark)**

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(c) Describe two similar traits demonstrated by both Resian and Taiyo in the excerpt. **(6marks)**

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(d) Discuss two stylistic devices used by the author in the excerpt. **(4marks)**

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(e) Highlight and illustrate two themes presented in the excerpt. **(4marks)**

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(f) "But judging from past experience, their father would be less supportive." Point out two incidences in which the father shows less support to his daughters from what happens in the rest of the novel. **(2marks)**

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(g) What happens immediately after this excerpt? (2marks)

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(h) Give the meaning of the following words as used in the excerpt. (3marks)

i. vehemently……..

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ii. accosted……

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iii .ilk…….

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3. Read the poem below and answer the questions below 20marks)

<u>Advice to my son</u>

The trick is, to live your days

as if each one may be your last

(for they go fast, and young men lose their lives

in strange and unimaginable ways)

but at the same time, plan long range

(for they go slow: if you survive

the shattered windshield and burning shell

you will arrive

at our approximation here below

or heaven or hell)

To be specific, between the peony and the rose

Plant, squash and spinach, turnips and tomatoes;

beauty in nectar

and nectar, in desert saves

but the stomach craves stronger sustenance

than the homed vine.

therefore, marry a pretty girl

after seeing her mother;

speak truth to one man,

work with another;

and always, serve bread with your wine.

But son,

Always serve wine **(Peter Meinke)**

a) Who is the speaker in the poem. Illustrate your answer. **2marks**

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b) In what circumstances do many young people die? Illustrate your answer from the poem. **4marks**

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c) What do heaven and hell symbolize? 2marks

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d) Identify items in the poem that represent life's necessities on one hand and life's luxuries on the other. **2marks**

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e) Identify and illustrate the use of the paradox in the poem. **3marks**

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f) What does the persona mean by 'marry a pretty girl after seeing the mother?" 2marks

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g) The stomach craves stronger sustenance. (Rewrite using (What") 1mark

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h) Give two meanings of each of the following words. 2marks

-Last……..

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-Fast…....

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i) Give the meaning of the last two lines. **2mark**

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4. GRAMMAR (15MKS)

a) <u>Rewrite the following sentences according to the instructions given (6mks)</u>

i) He will not be given a driving license. He passes the road test (Rewrite as one using'unless')

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ii)The woman left the child with a neighbor and went to the market. (Begin: leaving….)

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iii)The boys went to play in the field (underline the adverbial)

……..…

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iv)He said that he had not insulted me. (Use: 'denied')

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e) Write the following sentence in indirect speech(1mk)

"These are juicy mangoes," Ken said.

……..…

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f) You do not require to cheat to pass (1mk) (Supply a suitable question tag)

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b) Supply the correct preposition to complete the sentences given. (3mks)

i. Property worth millions of shillings went up **…….** flames.

ii. The three boys shared the bread **……...**themselves.

iii. We should strive to live **……**our means.

c) Use the correct form of the word in brackets to fill in the blank spaces in the sentences below.(3mks)

i. The audience was offended by the **…….……** (sense) of the speaker.

ii.The **……...**(acquire) of a university degree is a great milestone to a student.

iii)Everyone should obey the law **…….…** (regard) of their position in the society.

d)Use the correct alternative to complete the sentences below (3mks)

i.Teaching **……**(practice/practice) is not an easy job for teacher trainees.

ii.The prophet's **……** (prophesy/prophecy) was misleading to his audience.

iii.He **……** ((insured/ensured) his car with Madison.

BRILLIANT STUDENTS TOP EXAMINERS MOCK SERIES 1

NAME: ……..

SCHOOL: ……..……

ADM NO: …….. SIGN: ……. DATE: ……..

103/3

English Paper 3

FORM 4

TIME: 2 ½ Hours

INSTRUCTIONS TO THE CANDIDATES

a) Answer three questions only.
b) Questions 1 and 2 are compulsory
c) In question 1, choose either (a) or (b)
d) In question 3, choose only one of the optional text you have prepared on.
e) Where a candidate presents work on more than one optional text, the first one to appear will be marked.
f) Each of your essays must not exceed **450** words (2 pages).
g) All answers must be written in the answer booklet provided.
h) This paper consists of 2 printed pages.
i) Candidate should ascertain that both pages are printed as indicated and that no question is missing.

For Examiner's Use Only

Question	Maximum score	Candidate's Score
1	20	
2	20	
3	20	
Total Score		

1. IMAGINATIVE WRITING **20mks**

a) Write a composition beginning with the following. "I knew it was going to be a promising day when…"

Or

b) Dealing with pandemics require a lifestyle change. Discuss.

2. COMPULSORY TEXT- *A DOLL'S HOUSE*

"Women are generally loving and self-sacrificing" .Write an essay in support of this statement drawing your illustration from the play *A Doll's House*.

3. The optional set texts: *Memories we lost and other stories*.

a) The Short Story

***Window seat* - Benjamin Branoff.**

"Window seat is a mirror of the challenges facing the public transport industry." With relevant illustrations draw from the story, Show the truth of this statement.

b) Drama

***Inheritance* by David Mulwa.** **20mks**

Citizens suffer due to bad leadership. Write a composition to qualify this statement citing illustrations from David Mulwa's Inheritance.

c) The novel: *The Pearl* By John Steinbeck. **20mks**

"Fortune can sometimes be tragic"

Validate this statement on reference to John Steinbeck's *The pearl*.

BRILLIANT STUDENTS TOP EXAMINERS MOCK SERIES 1

NAME: ……..

SCHOOL: ……..……

ADM NO: …….. SIGN: ……. DATE: ……..

312/1
GEOGRAPHY
Paper 1
Time: 2¾ hours
INSTRUCTIONS TO STUDENTS

- *This paper has **two** sections **A** and **B***
- *Answer **ALL** the questions in section **A**. In section **B** answer questions **6** and any other **TWO** questions.*

SECTION A

*Answer **all** the questions in this section.*

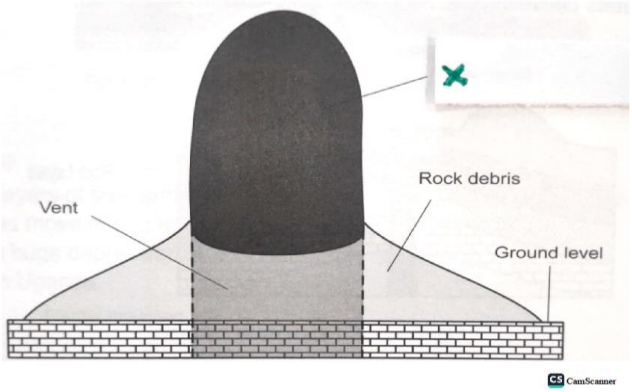
1. (a) State **three** reasons why it is important to study Geography. **(3 marks)**

   (b) What is the relationship between Geography and Agriculture? **(2 marks)**

2.(a) What is weather forecasting? **(2 marks)**

(b) List **three** elements of weather. **(3 marks)**

3.Study the diagram below and use it to answer questions (a) and (b) below:



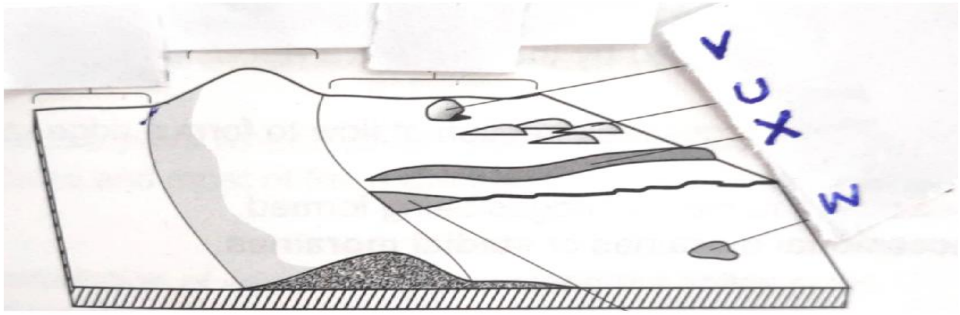
(a) Identify the feature marked **X**. **(1 mark)**

(b) Describe how the feature is formed. **(4 marks)**

4.(a) What is karst landscape? **(2 marks)**

(b) State **three** factors that influence the occurrence of underground water. **(3 marks)**

5.The diagram below shows lowland glaciated features. Study the diagram and answer questions (a) and (b).



(a) What is an outwash plain? **(2 marks)**

(b) Name the features marked **U**, **V** and **W**. **(3 marks)**

SECTION B

*Answer question **6** and any other **TWO** questions from this section.*

6. Study the map of Nyeri **1:50000** (sheet **120/4**) provided and answer the following questions

(a) (i) Name the ***two*** districts in the northern part of the map extract. **(2 marks)**

(ii) Give the latitudinal extent of they are covered by the map. **(2 marks)**

(iii) According to the marginal information provided in the map, what is the magnetic variation of the area when the map was drawn. **(2 marks)**

(iv) Calculate the area of Nyeri forest on the map. Give your answer in square kilometres**.** **(2marks)**

(b) Describe drainage of the area covered by the map. **(5 marks)**

(c) Citing evidence from the map, explain ***three*** factors that favours the growing of coffee in Nyeri area. **(6 marks)**

(c) Explain **three** factors that have influenced settlement in the area covered by the map. **(6marks)**

7. (a) (i) Differentiate between rocks and minerals. **(2 marks)**

(ii) Describe the following characteristics of minerals.

- Color. **(2 marks**)
- Hardness. (**2 marks)**

(b) (i) What are igneous rocks? **(2 marks)**

(ii) State ***three*** differences between plutonic and volcanic rocks. **(3 marks)**

(c) Describe the formation of the following rocks.

(i) Mechanically formed sedimentary rocks. **(3 marks)**

(ii) Chemically formed sedimentary rocks. **(3 marks)**

(d) (i) Identify the missing type of rocks. **(3 marks)**

Original rock	Metamorphic rock
Limestone	(i)
(ii)	Graphite
Granite	(iii)

(ii) Suppose you were to carry out a field study on rocks at the Kenyan coast. State ***two*** reasons as to why you would ask for permission from the school administration. **(2marks)**

(iii) What reasons would you give for the widespread of sedimentary rocks at the coastal plain? **(3marks)**

9. (a) (i) Name ***three*** types of river erosion **(3 marks)**

(ii) Describe the following river erosional presses.

- Abrasion **(4 marks)**
- Solution **(3 marks)**

(b) (i) What is river rejuvenation **(2 marks)**

(ii) Identify ***three*** features that result from river rejuvenation. **(3 marks)**

(c) (i) Name ***two*** types of submerged highland coasts. **(2 marks)**

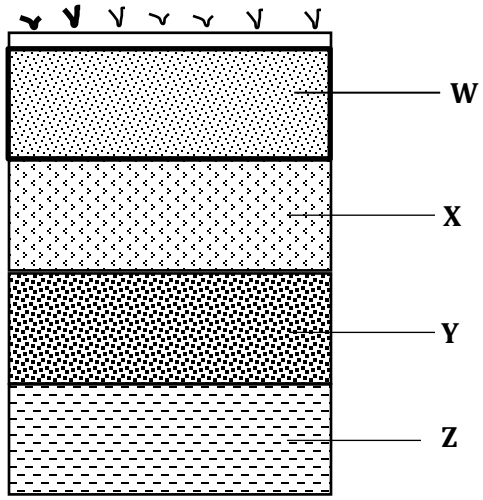
(ii) State ***two*** factors influencing deposition by ocean waters. **(2 marks)**

(d) Explain ***three*** significance of oceans to human activities. **(6 marks)**

10. (a) (i) Differentiate between soil texture and soil structure. **(2 marks)**

(ii) Apart from living organisms, name ***four*** other components of soil. **(4 marks)**

(b) The diagram below shows different layers of soil. Use it to answer questions (b) (i), (ii) and (ii)



(i) Name the soil layers **X ,Y** and **Z** **(3 marks)**

(ii) Give ***two*** main processes of soil formation which takes place in horizon W. **(2 marks)**

(iii) State ***four*** characteristics of soil in horizon X. **(2 marks)**

(c) Explain how the following farming practices may result to loss of soil fertility

(i) Continuous irrigation. **(2 marks)**

(ii) Over grazing. **(2 marks)**

(iii) Over cultivation. **(2 marks)**

(d) Explain ways in which natural vegetation may prevent soil from erosion. **(4 marks)**

BRILLIANT STUDENTS TOP EXAMINERS MOCK SERIES 1

NAME: ……..

SCHOOL: ……..……

ADM NO: …….. SIGN: ……. DATE: ……..

312/2
GEOGRAPHY
PAPER 2
TIME: 2 3/4 HRS

INSTRUCTIONS TO CANDIDATES

a) This paper has **TWO** sections **A,** and **B**

b) Answer all the questions in section A,

c) In section B answer question 6 and any other two questions

SECTION A			SECTION B		
1- 5	6	7	8	9	10

GRAND TOTAL

SECTION A

1.(a)List **three** ways in which open cast mining affects the environment **(2mks)**

(b)State **two** conditions that are necessary for the formation of petroleum **(2mks)**

2.(a)Sate **three** factors that limit the exploitation of tropical hard wood forests in Africa **(3mks)**

(b)Highlight **two** physical factors that favour exploitation of softwood in Cannada **(2mks)**

3.(a)State **two** factors that influence the distribution of wildlife **(2mks)**

(b)What is a game sanctuary **(2mks)**

4.(a)State **four** physical conditions that favour the growing of oil palm in Nigeria **(4mks)**

(b)Name **two** industrial products manufactured from palm oil **(2mks)**

5.(a)List **two** towns in Kenya served by pipelines **(2mks)**

(b)State **three** reasons for smaller areas being forested **(3mks)**

SECTION B

Answer Question Six (6) And any other two questions in this section

6.(a)The table below shows tea and coffee production in Kenya

Years	**Production in tonnes**	
	Tea	**Coffee**
2010	56000	63000
2011	102000	52000
2012	98000	88000
2013	62000	43000

(i) Using a vertical scale of 1cm represent 10000 tonnes, present the above on a compound bar graph **(6mks)**

(ii) Calculate the percentage decrease in coffee production between 2012 and 2013 **(2mks)**

(iii) Give **two** reasons that may have contributed to the decline of coffee production between 2012 and 2013 **(2mks)**

(b)Describe the stages through which tea is processed from picking to the time it is ready for marketing **(5mks)**

(c)Explain **three** ways in which the Kenya Tea Development Agency (KTDA) assists small scale tea farmers in Kenya **(6mks)**

(d)State **four** physical conditions that favour tea growing in Kenya **(4mks)**

7(a)(i)Define the term fisheries **(2mks)**

(ii)Explain **two** reasons why fishing in Lake Victoria is more developed than in Lake Turkana **(4mks)**

(b)Describe seining as a method of fishing **(4mks)**

c) Explain **fou**r factors that favour fishing in Japan **(8mks)**

(d)Highlight **four** steps that the Kenya government should take to promote the fishing industry **(4mks)**

(d)(ii)State **three** reasons why marine fishing is underdeveloped in Kenya **(3mks)**

(8)(i) Differentiate between internal trade and regional trade **(2mks)**

(ii)Name **three** commodities that Kenya imports **(3mks)**

(b)Give **four** reasons why the Southern African Development Co-operation (SADC) was formed **(4mks)**

(d)Explain how the future of international trade in Kenya can be improved **(8mks)**

9(a) State **four** physical factors that influenced the location of Mwea-Teberre irrigation scheme **(4mks)**

(b)Explain **two** benefits of Perkerra irrigation scheme to the Kenyan economy **(4mks)**

(c)State **five** problems experienced in irrigation farming in Kenya **(5mks)**

(d)Describe the stages in the reclamation of land from the sea in the Netherlands **(6mks)**

(ii)State **three** uses of polders in Netherlands **(3mks)**

(iii)Highlight **three** benefits of the Zuydes zee project **(3mks)**

10(a) Distinguish between Transport and communication **(2mks)**

(ii)List at least three means of communication **(3mks)**

(b)State **five** advantages of railway transport over road transport **(10mks)**

(c)State factors that hinder development of water transport in African **(8mks)**

(ii)List **two** navigable rivers in Africa **(2mks)**

BRILLIANT STUDENTS TOP EXAMINERS MOCK SERIES 1

NAME: ……..

SCHOOL: ……...……

ADM NO: …….. SIGN: ……. DATE: ……..

311/1
HISTORY AND GOVERNMENT
PAPER 1
311//1
TIME: 2½ hours

HISTORY AND GOVERNMENT

INSTRUCTIONS TO THE CANDIDATES

1.This paper consist of **three** sections; **A, B** and **C**

2.Answer **All** the questions in section **A, three** questions from section **B** and **two** questions from section **C**

3.This paper has **twenty four** questions. The candidate should ascertain that all the questions are printed.

4.All questions must be answered in the answer booklet provided.

FOR EXAMINERS USE ONLY

SECTIONA (25 MARKS)	**SECTION B (45 MARKS)**				**SECTION C (30MARKS)**		
QUESTIONS 1-17	**18**	**19**	**20**	**21**	**22**	**23**	**24**

SECTION A 25 MARK

Answer all questions in this section

1.Name two periods in the study of history **(2 mark)**
2.What was the original homeland of the River-Lake Nilotes found in Kenya? **(1 mark)**
3.Give the name of the council of elders among the Mijikenda? **(1 mark)**
4.What was the importance of the monsoon winds during the Indian Ocean trade? (**1 mark)**
5.State one political duty that was conducted by the Christian Missionaries in Kenya **(1 mark)**
6.Define dual citizenship **(1 mark**)
7.Identify two social responsibilities of a Kenyan Citizen **(2 marks)**
8.Name two symbols of National Unity **(2 marks)**
9.Give two economic causes of conflicts in Kenya today **(2 marks)**
10. State the main reason for convening the second Lancaster House Conference of 1962. **(1 mark)**
11. Identify two categories of the rights of a child **(2 marks)**
12. Name two leaders who led the Mijikenda resistance **(2 marks)**
13. Name two Education Commissions that were formed in Kenya during the colonial period **(2 marks)**
14. Which organization was formed by the Africans who were elected to the Legislative Council in Kenya in 1957 **(1 mark)**
15. Name the body responsible for conducting elections in Kenya **(1 mark)**
16. Identify the National philosophy that was adopted by president Daniel Arap Moi in 1978 **(1 mark)**
17. Name two types of elections in Kenya **(2 marks)**

SECTION B: 45 MARKS

*Answer any **THREE** questions from this section in the booklet provided*

18. (a) State five reasons for the migration of the Bantu **(5 marks)**
(b) Explain five impacts of the migration and settlement of the Highland Nilotes in Kenya during the pre-colonial period **(10 marks)**
19. (a) Identify five historical sources of information on East African Coast **(5 marks)**
(b) Explain five positive impacts of the Portuguese rule along the Kenyan Coast **(10 marks)**
20. (a) State five reasons why the Nandi were able to resist the British for a long time **(5 marks)**
(b) Explain five reasons why armed resistance failed in Kenya **(10 marks)**
21. (a) State five common characteristics of early political organizations in Kenya **(5 marks)**
(b) Explain five results of the MAU MAU rebellion **(10 marks)**

SECTION C: 30 MARKS

*Answer any **TWO** questions from this section in the booklet provided*

22. (a) Identify three value of a good Kenyan citizen **(3 marks)**
(b) Explain six factors that promote National Unity in Kenya **(12 marks)**
23. (a) Name three organs of National Security in Kenya **(3 marks)**
(b) Explain six challenges facing correctional services in Kenya **(12 marks)**
24. (a) State three principles of devolved government in Kenya **(3marks)**
(b) Explain six challenges facing county government. **(12 marks)**

BRILLIANT STUDENTS TOP EXAMINERS MOCK SERIES 1

NAME: ……..

SCHOOL: ……..……

ADM NO: …….. SIGN: ……. DATE: ……..

Kenya Certificate of Secondary Education

311/2 **HISTORY AND GOVERNMENT** **Paper 2**

Duration: 2 hours 30 Minutes

Instructions to students

(a) This paper consists of three sections; **A**, **B** and **C**.

(b) Answer all the question in section **A**, three questions from section **B** and two questions from section **C**.

(c) Answers must be written in the spaces provided after Question 24.

(d) Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.

(e) Candidates should answer the questions in English.

For Examiners Use Only

Section	**Question**	**Maximum Score**	**Candidates Score**
A	1-17	25	
B	18-21	45	
C	22-24	30	
Total Score		**100**	

SECTION A (25mks)

Answer all the questions in this section.

1. Mention **one** disadvantages of electronic records as a source of history**.** **(1mark)**
2. Give the **main** reason why early agriculture developed in Egypt. **(1mark)**
3. State **two** problems faced by traders using barter system. **(2marks)**
4. Identify the **main** role of the Berbers during the Trans-Saharan trade**.** **(1 mark)**
5 Name **one** metal that was used as currency in pre-colonial Africa. **(1 mark)**
6 Give **one** advantage of using pipeline over vehicles in transporting oil. **(1mark)**
7. Identify **two** negative effects of television. **(2marks)**
8. State the **main** contribution of Dr. Christian Bernard in the field of medicine. **(1mark)**
9. Identify **two** official appointed by the Kabaka to assist him in administration of Buganda in the 19th Century**.** **(2marks)**
10. Give **two** economic reasons which made European countries to scramble for colonies in Africa **(2marks)**
11. Identify **two** communes that were established in Senegal by the French**.** **(2 marks)**
12. State **two** functions of Emirs in Northern Nigeria during colonial era. **(2marks)**

13. Name **one** country in Africa that was never colonized **(1 mark)**
14. Identify two races that colonized South Africa. **(2 marks)**
15. Name the country which was blamed for the outbreak of World War 1. **(1 mark)**
16. Highlight two reasons why Schliffen plan failed during the First World War **(2marks)**
17. State the immediate cause of World War 1. **(1mark)**

SECTION B (45 MARKS)

Answer any three questions in this section

18.(a) Give three reasons why hunting of wild animals was mainly a group activity during the Stone Age period. **(3mks)**

(b) Explain six benefits of settling in villages during the late Stone Age period. **(12mks)**

19.a) Give three methods used to acquire slaves from West Africa during trans-Atlantic trade **(3mks)**

b) Explain six factors that led to the decline of the Trans-Atlantic trade. **(12mks)**

20. (a) Outline three European activities in Africa during the 19th century. **(3mks)**

(b) Explain six results of the collaboration between the Baganda and the British during the process Of colonization. **(12mks)**

21. (a) State five roles which were played by Kwame Nkrumah during the struggle for Independence in Ghana. **(5mks)**

b) Explain five factors which were responsible for the growth of African nationalism in South Africa. **(10mks)**

SECTION C (30 MARKS)

Answer any two questions in this section

22. (a). Give three functions of Lukiiko in the Kingdom of the Buganda during the pre-colonial period. **(3mks)**

(b). Discuss six factors that led to the growth of the Asante Empire by the 19th Century **(12mks)**

23. (a). Name the communes that were established by the French Senegal during the colonial period. **(3mks)**

(b). Describe the structure of the British colonial administration in Northern Nigeria. **(12mks)**

24. a). State three permanent members of the league nations council. **(3mks)**

b). Explain six reason why the league of Nations failed to maintain world peace. **(12mks)**

BRILLIANT STUDENTS TOP EXAMINERS MOCK SERIES 1

NAME: ……..

SCHOOL: ……...……

ADM NO: …….. SIGN: ……. DATE: ……..

441/1

HOME SCIENCE

PAPER 1

TIME:2 ½ HOURS

INSTRUCTIONS TO CANDIDATES

a) Write your name and index number in the spaces provided above
b) Sign and write the date of the examination in the spaces provided above
c) This paper consists of THREE sections A,B and C
d) Answer ***all*** the questions in section A,B and any TWO in the section C in the spaces provided.
e) Candidates should answer all questions in English

For examiners use only

SECTION	QUESTION	MAXIMUM SCORE	CANDIDATES SCORE
A	1 -21	40	
B	22	20	
C		20	
		20	
TOTAL SCORE		**100**	

SECTION A (40 MARKS)

Answer all the questions in this section in the spaces provided

1.Suggest any two ways in which the flavor of food can be enhanced **(2mks)**

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2.Mention two factors which affect the prices of fruits and vegetables in the market **(2mks)**

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3. State two ways of enhancing personal hygiene **(2mks)**

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4.Mention two immunizable diseases caused by viruses **(2mks)**

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5. Mention two factors that have led to the growing use of convenience foods **(2mks)**

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6.Give two reasons for blanching vegetables before freezing **(2mks)**

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7.State two uses of bodkin during clothing construction **(1mk)**

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8.Name the gum like substances in fruits that is responsible for jam setting **(1mk)**

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9.Give four forms in which laundry soap is made available in shops **(2mks)**

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10. Outline two reasons for kneading the dough in yeast mixture preparation **(2mks)**

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11. Give the function of the following parts of a sewing machine **(2mks)**

(a) Slide plate

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(b) Feed dog

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(c) Tape –up lever

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(d) Presser foot

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12. List two precautions to take when handling and storing fuels in the home **(2mks)**

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13. State two reasons for using carpets in home furnishing **(2mks)**

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14. List two reasons why refuse should be disposed of appropriately **(2mks)**

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15. Give four advantages of hospital confinement **(2mks)**

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16. Suggest two points you would observe before stain removal **(2mks)**

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17. Give two reasons that make fluorescent fitting preferable for the kitchen **(2mks)**

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18. Mention two ways in which the study of Home Science benefits a community **(2mks)**

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19. State two factors that determine the cleansing action of a detergent **(2mks)**

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20. Give two needs of the sick that may affect the healing process **(2mks)**

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21. Suggest two reasons that may lead to another giving birth to a deformed baby **(2mks)**

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SECTION B (20MARKS)

COMPULSORY

Answer question 22 in the spaces provided

22. Your mother is away attending a seminar and has asked you to help the househelp with a few chores in the house over the weekend.

(a) Explain how you would thoroughly clean a discoloured melamine cup (5mks)

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(b) Describe how you would clean a hurricane lamp and leave it ready for use (omitting the glass) **(9mks)**

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(c) Outline the procedure you would follow to dry clean and finish your father's polyester tie **(6mks)**

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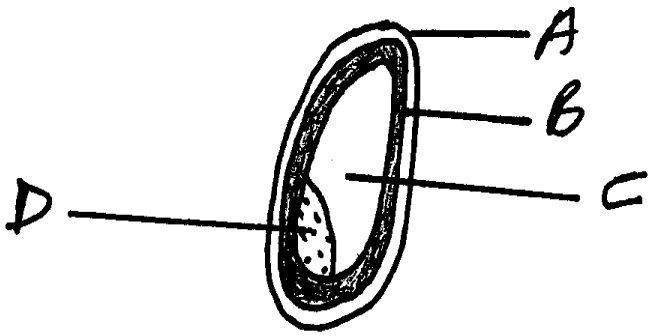
SECTION C (40MKS)

Answer any two questions from this section in the spaces provided at the end of this section

23. (a) Explain six dangers of land pollution to mankind **(6mks)**

(b)The diagram below shows a longitudinal section of a wheat grain



(i) Label parts A,B,C,D **(4mks)**

(ii) Name two nutrients found in part A and two found in Part D **(2mks)**

(c)Outline 4 advantages of proper ventilation in a house **(4mks)**

(d)Giving examples explain four reasons for fullness control in construction processes **(4mks)**

24. (a)Name 4 agencies that protect consumers and their functions **(4mks)**

(b)Outline 4 preparations that one needs to carry out on a sewing machine in readiness to stitching **(4mks)**

(c)Explain 3 nutritional needs of the elderly **(6mks)**

(d)Describe 3 factors to consider when choosing a seam in garment construction **(6mks)**

25. (a)Explain three factors you would consider when choosing flowers for a flower arrangement **(6mks)**

(b)Outline four practices to safeguard against occurrence of food spoilage and poisoning in the home **(4mks)**

(c) Describe 4 qualities of a well made dart **(4mks)**

(d)(i)Interpret the following care label symbols; **(3mks)**

(ii)Explain three reasons for repairing clothes before laundry process **(3mks)**

BRILLIANT STUDENTS TOP EXAMINERS MOCK SERIES 1

NAME: ……..

SCHOOL: ……...……

ADM NO: …….. SIGN: ……. DATE: ……..

441/2

HOME SCIENCE (CLOTHING AND CONSTRUCTION)

PAPER 2

PRACTICAL

TIME:2 ½ HOURS

INSTRUCTIONS TO CANDIDATES

f) Write your name and index number in the spaces provided above

g) Candidate should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.

h) Candidates **MUST** use machine stitches appropriately in the construction of the garment. Hand stitches used **INSTEAD** of machine stitches will not be marked .

i) Hand stitches will only be allowed for the making of hemming ,embroidery and tacking stitches.

For examiners use only

SECTION	QUESTION	MAXIMUM SCORE	CANDIDATES SCORE
A	1 -21	40	
B	22	20	
C		20	
		20	
TOTAL SCORE		**100**	

A pattern of a child's dress is provided. You are advised to study the sketches, instructions and the layout carefully before you begin to test.

MATERIALS PROVIDED

1.Pattern Pieces

A. Dress front

B. Front yoke

C. Dress Back

D. Front Neck Facing

E. Back Neck Facing

F. pocket

2.plain light weight cotton fabric 60cm by 80cm wide

3.sewing thread to match

4.embroidery thread 70cm

5.one large envelope

THE TEST

Using materials provided .lay cut out and make the LEFT HALF of the child's dress to show the following processes.

a) Cutting out **(9 ½ mks)**

b) Making of the shoulder back dart on the dress back **(7mks)**

c) Easing at the dress front **(2mks)**

d) Joining the front yoke to dress front using an overlaid seam and neaten using overcastting stitches **(8mks)**

e) Joining of the dress front to dress back at the shoulder using machine fell seam **(6mks**

f) Joining dress front to dress back at the side using a French seam **(6mks)**

g) Prepare the pocket and embroider the letters K and S using chain stitches **(8mks)**

h) Attaching the pocket **(14mks)**

i) Join the front and back neck facing, neaten the raw edge and attach facing to the neckline **(14mks)**

j) Manage the dress front hem by holding it down using even tacking and slip hem 5 inches of the same **(7mks)**

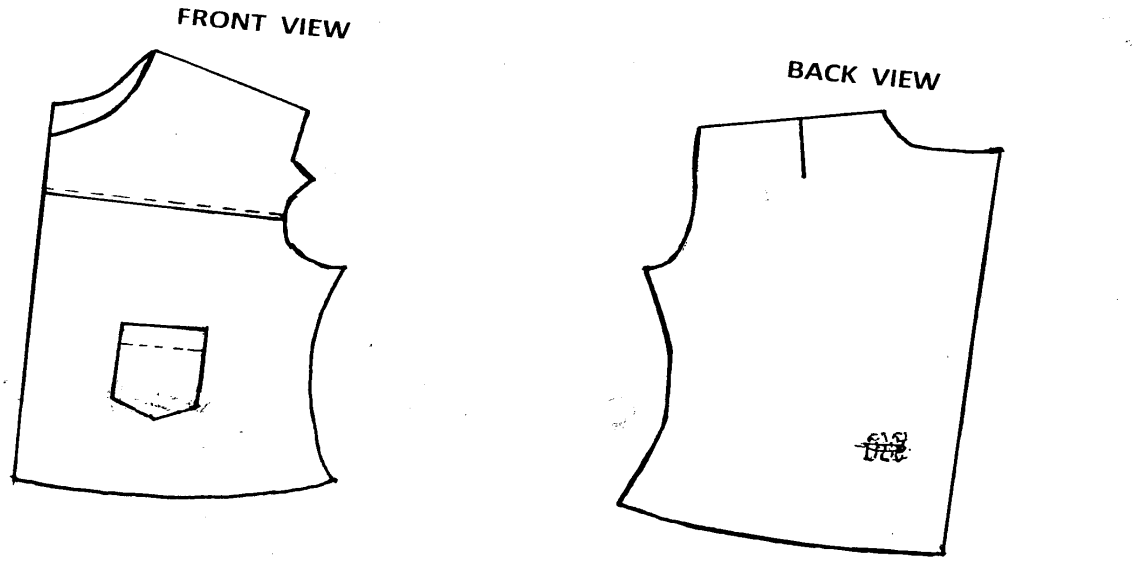
k) Repair the cross tear on the dress back by darning **(3mks)**

l) Overall presentation (5 ½ mks)

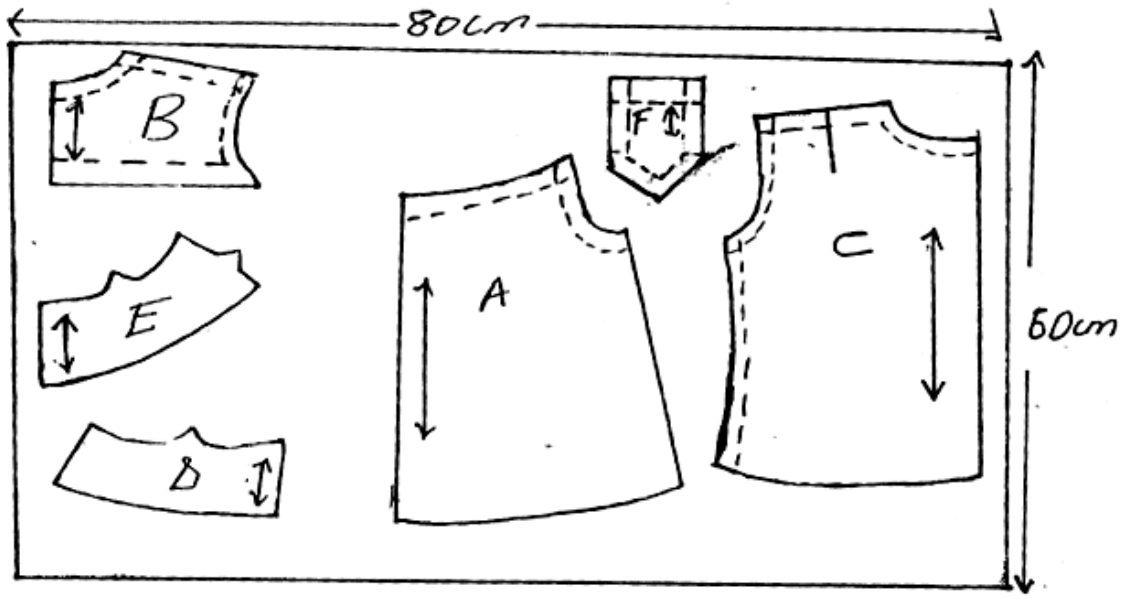
At the end of the examination, firmly sew on a single fabric, a label bearing your name and index number .Remove the needle, pins and loose threads from your work.

Fold your work neatly and place it in the envelope provided.

Do not put scraps of fabric in the envelope



LAYOUT NOT DRAWN TO SCALE



BRILLIANT STUDENTS TOP EXAMINERS MOCK SERIES 1

NAME: ……..

SCHOOL: ……...……

ADM NO: …….. SIGN: ……. DATE: ……..

441/3
HOME SCIENCE (FOOD AND NUTRITION)
PAPER 3
PRACTICAL
TIME: 1 ¾ HOURS

INSTRUCTIONS TO CANDIDATES

PLANNING SESSION: 30 MINUTES

PRACTICAL TEST SESSION: 1 ¼

(a) Read the test carefully
(b) Use stationary provided
(c) Write your name and index number on every sheet of paper used
(d) Text books and recipes may be used during the planning session as reference materials
(e) You will be expected to keep to your order of work during practical session
(f) You are only allowed to take away reference materials at the end of the planning session
(g) You are not allowed to bring additional notes to the practical session
(h) This paper consists of two printed pages
(i) Candidates should check the question paper to ascertain that both pages are printed as indicated and that no page is missing
(j) Candidates should answer the questions in English.

THE TEST

Your school has been given a stand at the Kakamega Agricultural Show and you are required to participate in a food display. Using the ingredients listed below, prepare and present three food items (for one person) for display.

INGREDIENTS

- Cabbage/Lettuce
- Tomatoes
- Green pepper
- Wheat flour
- Salt
- Carrots
- Lemon
- Milk/water
- Eggs
- Sugar
- Oil/fat
- Mangoes

PLANNING SESSION: 30 MINUTES

Use separate sheets of paper for each task listed below and a carbon paper to make duplicate copies. Then proceed as follows;

1. Identify the food items and write down their recipes.
2. Write down your order of work.
3. Make a list of the foodstuff, materials and equipment you will require.

BRILLIANT STUDENTS TOP EXAMINERS MOCK SERIES 1

JINA: ……

SHULE: ……..……..

NAMBARI YA USAJILI: …….. SAHIHI: ……. TAREHE: ……

102/1

KISWAHILI

KARATASI LA KWANZA (INSHA)

MUDA: SAA 1 ¾

Maagizo

- Jibu maswali mawili swali la kwanza ni la lazima.
- Chagua insha nyingine moja kutoka kwa zile tatu zilizosalia.
- Kila insha isipungue maneno 400.
- Kila insha ina alama 20.

1. Wewe ni mkurugenzi wa tume ya kupambana na ufisadi nchini, andika ilani/onyo katika gazeti la Mzalendo kuhusu kitendo hiki haramu na jinsi ya kukabiliana nacho.

2. Kufuatia mfululizo wa mashambulizi yanayoendelea kufanywa na makundi haramu, jadili vile wananchi wanapaswa kuwa waangalifu katika masuala ya usalama.

3. Andika kisa kinachodhihirisha maana ya methali; Majembe yalimayo pamoja hayakosi kugongana.

4. Andika insha itakayoishia kwa maneno yafutayo:

…….nilimwangalia akaniangalia, tukaangaliana, machozi yakatiririka.

BRILLIANT STUDENTS TOP EXAMINERS MOCK SERIES 1

JINA: ……

SHULE: ……..……..

NAMBARI YA USAJILI: …….. SAHIHI: ……. TAREHE: ……

102/2

KISWAHILI

KARATASI LA 2

LUGHA

MUDA: SAA 2 ½

Maagizo

a) Jibu maswali yote.
b) Majibu yote yaandikwe katika nafasi zilizoachwa katika kijitabu hiki cha maswali.
c) Hakikisha kuwa kurasa zote za kijitabu hiki zimepigwa hapa sawasawa na kuwa maswali yote yamo.
d) Majibu yote yaandikwe kwa lugha ya Kiswahili.

KWA MATUMIZI YA MTAHINI PEKEE

SWALI	UPEO	ALAMA
1	15	
2	15	
3	40	
4	10	
JUMLA	80	

1.<u>UFAHAMU(ALAMA 15)</u>

Soma kifungu kifuatacho kisha ujibu maswali yanayofuata.

Wakati wananchi katika kila pembe ya dunia waliadhimisha siku ya wapendanao maarufu kama Valentine Day, kwa mitindo mbalimbali, hali hiyo ilikuwa tofauti kwa baadhi ya wanaume nchini Kenya, baadaya ya kulalamika kuhusu kunyanyaswa na wake zao.

Kulingana na mwenyekiti wa chama cha kutetea Haki za Wanaume nchini, idadi ya wanaume wanaopigwa na wake zao imeongezeka mno. Alisema juzi kuwa utafiti wa chama chake umeonyesha kuwa harakati za kumpa uwezo mwanamke zimeathiri maadili na kuwasababisha kuwadharau wanaume. Mwanaharakati huyo anadai kuwa tatizo hilo limechochewa zaidi na hali ya kuwa wanawake wengi sasa wana kipato kikubwa kuliko waume zao.

Mwishoni mwa wiki polisi walimtia mbaroni mwanamke mmoja mjini Nyeri mkoani kati, baada ya kumshambulia mumewe na kumjeruhi vibaya kwa panga. Mwanaume huyo bado anapata matibabu hospitalini. Yeye alirudi nyumbani kama amevaa miwani ndipo akakatwa katwa usoni na uchunguzi kuhusu tukio hilo bado unaendelea.

Inadaiwa kuwa zaidi ya wanaume 460,000 walinyanyaswa na wake zao mwaka jana na kwamba utafiti wa shirika la kuwatetea wanaume unaonyesha kesi nyingi za wanaume kuteswa na wake zao zinaripotiwa katika Mkoa wa Kati.

Hata hivyo, baadhi ya wanaume katika eneo hilo wameunga mkono hatua ya wanawake kuwashambulia waume zao. Wanasema kuwa, wanapigwa kwa sababu wamekosa kuwajibika kwa familia zao. Wanadai kuwa *wanaume wengine hawajulikani nyumbani kwao*. Wake zao wanawajua makasisi ambao huja kuwaombea kuhusu matatizo ya nyumbani huku mabwana zao wakizama katika ulevi. Wanawake na wanaume wa Nyeri wamekata serikali ikomeshe uuzaji na unywaji pombe haramu ambayo imechangia sana ugomvi wa kinyumbani.

<u>MASWALI</u>

a) Upe ufahamu huu anwani mwafaka. **(al.1)**

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b) Eleza sababu za wanaume kupigwa katika ndoa. **(al.4)**

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c) Mwandishi anamaanisha nini anaposema kuwa wanaume wengine hawajulikani nyumbani kwao. **(al.2)**

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d) Fafanua majukumu ya makasisi katika jamii kwa mujibu wa kifungu hiki. **(al.2)**

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e) Eleza mabadiliko katika asasi ya ndoa kwa mujibu wa kifungu hiki. **(al.3)**

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f) Eleza maana ya vifungu hivi kama vilivyotumika katika tungo. (al.3)

i. Mwanaharakati

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ii. Amevaa miwani

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iii. Waliadhimisha

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2.<u>UFUPISHO (ALAMA 15)</u>

Soma makala hii kisha ujibu maswali yote mawili.

Aibu kubwa ya taifa kushindwa kukabiliana na tatizo sugu la ajali za barabarani bado inaendelea kuwafedhehesha wahusika katika sekta ya uchukuzi na mawasiliano licha ya matumizi ya vithibiti mwendo na kanda za usalama. Ajali za barabarani zinaangamiza idadai kubwa ya watu kila mwaka, wakiwemo viongozi na watu mashuhuri.

Miongoni mwa sababu ambazo zinaleta maafa barabarani ni pamoja na uendeshaji kasi kupita inavyotakikana, yaani kukiuka masharti yalivyowekwa na wizara ya uchukuzi na mawasiliano. Madereva wengi hung'oa vidhibiti mwendo vilivyowekwa, hawarekebishi mikanda ya usalama, wala hawayapeleki magari yao kwa ukaguzi mara kwa mara inavyopaswa. Yale yanayopelekwa kwa ukaguzi mengi hushindwa kutekeleza kanuni zilizowekwa, kwa hivyo hutegemea hongo kuwa barabarani. Fauka ya hayo, madereva wa malori na matrela mara nyingi huendesha magari hayo wakiwa walevi. Dawa za kulevya, kama vile miraa na bangi, hutumiwa sana na watu hawa na matokeo yake huwa ajali mbaya.

Hata hivyo, lawama haiwezi kuelekezwa madereva pekee. Ukiangalia barabara nchini Kenya utapata kuwa barabara haziko katika hali nzuri. Zile za lami zimekuwa na mashimo makubwa ambapo mvua ikinyesha hufanya vidimbwi mithili ya machimbo ya madini yaliyojaa maji baada ya kuachwa wazi.
Na zile barabara zisizokuwa za lami zimeharibika kiasi kwamba ni vigumu kuzitofautisha na njia za ng'ombe kwenye maeneo kame. Kinachohitajika ni serikali kuzifanyia ukarabati ili kuzirudisha katika kiwango ambacho zitaweza kufaa tena.

Wananchi pia inafaa waelimishwe ili wasikubali kuingia kwenye magari ambayo tayari yamejaa kupita kiasi. Hii itawasaidia wananchi wenyewe kudumisha usalama wao barabarani. Pia inawafaa watambue ya kwamba wana jukumu la kuwaarifu walinda usalama endapo dereva anendesha kwa kasi sana kuliko ile ya kilomita 80 kwa saa iliyokubaliwa.

Inafahamika kuwa maafisa wa usalama ndio wafisadi zaidi, hivyo basi huchangia katika kuongeza idadi ya vifo barabarani. Katika vita dhidi ya ufisadi na ajali za barabarani, ni mwananchi mwenyewe ambaye atawezesha kukomesha hali hii. Kwa mfano, afisa wa usalama akipatikana akichukua hongo, yeye pamoja na Yule aliyetoa hongo wapelekwe kwenye vituo vya kukabiliana na ufisadi na wachukuliwe hatua kali, matatizo haya yataisha.

Lakini kabla kufikia hapo, ni muhimu kumhamasisha mwananchi kuhusu haki zake na namna ya kukabiliana na suala hili la ufisadi.
Hali hii inatuonyesha kwamba mipango maalumu inapaswa kufanywa na serikali ili kuwaelimisha wananchi kama hatua ya kwanza ya kukabiliana na ufisadi hatimaye izilainishe sekta zote wala si ya uchukuzi na mawasiliano pekee.

Maswali

a) Eleza mambo muhimu yanayorejelewa na mwandishi katika aya tatu za kwanza. (Maneno 70)

(al.7 + ut 1=8)

Matayarisho

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Nakala safi

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b) Kwa kurejelea aya nne za mwisho fafanua hatua zinazofaa kuzingatiwa kupunguza ajali za barabarani (maneno 60) (al 6 + ut 1 = 7)

Matayarisho

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Nakala safi

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3.MATUMIZI YA LUGHA (ALAMA 40)

a) Sauti /p/ ni kipasuo, sauti hizi ni gani? **(al.2)**

i. / f /

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ii. / l /

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b) Ainisha viambishi katika sentensi ifuatayo; **(al.3)**

Alituogofya

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c) Tunga senetensi yenye muundo ufuatao wa maneno **(al.2)**

W+V+T+E+E

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d) Nyambua vitenzi vifuatavyo vya silabi moja ili kujaza mapengo **(al.2)**

i. Mgeni ali_____(pa, kutendewa) kiti ili akae.

ii. Ame _____(la, kutendesha) moto chakula.

e) Andika kwa usemi halisi **(al.4)**

Cherotich aliwahakikishia wazazi wake kwamba angetia bidii katika masomo yake ili apite mtihani wake wa mwisho wa mwaka huo.

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f) Eleza matumizi mawili ya parandesi **(al.2)**

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g) Kiambishi –ji- kimetumiwa vipi katika sentensi ifuatayo; **(al.2)**

Binti mdogo anajishaua kwa jiatu la mamake.

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h) Eleza maana ya kihusishi katika sentensi ifuatayo; **(al.1)**

Alhamdulilahi! Nimefaulu katika mtihani wangu.

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i) Huku ukitoa mfano mmoja andika miundo yoyote matatu ya virai vivumishi. **(al.3)**

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j) Changanua sentensi kwa njia ya vistari (al.3)

Mto uliofurika jana umezoa taka nyingi.

k) Sahihisha kwa namna mbili tofauti; (al.2)

Angalifika mapema angelimuona mkurugenzi.

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l) Kanusha sentensi katika hali ya kuamrisha wingi. **(al.2)**

Kimbia haraka……

Amka ……..

m) Tambua kiima chagizo na shamirisho katika sentensi ifuatayo; **(al.3)**

Mtoto alileteawa cheti mapema na mzazi.

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n) Unda nomino mbili kutokana na neno mwigo. **(al.2)**

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o) Kwa kutunga sentensi, tofautisha vitate hivi. **(al.2)**

i. Baka

ii. Paka

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p) Andika sentensi ifuatayo katika wakati ujao, hali timilifu (al.1)

Miti hupandwa na wanakandarasi wale.

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q) Unganisha sentensi zifuatazo kwa kutumia “o” rejeshi. (al.2)

i. Mshukiwa alipelekwa mahakamani.

ii. Mshukiwa alichukuliwa hatua.

……

……

……

r) Weka neno lifuatalo katika ngeli yake. **(al.1)**

Malezi

……

4.<u>ISIMU JAMII (ALAMA 10)</u>

a. Eleza maana ya istilahi zifuatazo;

i. Isimu jamii

……

……

……

ii. Lafudhi

……

……

……

iii. Lahaja

……

……

……

iv. Lingua franka

……

……

……

v. Pigini

……

……

……

BRILLIANT STUDENTS TOP EXAMINERS MOCK SERIES 1

JINA: ……

SHULE: ……..……..

NAMBARI YA USAJILI: …….. SAHIHI: ……. TAREHE: ……

CHETI CHA KUHITIMU ELIMU YA SEKONDARI

KISWAHILI KIDATO CHA NNE

KARATASI YA TATU

MUDAL SAA 2½

MAAGIZO

- ✓ Jibu maswali manne.
- ✓ Swali la kwanza ni la lazima
- ✓ Chagua maswali mengine matatu kutoka kwa sehemu zilizosalia:

Riwaya, Tamthilia, Hadithifupi na Ushairi.

- ✓ Usijibu maswali mawili kutoka sehemu moja.

Sehemu hii imehifadhiwa kwa matumizi ya mtahini pekee.

SWALI	1	2	3	4	5	6	7	8
UPEO	20	20	20	20	20	20	20	20
ALAMA								

JUMLA

UPEO	**80**
ALAMA ZA MTAHINIWA	

SEHUMU YA A

RIWAYA: CHOZI LA HERI

(Assumpta K. Matei)

1."… wino wa Mungu haufutiki…"

(a) Eleza muktadha wa maneno haya **(alama 4)**

(b) Taja na uelembinu moja ya lugha iliyotumiwa katika dondoo hii **(alama 2)**

(c) Fafanua ukweli wa kauli hii kwa kuzingatia hoja zozote kumi na nne kutoka katika riwaya ya Chozi la Heri **(alama 14)**

SEHEMU YA B

TAMTHILIA: KIGOGO

(Pauline Kea)

Jibu swali la ***Pili*** ama la ***Tatu***

2."Mambo yamekwenda kombo Sagamoyo, sio siri tena."

(a) Fafanua sifa na umuhimu wa mzungumzaji wa maneno haya **(alama 6)**

(b) Thibitisha ukweli wa kauli hii kwa hoja kumi nan ne kutoka katika tamthilia ya kigogo **(alama 14)**

Au

3."Ushahidi itatoka wapi kama kipanga ndiye hakimu kwenye kesi ya kuku?"

(a) Eleza muktadha wa maneno haya **(alama 4)**

(b) Fafanua mbinu mbili za lugha zilizotumiwa katika dondoo hii **(alama 4)**

(c) Fafanua haki kumi na mbili za Wanasagamoyo na uonyeshe jinsi ziivyokiukwa **(alama 12)**

SEHEMU YA C

HADITHI FUPI: TUMBO LISILOSHIBA NA HADITHI NYINGINE

(Alifa Chokocho na Dumu Kayanda- Wahariri)

Jibu swali la ***Nne*** ama la ***Tano***

MKUBWA

4."… Basi niache nitafute pesa. Muhimu mniunge mkono…"

(a) Eleza muktadha wa dondoo hili **(alama 4)**

(b) Fafanua sifa zozote nne za mzungumziwa **(alama 4)**

(c) Fafanua athari ya vitendo vya mzungumzaji wa maneno haya katika jamii **(alama 12)**

Au

5.Jadili suala la uozo wa maadili katika jamii huku ukirejelea hadithi zozote nne katika diwani ya Tumbo Lisiloshiba na Hadithi Nyingine **(alama 20)**

SEHEMU YA D USHAIRI

6.Soma shairi lifuatalo kisha ujibu masuali

Ujuaji kwa fasili, kujifanya watambua,
Ujuaji kiwasili, majitapa huwadia,
Ujuaji kwa asili, kujibeba bila nia,
Ujuaji jambo kali, binadamu tagundua.

Ujuaji kila hali, usijitie wajua,
Ujuaji takudhuli, matatani kutumbua,
Ujuaji si mwimili, wa Mungu kudurua,
Ujuaji jambo kali, binadamu tagundua.

Ujuaji mkatili, elimuni kubagua,
Ujuaji tafisili, zako mali kupungua,
Ujuaji kiakili, epukana julangua,
Ujuaji jambo kali, binadamu tagundua.

Ujuaji jua kali, mambo mengi gharimia,
Ujuaji lokidhili, biasharayo tafumua,
Ujuaji hutufeli, masikini kutujia,
Ujuaji jambo kali, binadamu tagundua.

Ujuaji tena ghali, mambo mengi unaua,
Ujuaji wafadhili, misa'da kudidimia,
Ujuaji kila hali, hupati kusisimua,
Ujuaji jambo kali, binadamu tagundua.

Ujuaji hawajali, kukwambiya solijua,
Ujuaji takufeli, maishani 'tojijua,
Ujuaji si asali, ni mbaya tatambua,
Ujuaji jambo kali, binadamu tagundua.

Kutoka: Meja S. Bukachi (Uketo wa Fasihi, uk 120- 121)

MASWALI

a) Lipe shairi hili anwani mwafaka. **(Alama 1)**
b) Eleza dhamira ya mtunzi wa shairi hili. **(Alama 2)**
c) Mwandishi anasema kuwa ujuaji ni nini? **(Alama 2)**
d) Taja tamathali za lugha zilizotumika katika shairi hili. **(Alama 2)**
e) Fafanua uhuru wa ushairi alioutumia malenga. **(Alama 4)**
f) Weka shairi hili katika bahari mbalimbali. **(Alama 3)**
g) Andika ubeti wa tatu kwa lugha nathari. **(Alama 4)**
h) Vifungu vifuavyo vina maana gani katika shairi?

i. Majitapa
ii. Gudurua

SEHEMU YA E

FASIHI SIMULIZI

Soma utungo ufatao kisha ujibu maswali

Ndimi Kisoi, dume la ukoo mtukufu
Ulojipambanua kwa mabingwa
Wchezaji hodari wa ngoma
Ndimi dume lililoingia nyanjani
Makoo yakatetema
Yakang'ang'ania, gozi kusakata name.

Kijiji kizima kilinijua
Wazee walinienzi
Wakamiminika kiamboni
Mabinti kunikabidhi.

Kutoka: Assumpta K. Matei (Fani ya Fasihi Simulizi, uk 113)

Maswali

(a) Tambua kipera hiki cha fasihi simulizi **(alama 2)**

(b) Jinsia ya nafsi neni ni gani? **(alama 2)**

(c) Eleza sifa zozote nane za kipera hiki cha fasihi simulizi **(alama nane)**

(d) Fafanua umuhimu wa kipera ulichokitaja hapo juu katika jamii **(alama 8)**

BRILLIANT STUDENTS TOP EXAMINERS MOCK SERIES 1

NAME: ……..

SCHOOL: ……..……

ADM NO: …….. SIGN: ……. DATE: ……..

Kenya certificate of secondary education (KCSE)

121/1 - MATHEMATICS - Paper 1

ALT A - $2\frac{1}{2}$hours

Instructions to candidates

- *Write your name, admission number and class in the spaces provided above.*

a) Sign and write the date of examination in the spaces provided above.

*b) You are reminded of the necessity of **orderly presentation** in your answers.*

*c) The paper contains **TWO** sections: **Section I** and **Section II.***

*d) Answer **ALL** the questions in **Section I** and any **five** questions from **Section II***

e) All answers and working must be written on the question paper in the spaces provided below each question.

f) Show all the steps in your calculations, giving your answers at each stage in the spaces below each question.

***g)** Marks may be given for correct working even if the answer is wrong.*

h) Non – programmable silent electronic calculators and KNEC Mathematical tables may be used, except where stated otherwise.

For Examiner's use only.

Section I

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Total

Section II

17	18	19	20	21	22	23	24	Total

Grand Total

SECTION I (50 MARKS)

*Answer **all** questions in this section on the spaces provided*

1. An aircraft Company bought eight aircrafts for eighteen billion, nine hundred and seventy-five million, twenty-eight thousand, two hundred and forty.
   (a) Write the total cost of the eight aircrafts in figures. **(1mark)**

   (b) Calculate the cost of each aircraft. **(2marks)**

2. Solve for x in the equation $\frac{3}{x+1} + \frac{2}{x+5} = \frac{\mathbf{1}}{\boldsymbol{x-2}}$ **(4mks)**

3. (a)The number 16200 is given as $2^x \times 3^y \times 5^z$. Find the value of $x + y + z$ **(1mark)**

(b). When another number N is multiplied by 16200, a perfect cube is obtained. Find the least value of N **(2marks)**

4. Given that sin $\propto$ ° = $\frac{1}{\sqrt{5}}$ where a is an acute angle find, without using Mathematical tables

(a) Cos $\propto$ ° in the form of $a\sqrt{b}$, where a and b are rational **numbers** **(2marks)**

(b) $Tan\ (90-\propto)°$ **2marks**

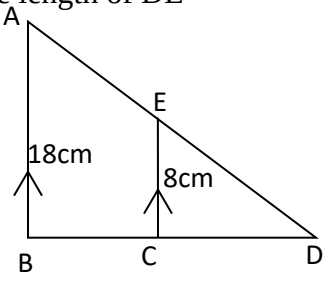
5. The area of a rhombus is 60 cm^2. If the shorter diagonal is 8 cm. Find the perimeter of the rhombus. **(4 marks)**

6. A 63kg metal of density 7,000 kg/m^3 is moulded into a rectangular pipe with external dimensions of 12cm by 15cm and internal dimensions of 10cm by 12cm. Calculate the length of the pipe in meters. **(3marks)**

7. The position vectors of the points P, Q and R are $\begin{pmatrix}-3\\-1\end{pmatrix}, \begin{pmatrix}\frac{1}{2}\\-2\end{pmatrix} and \begin{pmatrix}4\\-3\end{pmatrix}$ respectively. Show that P, Q and R are collinear **(3marks)**

8. In the triangle ABD, BA is parallel, to CE, given that BA= 18cm, CE = 8cm and AE = 6cm,

find the length of DE **(3marks)**



9. Given the equation $\frac{9^{4x}}{3^{2x}} = \frac{1}{9^{-4}}$, solve for x to its simplest form. **(3 marks)**

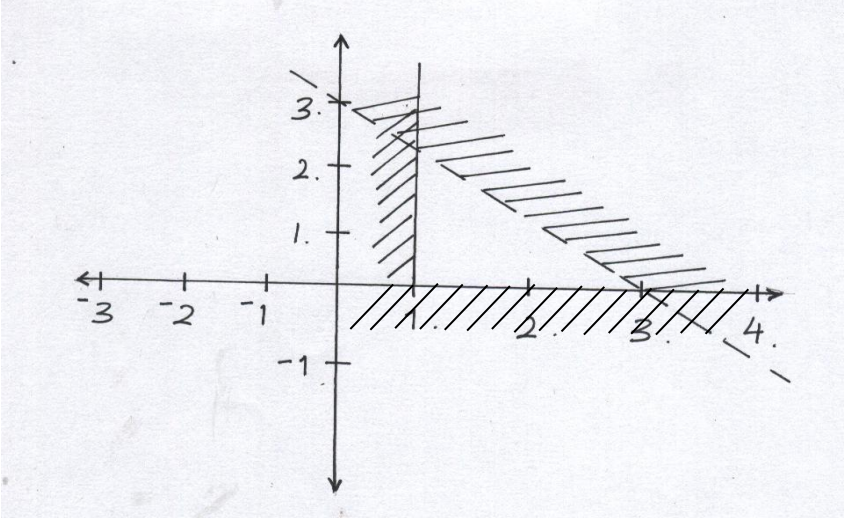
10. A Kenyan company received M US Dollars. The money was converted into Kenyan shillings in a bank which buys and sells foreign currencies.

	Buying (in Ksh.)	Selling (in Ksh.)
1Sterling Pound	145.78	146.64
` US Dollar	110.66	110.86

If the company received Ksh. 15,132, 000, calculate the amount M, received in US Dollars**.** **(2marks)**

11. Two interior angles of an irregular n sided polygon is 117 each. The remaining exterior angles are 39^0 each. Calculate the number of sides of the polygon **(3marks)**

12. Determine the inequalities that represent and satisfies the unshaded region **(3marks)**



14. There are two grades of rice, grade A and Grade B. Grade A costs Sh 80 per Kg while Grade B costs Sh 60 per Kg. In what ratio must the two be mixed in order to produce a blend costing Sh 75 per Kg.
(3marks)

15. One of the three vertices of triangle ABC is A (2,-3). Point A is mapped onto A^I (-4, 7) under a reflection on mirror line *M*. find the equation of the mirror-line *M* **(3marks)**

16. A camp has enough food ration to last 10,000 refugees for 35 days. After 5 days, 2500 more refugees arrived in the camp. If all are now put on a half ration, how much longer will the food last? **(3 marks)**

SECTION II (50 marks**)**

*Answer any **five** questions from this section on the spaces provided.*

17. a). A particle moving at 20 m/s accelerates to 30 m/s in 5 seconds then travels at this speed for 10 seconds before decelerating to rest in 4 seconds. Draw a velocity –time graph and use it to calculate the distance covered by the particle in 19 seconds. **(3 marks)**

b). A train $100\ m$ long travelling at $72km/h$ overtakes another train travelling in the same same direction at $56km/hr$ and passes it completely in 54 seconds. Find the length of the second train.
(4 marks)

ii). Find the time (how long) they would have taken to pass each other if they had been travelling at these speeds in opposite directions. **(3 marks)**

18. (a) Find the inverse of the matrix A , given that A is $\begin{pmatrix} 2 & 3 \\ 3 & 4 \end{pmatrix}$

(b) Jane bought 200 bags of sugar and 300 bags of rice for a total cost of shs. 850,000. Peter bought 120 bags of rice and 90 bags of sugar for a total cost of shs. 360,000. If the price of a bag of sugar is shs. x and that of rice is shs. y.

(i) Form two equations to represent the above information. **(2marks)**

(ii) Use matrix method to find the price of one bag of each item **(3marks)**

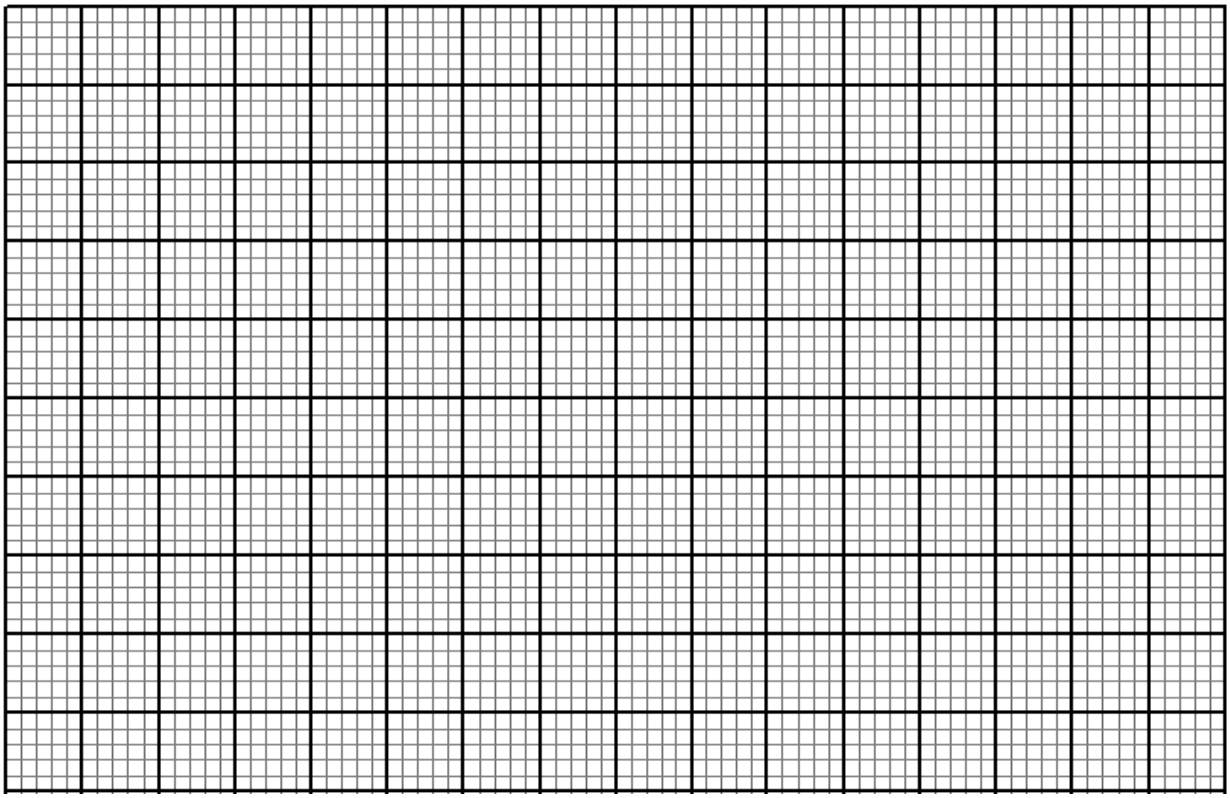
(c) Robert bought 225 bags of sugar and 360 bags of rice. He was given a total discount of shs. 33,300. If the discount on the price of a bag of rice was 2%, calculate the percentage discount on the price of a bag of sugar. **(3marks)**

19. The table below shows scores for a form 4 class Math results in Ushindi School.

Marks	20-29	30-49	50-54	55-69	70-79	80-84	85-99
No of Students	3	12	6	15	5	7	3
f.d							

(a). Fill in the column for frequency density row on the table **(2marks)**

(b). Draw a histogram to represent the above data **(3marks)**



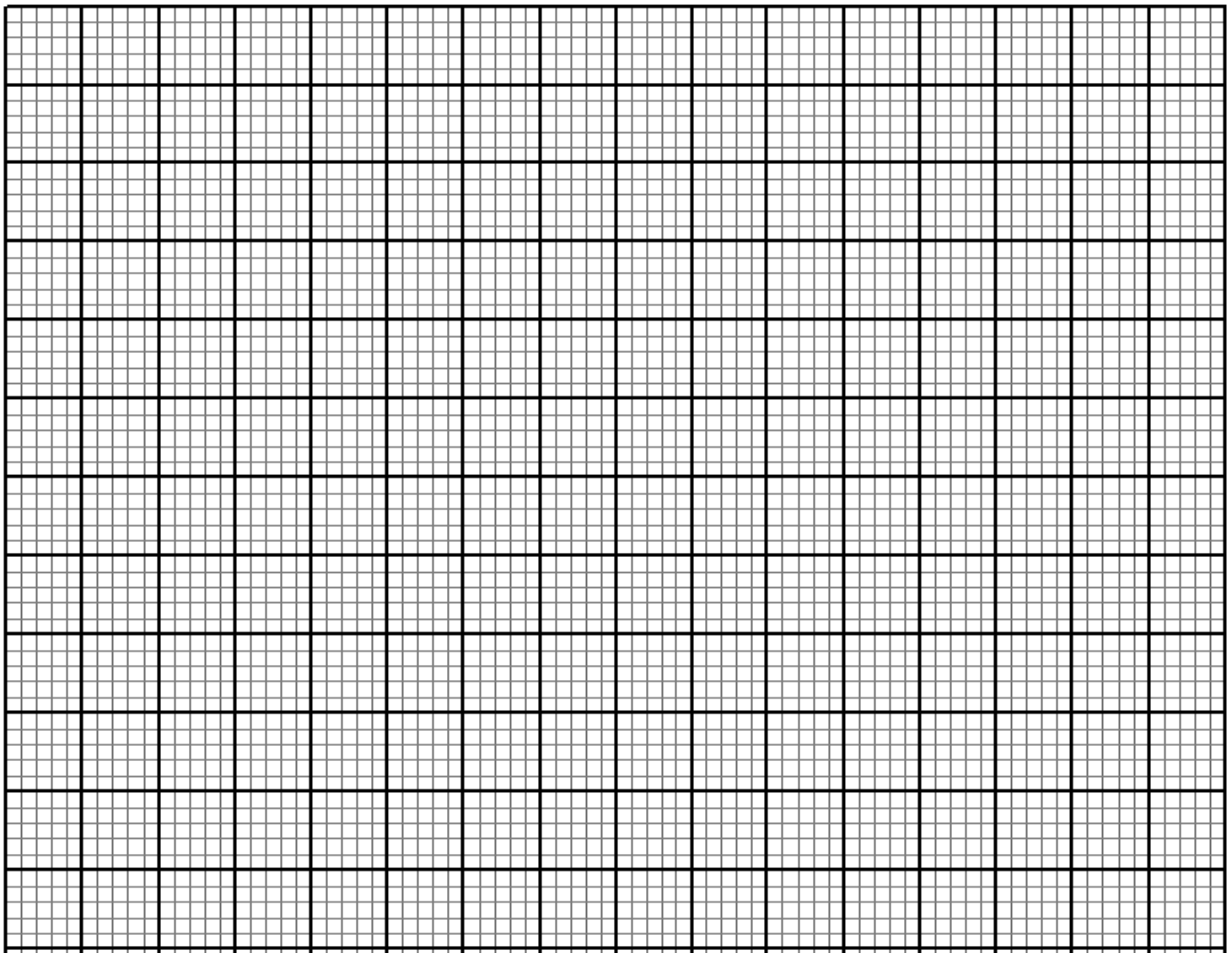
(c). By using the histogram drawn above calculate the median of the data and indicate using a line where it lies in the histogram. **(5marks)**

20. (a). Complete the table below for the equation $y = 4x^3 - 3x^2 - 6x$ **2marks**

x	$-1\frac{1}{4}$	-1	$-\frac{1}{2}$	0		1	$1\frac{1}{2}$	$1\frac{3}{4}$
y	-5		$1\frac{3}{4}$		$-3\frac{1}{4}$		$-2\frac{1}{4}$	

b. Using a scale of 4 cm to represent 1 unit on the *x* axis and 2cm to represent 1 unit on the *y*-axis draw the graph of $y = 4x^3 - 3x^2 - 6x$ for -

$1\frac{1}{4} \leq x \leq 1\frac{3}{4}$ on the grid provided **3marks**



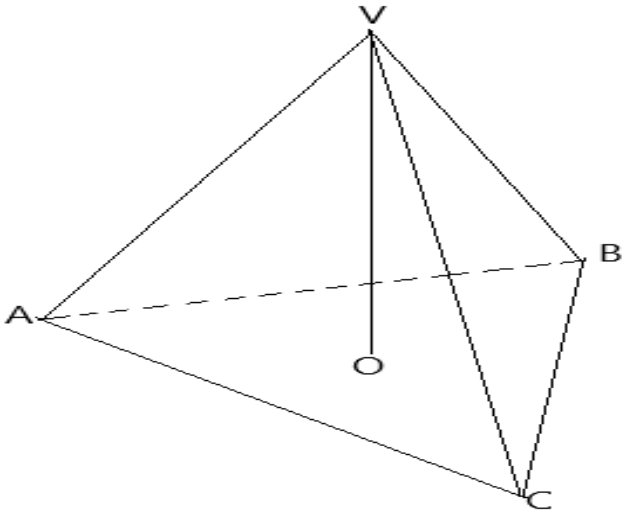
c). Use your graph to find the range of values of x for which $y \leq -3$ **(1mark)**

d). Use your graph to solve the equation $4x^3 - 3x^2 - 6x = 0$ **(2marks)**

e). By drawing a suitable straight-line graph on the same axes solve the equation

$-4x^3 + 3x^2 + 7x - 1 = 0$ **(2marks)**

21. The figure below shows a solid regular tetrahedron of side 15 cm. Point O is center of the base ABC



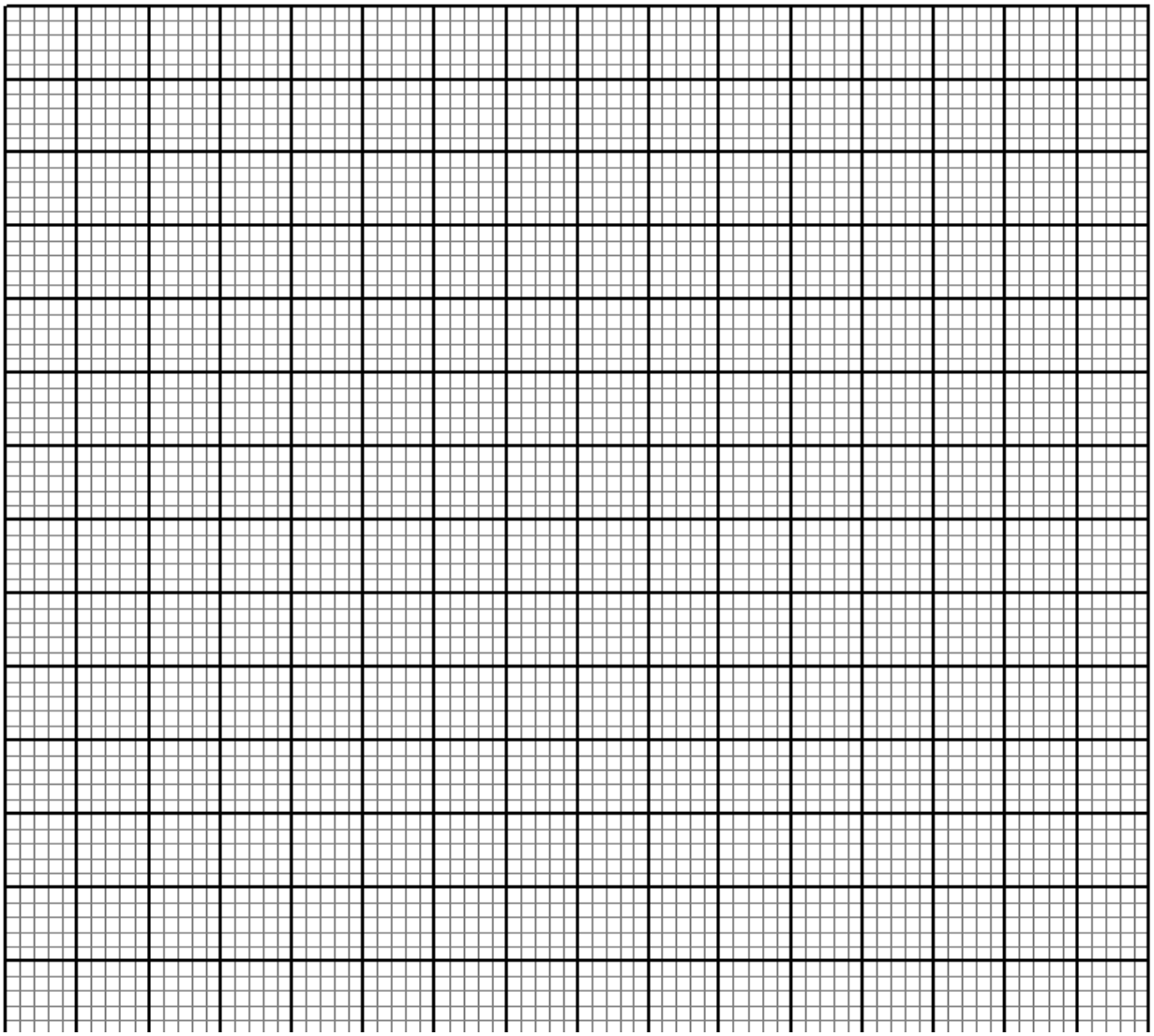
a). Calculate the perpendicular height VO of the pyramid to 1 decimal place. **(3 marks)**

b). The tetrahedron is cut parallel to the base ABC forming a frustrum. The slant height of the frustrum is two-thirds the slant height of the pyramid. Calculate;

(i). The volume of the frustrum. **(4 marks)**

(ii). The surface area of the solid frustrum **(3 marks)**

22. a) Draw the quadrilateral with vertices at A(-6,-1) B(-6,-4) C(3,-4) and D(3,-1)
(1mark)



(b) On the same grid, draw the image of ABCD under enlargement centre (0,-1) scale factor 1/3, label the image A'B'C'D'. **(2marks)**

(c) Draw A''B''C''D'' the image of A'B'C'D' under rotation of $+90^{o}$ about (1,0). **(2marks)**

(d) Draw A'''B'''C'''D''' the image of A''B''C''D'' under reflection in the line $y - x = 0$ **2marks**

(e) Draw $A^{IV}B^{IV}C^{IV}D^{IV}$ the image of A'''B'''C'''D''' under translation $\begin{pmatrix} -2 \\ 3 \end{pmatrix}$ and write down its coordinates **(3marks)**

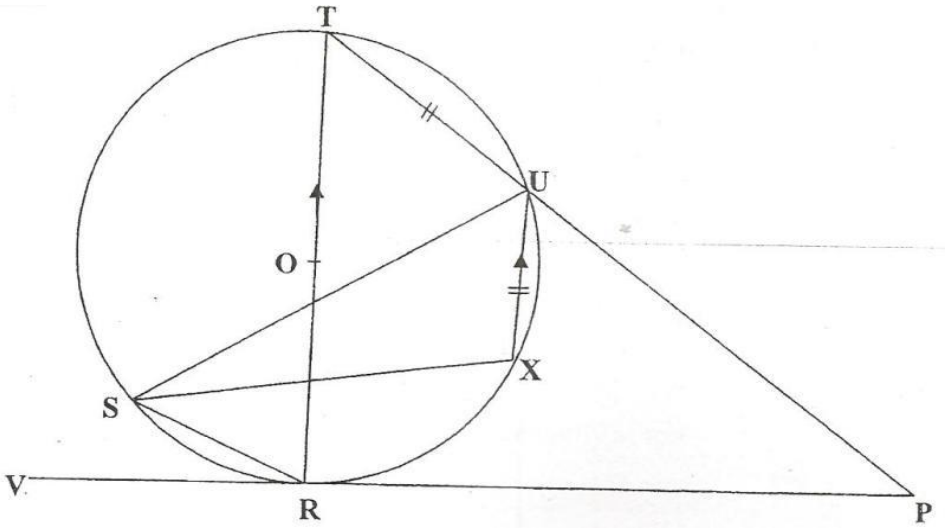
23. (a). The equation of a line L_1 is $7y - 5x - 20 = 0$ · Find the x-intercept of the equation **(1mark)**

b). Another line L_2 is perpendicular to L_1 and passes through (-5, 3). Find the equation of L_2. **(3marks)**

c). L_3 passes through (0,-3) and parallel to the line L_4 whose equation is $3y - 8x = 3$ find the equation of L_3. **(3marks)**

d). Calculate the coordinates of point of intersection between the lines L_1 and L_3. **(3marks)**

24. In the figure below, O is the center of the circle TOR is the diameter and PRV is tangent to the circle at R.



Given that <SUR = 25^0, <URP = 60^0, TU = UX and that UX is parallel to the diameter; giving reasons calculate;

a) <TOU **(2 marks)**

b) <XUP **(2 marks)**

c) <STR **(2 marks)**

d) Reflex <SXU **(2 marks)**

e). <RPU **(2marks)**

BRILLIANT STUDENTS TOP EXAMINERS MOCK SERIES 1

NAME: ……..

SCHOOL: ……..……

ADM NO: …….. SIGN: ……. DATE: ……..

121/2

Mathematics

Paper 2
2 ½ Hours

Kenya Certificate of Secondary Education (K.C.S.E)

INSTRUCTIONS TO CANDIDATES

- Write your name and Admission number in the spaces provided at the top of this page.
- This paper consists of two sections: Section I and Section II.
- Answer ALL questions in section 1 and ONLY FIVE questions from section II
- All answers and workings must be written on the question paper in the spaces provided below each question.
- Show all the steps in your calculation, giving your answer at each stage in the spaces below each question.
- Non – Programmable silent electronic calculators and KNEC mathematical tables may be used, except where stated otherwise.

FOR EXAMINERS USE ONLY

SECTION I

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	TOTAL

SECTION II

17	18	19	20	21	22	23	24	TOTAL

GRAND TOTAL

SECTION I. *Answer all the questions* (50 marks)

1.A student spends $\frac{3}{8}$ of his time playing basketball, $\frac{1}{4}$ of the remaining in playing table tennis and $\frac{3}{4}$ of the remaining time playing volleyball. The rest is spent on reading novels. What fraction of the time is spent on reading novels? ***(3 marks)***

2.Simplify; $\frac{\sqrt{5}-1}{\sqrt{5}+1}$. ***(3 marks)***

3.Solve the equation $2\log 3 + \log(x-2) = 2\log x$ ***(3 marks)***

4.The base and perpendicular height of a triangle measured to the nearest millimetre are 15.0 cm and 9.5 cm respectively. Find

(a) The absolute error in calculating the area of the triangle ***(1 mark)***

(b) The percentage error in the area, giving the answer to 1 decimal place.

(3 marks)

5.Find the value of θ, given that; $\frac{1}{2}sin\theta = 0.35$ for $0^0 \leq \theta \leq 360^0$

(3 marks)

6.Make Q the subject of formula $P = \sqrt{\frac{Q^2}{Q^2-1}}$ ***(3 marks)***

7.The coordinates of the end points of a diameter of a circle are $A(2,4)$ and $B(-2,6)$. Find the equation of the circle in the form $ax^2 + by^2 + cx + dy + e = 0$
(4 marks)

8.Kimani wants to buy a TV on hire purchase. It has a cash price of Ksh.30,000. He makes a down payment of Ksh.9,000 and 12 monthly instalments of ksh. 2,200 each. Calculate the rate of compound interest charged per month.(Give your answer to 1 dp). ***(3 marks)***

9.Expand $(3 + 3x)^6$ in ascending powers of x. Hence use the expansion up to the 3rd term, to find the value of $(3.03)^6$ correct to 2 decimal places. ***(3 marks)***

10. The following are ages of students in a class 7,9,8,9,11,12,10 9,8,6,7,10,11,12,6,9,7, and 11.

a). Complete the frequency distribution table below ***(1 mark)***

Ages	6	7	8	9	10	11	12
No of students							

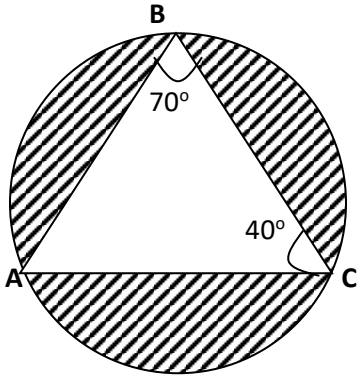
b). Calculate the standard deviation of their ages in five years' time. ***(2 marks)***

11. Find the possible values of x given that $\begin{pmatrix} x+8 & 8 \\ 6 & x \end{pmatrix}$ is a **singular** matrix. ***(3 marks)***

12. Evaluate using the logarithm table; ***(4 marks)***

$$\left(\frac{\log 9.814}{4.283 \times (0.009478)^2}\right)^{-\frac{1}{2}}$$

13. The figure below is that of a circumcircle of the triangle ABC. The radius of the circle is $5cm$. Given that $\angle ABC = 70^0$ and $\angle ACB = 40^0$. Calculate the area of ΔABC .
(3 marks)

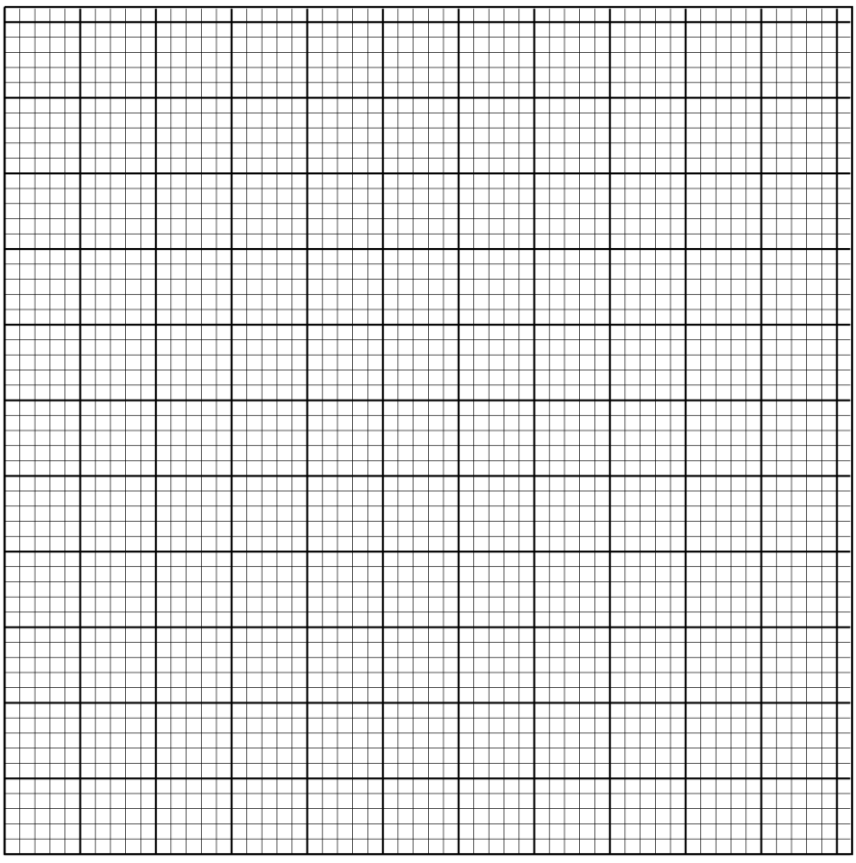


14. A quantity P varies partly as the cube of **Q** and partly varies inversely as the square of **Q**. when **Q** = 2, **P** = 108 and when **Q** = 3, **P** = 259. Find the value of **P** when **Q** = 6. ***(3 marks)***

15. The table below shows the number of insects and corresponding number of days in breeding.

Number of insects	200	300	400	500	600	700	800	900
days	4.4	6.4	7.4	8.0	8.5	9.0	9.5	10

a). On the grid provided, draw the graph of number of insects against the number of days.
(1 mark)



b). Determine the rate of breeding between 5^{th} and 7^{th} day. ***(2 marks)***

16. Calculate the area of the minor segment of a circle of radius $5\sqrt{2}cm$, cut off by a chord of length $10cm$. ***(3 marks)***

SECTION II: *Answer any 5 questions from this section*. (50 marks)

17. Income rates for income earned were charged as shown in the table alongside:

A civil servant earns a monthly salary of $Ksh.\,27{,}000$. He was also given a house allowance of $Ksh.\,12{,}000$, transport allowance $Ksh.\,1{,}800$ and medical allowance $Ksh.\,2{,}000$. He is entitled to a family relief of Kshs. 1040 per month.

Income in Ksh. pm	**Rate in Ksh. Per Shs. 20**
$1 - 8400$	2
$8401 - 18{,}000$	3
$18{,}001 - 30{,}000$	4
$30{,}000 - 36{,}000$	5
$36{,}000 - 48{,}000$	6
$48{,}001$ *and above*	7

Determine:

a) (i) His taxable income per month in Ksh. ***(2 marks)***

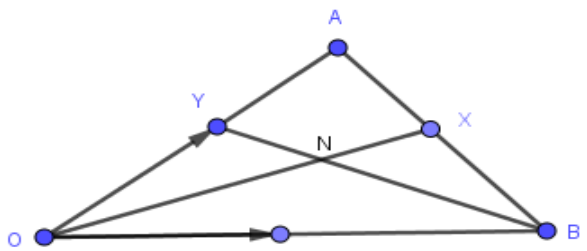
(ii) His net tax. ***(6 marks)***

b) In addition, the following deductions were made

NHIF	Ksh. 430
Loan repayment	Ksh. 6500
Bank shares	Ksh. 1000.

Calculate his net pay per month. ***(2 marks)***

18. a). In the figure below, $OY:YA = 1:3$, $AX:XB = 1:2$, $\boldsymbol{OA} = \boldsymbol{a}$ and $\boldsymbol{OB} = \boldsymbol{b}$. n is the point of intersection of BY and OX.



Determine;

i. **OX** ***(2 marks)***

ii. **BY** ***(1 mark)***

b) Given that $\boldsymbol{BN} = m\boldsymbol{BY}$ and $\boldsymbol{ON} = n\boldsymbol{OX}$, express **ON** in two ways in terms of $\boldsymbol{a}, \boldsymbol{b}, m$ and n ***(3 marks)***

c) Find the values of m and n ***(4 marks)***

19. (a) In a geometrical progression the sum of the second and third term is 12 and the sum of the third and fourth terms is -36. Find the first term and the common ratio. ***(4 marks)***

(b) In an arithmetic progression the 12^{th} term is 25 and the 7^{th} term is three times the second term, find;

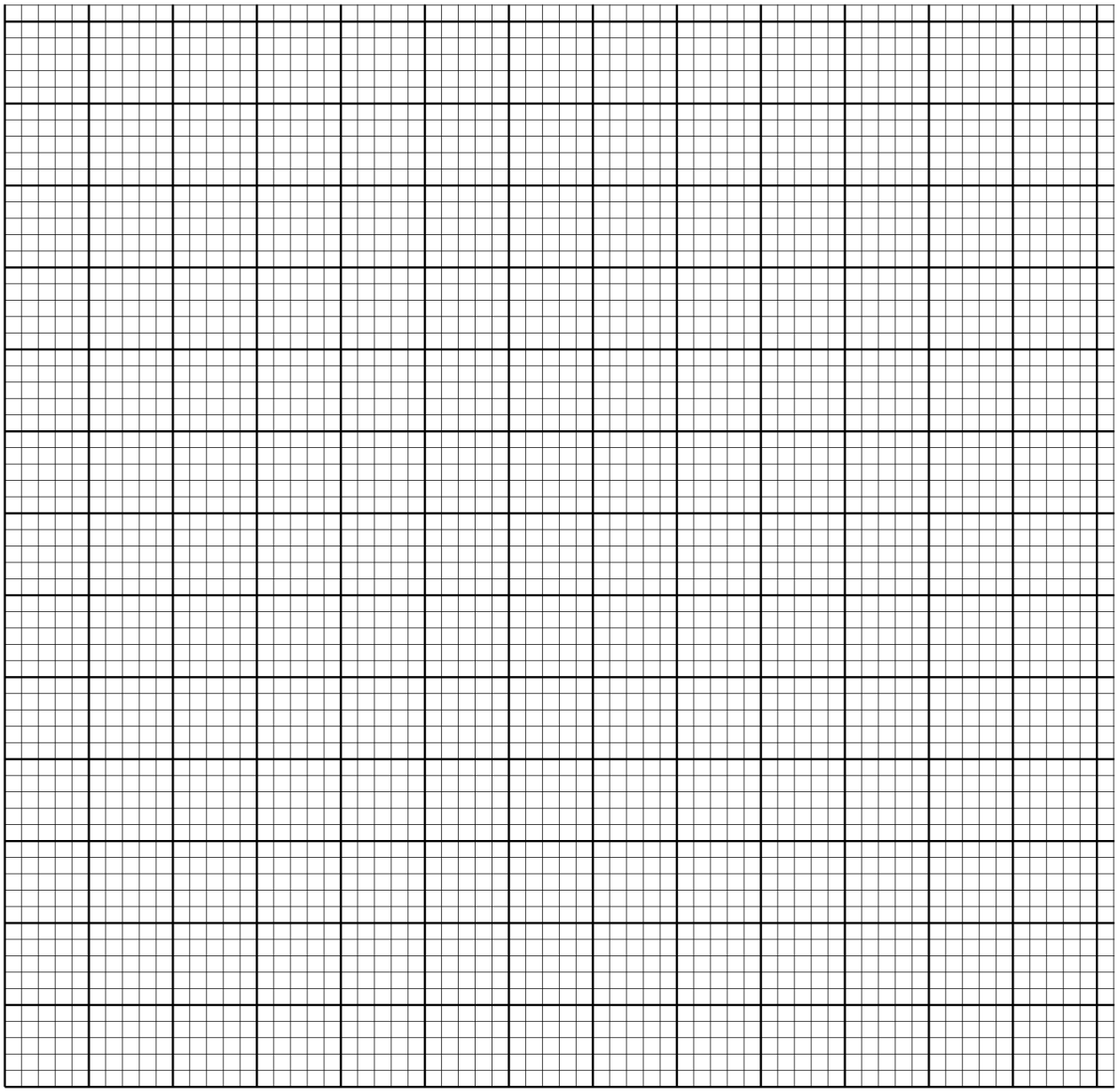
i) The first term and the common difference ***(4 marks)***

ii) The sum of the first 10 terms of the arithmetic progression.***(2 marks)***

20. The table below shows the frequency distribution of marks scored by students in a test.

Marks	1-10	11-20	21-30	31-40	41-50
Frequency	2	4	8	4	2

a). On the grid provided, draw a cumulative frequency curve for the data.



(3 marks)

b). Use your graph to determine;

(i). The pass mark if only 6 students passed the exam. ***(2 marks)***

(ii). The upper quartile mark ***(1 mark)***

c). Find the percentage change if the upper quartile in b(ii) above was found by calculation. ***(3 marks)***

21. A gold urn contains 3 red balls and 4 white balls and a silver urn contains 5 red balls and 2 white balls. A die is rolled and if a 6 shows, balls will be selected at random from the gold urn. Otherwise balls are selected from the silver urn.

a. Find the probability of selecting a red ball. ***(3 marks)***

b. If two balls are selected at random without replacement,

i. Draw a tree diagram to represent this information. ***(3 marks)***

ii. Find the probability that two balls are white. ***(2 marks)***

iii. Find the probability that there is at most one white ball from the silver urn. ***(3 marks)***

22. a) Using a ruler and a compass only construct triangle **ABC** where $AB = 7cm$, Angle $CBA = 82.5^0$ and $BC = 5cm$ ***(4 marks)***

b) i) Locate a point T inside the triangle which is equidistant from points A and B and also equidistant from lines AB and AC ***(3 marks)***

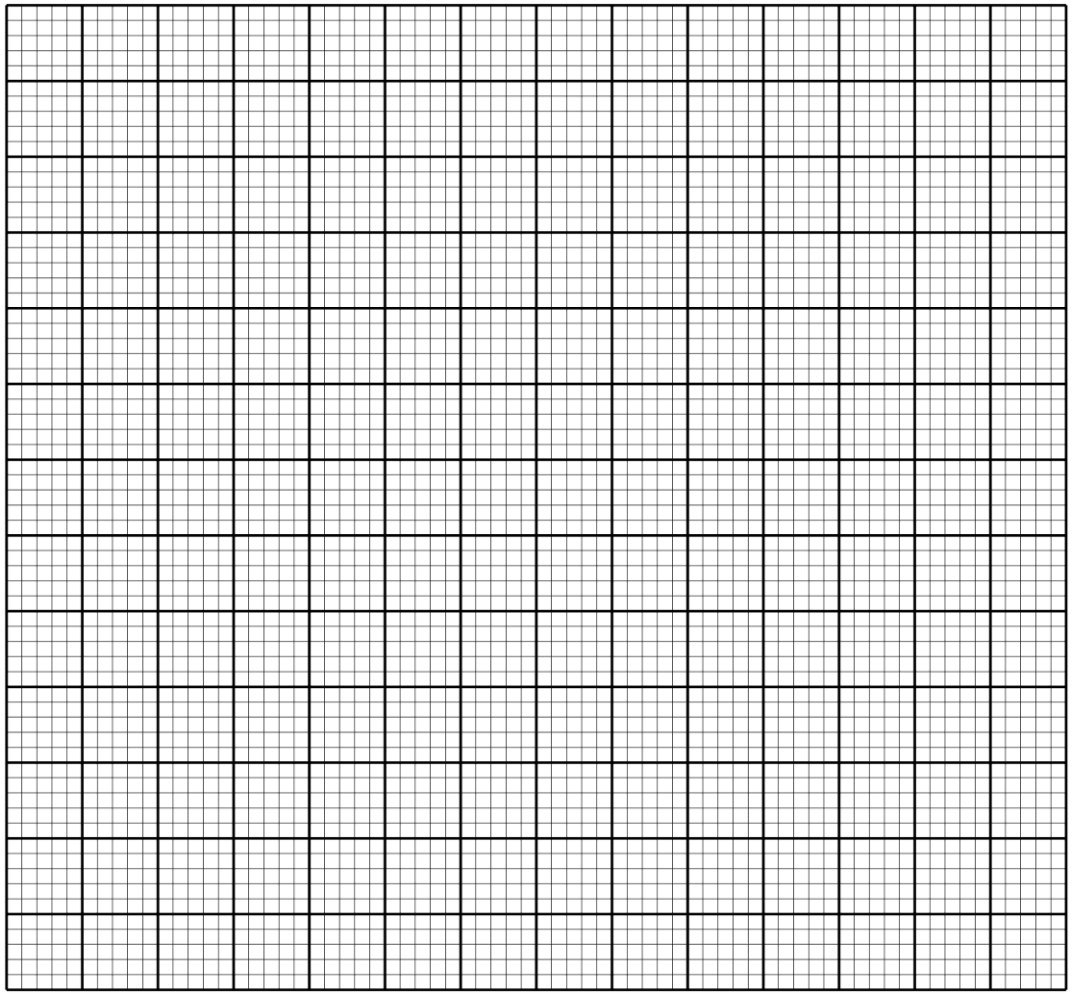
ii) Measure TB ***(1 mark)***

c) By shading the unwanted region show the area inside the triangle where P lies if it is nearer to point B than to point A and also nearer to the line AB than line AC.
(2 marks)

23. (a) Complete the table for $y = Sin\ x + 2\ Cos\ x$. ***(2 marks)***

x^0	0	30	60	90	120	150	180	210	240	270	300
$Sin\ x$	0.00			1.00		0.50		-0.50			-0.87
$2\ cos\ x$	2.00			0.00		-1.73		-1.73			1.00
y	2.00			1.00		-1.23		-2.23			0.13

(b) Draw the graph of $y = Sin\ x + 2\ cos\ x$. ***(3 marks)***



c). Solve $sinx + 2\,cos\,x = 0$ using the graph. ***(2 marks)***

d). Find the range of values of x for which $y < -0.5$ ***(3 marks)***

24. A triangle **ABC** with vertices at **A (1,-1)** ,**B (3,-1)** and **C (1, 3)** is mapped onto triangle $\mathbf{A^1B^1C^1}$ by a transformation whose matrix is $\begin{pmatrix} -1 & 0 \\ 0 & 1 \end{pmatrix}$.Triangle $\mathbf{A^1B^1C^1}$ is then mapped onto $\mathbf{A^{11}B^{11}C^{11}}$ with vertices at $\mathbf{A^{11}}$ **(2, 2),** $\mathbf{B^{11}}$ **(6, 2)** and $\mathbf{C^{11}}$ **(2,-6)** by a second transformation.

(i) Find the coordinates of $\mathbf{A^1B^1C^1}$ ***(3 marks)***

(ii) Find the matrix which maps $\mathbf{A^1B^1C^1}$ onto $\mathbf{A^{11}B^{11}C^{11}}$**.** ***(3 marks)***

(iii) Determine the ratio of the area of triangle $\mathbf{A^1B^1C^1}$ to triangle $\mathbf{A^{11}B^{11}C^{11}}$**.** ***(1 mark)***

(iv) Find the transformation matrix which maps $\mathbf{A^{11}B^{11}C^{11}}$ onto **ABC** ***(3 marks)***

BRILLIANT STUDENTS TOP EXAMINERS MOCK SERIES 1

NAME: ……..

SCHOOL: ……...……

ADM NO: …….. SIGN: ……. DATE: ……..

232/1
PHYSICS
Paper I
Theory
Time: 2 Hours

INSTRUCTIONS TO CANDIDATES

- Write your name and index number in the spaces provided above.
- Answer all the questions both in section **A** and **B** in the spaces provided below each question
- All workings must be clearly shown,
- Mathematical tables and silent electronic calculators may be used.
- Take : Acceleration due to gravity, g 10m/s^2

Density of water = Ig/cm^3

For examiner's use only

SECTION	QUESTION	MAXIMUM SCORE	CANDIDATE'S SCORE
Section A	1-13	25	
Section B	14	11	
	15	08	
	16	12	
	17	11	
	18	13	
	TOTAL	**80**	

SECTION A (25 MARKS)

Answer ALL the questions in this section in the spaces provided

1(a) Draw a diagram to represent a scale of a micrometer screw gauge of thimble scale 50 divisions and reading 3.68mm

(b) Determine the actual reading if the micrometer screw gauge above has a zero error of 0.03mm. **(1mk)**

2. State why braking systems use Liquid and not gases. **(lmk)**

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3. The figure 1 below shows the level of mercury and water in a beaker.

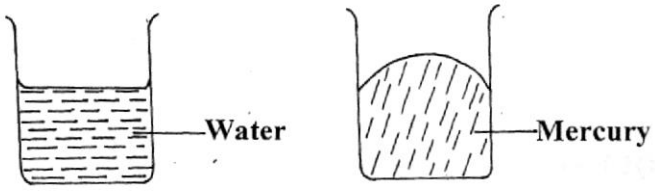

Fig 1

Explain the difference in the shape of the meniscus. **(1mk)**

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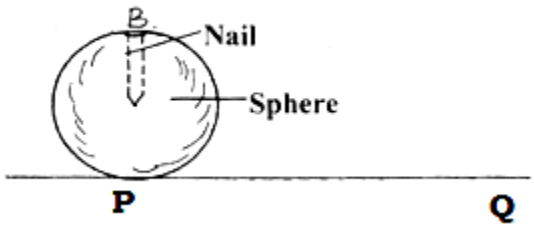
4. The figure 2 below shows a wooden sphere with a nail hammered into it at point H as shown below.

Fig 2



The sphere is rolled on a horizontal ground and comes to rest after sometime at point Q.

Draw the sphere after it comes to rest at point Q **(1mk)**

5. A 50g mass is placed on a straight air track sloping at an angle of 45° to the horizontal.

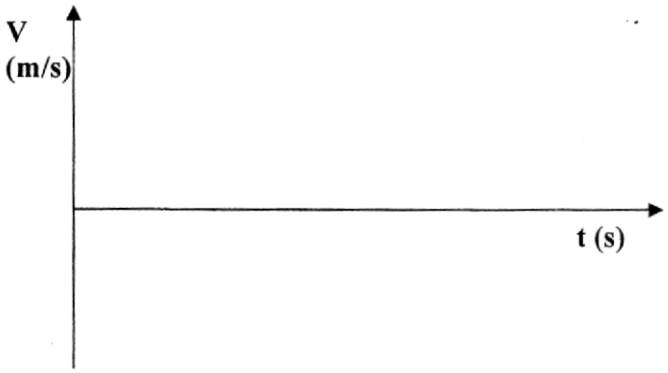
(a) Calculate in ms^{-2} , the acceleration of the load as it slides down. **(3mks)**

(b) Calculate the distance it would move from rest in 0.20s **(3mks)**

6. What is the safe speed a motorist should drive at on a level bend of radius 96m if the co-efficient of friction between the road and the tyres is 0.36m? **(3mks)**

7. A roller coaster has a vertical loop of radius 12m. The cars hurtle round the loop at l4ms^{-2} point in the loop does the passenger feel heaviest. **(1mk)**

8. Sketch on the axis provided below a velocity - time graph of a motion of a stone thrown vertically upward from the edge of a platform and eventually the stone lands without bouncing on the ground below the platform. **(1mk)**



9. The figure 4 below shows two light sheets of paper arranged as shown.

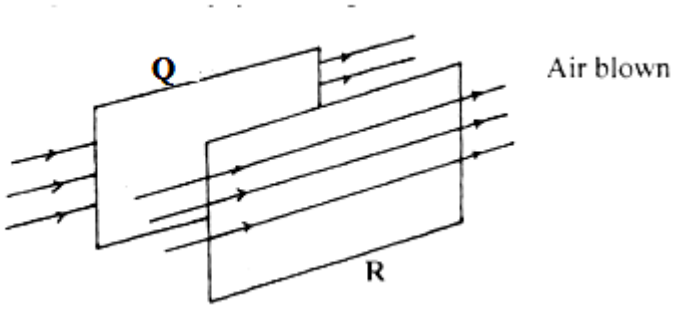


Fig 4

State what is observed if strong air is blown at the same time behind paper Q and in front of paper R as shown (1mk)

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10. A glass stopper is weighed in air then immersed wholly in water and reweighed. The readings obtained are 2.5N in air and 2.0N in water. Given that the density of water is 1000kg/m. Calculate the density of the stopper. (3mks)

11. Explain why it is safe to hold the other end of a burning match stick. **(1mk)**

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12. State two physical quantities that remain constant while pure ice is being converted to water. **(2mks)**

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13. State any two characteristics of an ideal gas. **(2mks)**

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SECTION B (55 MARKS)

Answer all the questions in this section.

14. A lead shot of mass 40g is tied to a string of length 70cm. It is swung vertically at 5 revolutions per second.

(a) Determine;

(i) Periodic time, **(2mks)**

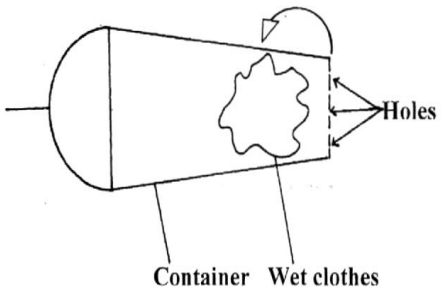
(ii) Angular velocity **(2mks)**

(iii) Linear velocity **(2mks)**

(iv) Maximum tension in the string.

(b) The figure 5 below shows a container with small holes at the bottom in which wet clothes have been put. When the container is whirled in air at high speed as shown, it is observed that the clothes dry faster. Explain how the rotation of the container causes the clothes to dry faster. **(2mks)**

Fig 5



15. A certain substance contracts when heated at a certain temperature and expands when cooled at the same temperature.

(i) Name the substance **(lmk)**

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(ii) State one disadvantage of this behaviour. **(lmk)**

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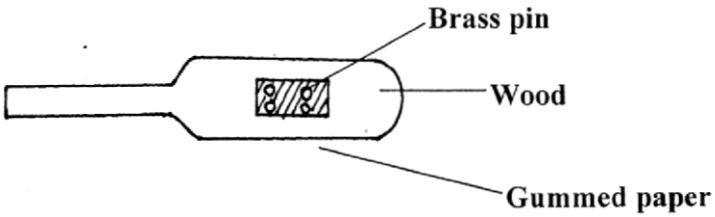
(b) The figure 6 below shows four brass pins pressed on a cooking stuck until they are flat on the wood. A white gummed paper was then stuck on the wood covering the pins. The stick was then passed over a Bunsen flame a few times.



It was observed that the paper got charred leaving four white spots. Explain this observation. **(1 mk)**

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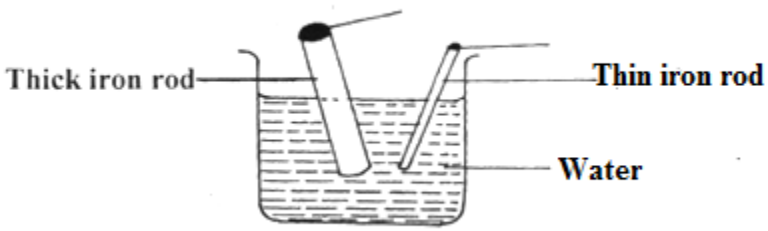
(c) The figure 7 below shows an experiment carried out by form one student.

Fig 7



(i) The students dipped two iron rods of the same length but of different thickness into a beaker of hot water at the same time. What was the experiment about? **(1mk)**

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(ii) State and explain the observations made after about 10 minutes. **(2mks)**

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(iii) If the two rods were much longer, state and explain any difference from C (ii) above that would be made in the observation. **(2mks)**

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16. (a) Explain why a gas exerts increased pressure when it is compressed into a small space. **(2mk)**

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(b) State the law that relates the volume of a gas to the temperature of the gas. **(lmk)**

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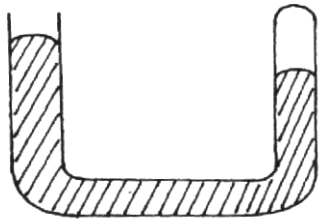
(c) A balloon is filled with air to a volume of 200ml at a temperature of 293K. Determine volume when the temperature rises to 353K at the same pressure.

(d) To verify Boyle's law a set-up consisting of a U-tube was made as shown in the figure 8 below. The tube contains mercury with air in the sealed end.



(i) Explain what is observed when more mercury is added. **(2mks)**

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(ii) Suggest a method used to maintain the temperature of air constant in the experiment. **(lmk)**

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e) (i) Explain why Boyle's law would not hold for gases such as methane, **(lmk)**

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(ii) Sketch the graph of pressure against volume for an ideal gas. (2mks)

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17. State the Archimedes's principle. (1mk)

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(b) You are provided with the following apparatus;

- A spring balance
- A small piece of metal
- Eureka can
- A beam balance
- A string
- A beaker
- A retort stand
- Some water.

With the aid of a well labeled diagram, describe an experiment you would perform in the laboratory using the above apparatus to verify Archimedes's principle for a totally immersed body. (7mks)

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(c) A simple hydrometer has a cylindrical cross-sectional area of 2.0cm^2 and weighed to have a total mass of 15g. What length of the hydrometer is immersed when it floats on water of density:1.0 g/cm^3? **(3mks)**

18. (a) What is specific latent heat of fusion? **(1mk)**

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(b) State two factors which affect freezing point of ice. **(2mks)**

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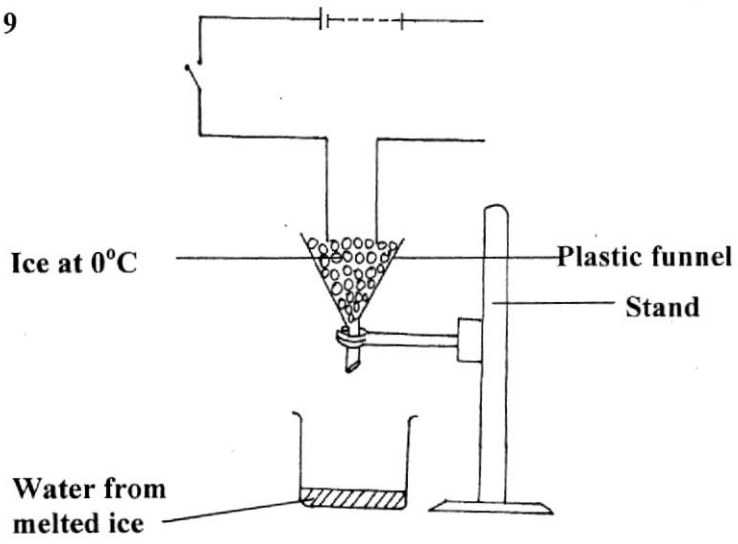
(c) Figure 9 below illustrates an experiment in which electrical energy is used to determine specific latent heat of fusion.

Fig 9



(i) Other than time, state other measurements that would be used to determine the quantity of heat Q, absorbed by ice in unit time. **(2mks)**

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(ii) Complete the circuit to show connection of the essential circuit components. **(3mks)**

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(iii) Describe how the experiment can be used to determine the latent heat of' fusion of ice. **(3mks)**

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(d) In a similar experiment, the following readings were obtained when the heater was switched on for 5 minutes

Voltmeter reading = 6.OV

Ammeter reading = 1.25 A

Temperature rise reading = 10°C

If by the end of the experiment, 200g of water at 0°C was collected determine the latent heat of fusion of ice**. (2mks)**

BRILLIANT STUDENTS TOP EXAMINERS MOCK SERIES 1

NAME: ……..

SCHOOL: ……..……

ADM NO: …….. SIGN: ……. DATE: ……..

232/2
PHYSICS
Paper 2
Theory
Time: 2 Hours

INSTRUCTIONS TO CANDIDATES

- Write your name and index number in the spaces provided above.
- This paper consists of 2 sections A and B
- Answer all questions in section A and B in the spaces provided.
- ALL working MUST be clearly shown.
- Mathematical tables and silent scientific calculators may be used.

For examiner's use only

SECTION	QUESTION	MAXIMUM SCORE	CANDIDATE'S SCORE
Section A	1-14	25	
Section B	15	12	
	16	08	
	17	7	
	18	7	
	19	11	
	20	10	
	TOTAL	**80**	

1. State any 2 ways of in increasing the size of an image formed by a fixed pinhole camera. **(2 mks)**

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2. State 2 advantages of alkaline battery over a lead acid battery. **(2 mks)**

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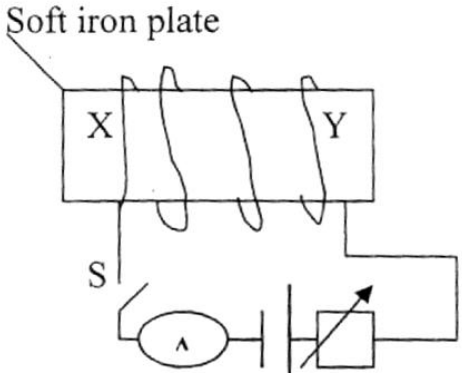
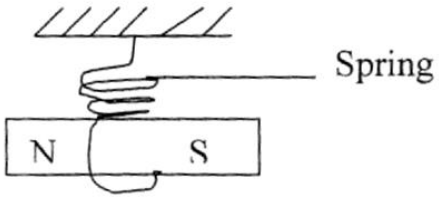
3. The diagrams below show a soft iron plate in a solenoid and a permanent magnet suspended by a spring.





State with reason the behaviour of the magnet when the switch S is closed. **(2 mks)**

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4. A man, standing between 2 parallel vertical walls, claps his hands. He hears the first echo 0.3 seconds later and the next echo after a further 0.2 seconds. If the velocity of sound in air is 300m/h. Calculate the distance between the walls. **(3 mks)**

5. Silicon was doped with boron to form an extrinsic semi conductor. What is the majority charge carriers? **(1 mark)**

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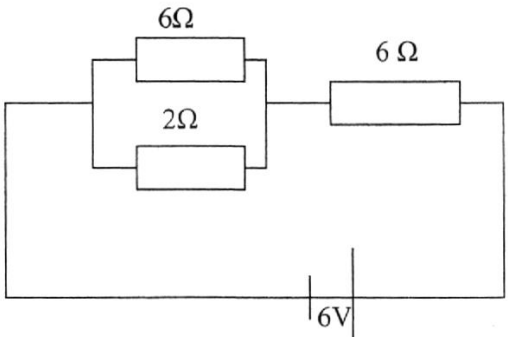
6. The table below shows an electromagnetic spectrum. Complete the table in the order of increasing wavelength from A- B. **(2 marks)**

A			Visible Light			B

7. The figure below shows a 6V battery connected to an arrangement of resistors.



Determine the current flowing through 2 **Ω** resistor. **(3 marks)**

8. State difference between semi conductors and metallic conductors. **(1 mark)**

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9. A radioactive sample has a mass of 16g and a half-life of 10 days. How much of the original sample remains after 40 days. **(2 marks)**

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10. Negatively charged rod is brought near the cap of a lightly charged electroscope. The leaf divergence first reduces but as the rod comes nearer, it diverges more.

i) State the charge of the electroscope. **(1 mark)**

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(ii) Explain the behaviour of the leaf above. **(1 mark)**

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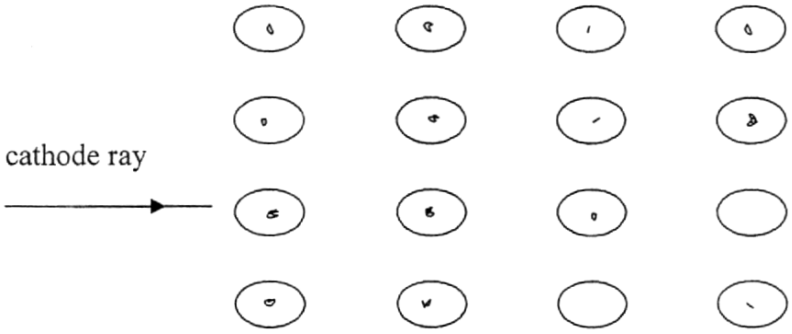
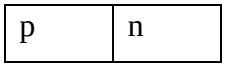
11. Water waves pass a point in a swimming pool at the rate of 30 crests per 60 seconds. One of the crests was observed to take 2 seconds to travel between 2 points, 6m apart. Determine the wavelength of the water waves. **(2 marks)**

12. The figure below shows a cathode ray beam entering a magnetic field, perpendicular to the plane of the paper complete the diagram to show the path of the beam in the field. (1 mark)



13. The diagram below shows a junction diode.



Complete the diagram to show how the diode can be connected in a reverse bias mode**. (1 mark)**

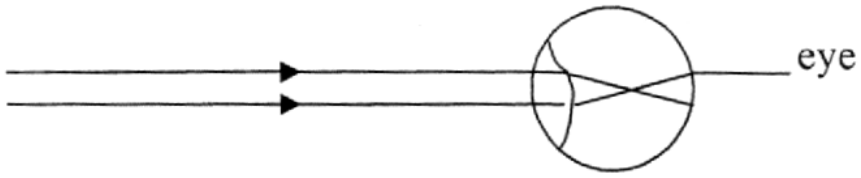
14. An Uranium 236 isotope has a symbol ${}^{2361}_{92}U$ when bombarded by a neutron, it splits to give s Substances K and L and 2 neutrons. Calculate the values of a and b in the equation below. **(1 mark)**

$$^{236}_{92}U + {}^{1}_{1}n \longrightarrow {}^{95}_{56}K + {}^{a}_{b}L + {}^{+2}_{0}\text{n}$$

SECTION B (55 MARKS)

Answer all questions from this section in the spaces provided.

15. a) The figure below shows rays of light entering a human eye which has a defect.



i) Name the defect **(1 mark)**

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ii) State 2 possible causes of the defect. **(1 mark)**

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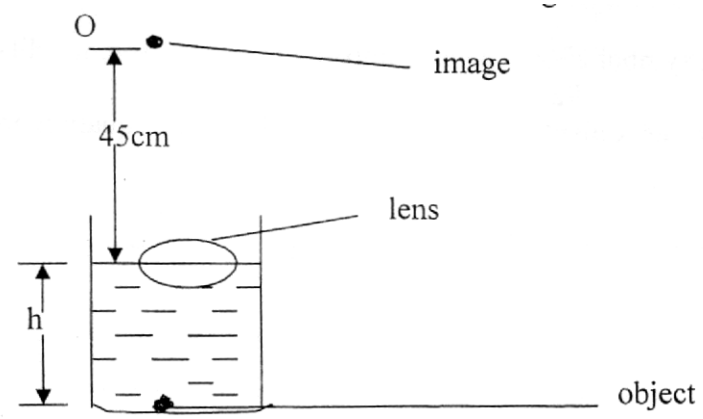
iii) In the space below, draw a ray diagram to show how the defect can be corrected. **(1mark)**

b) A small bright object O lies at the bottom of a beaker containing water of depth h. A convex lens of focal length 15cm is held at the surface of the water. With this arrangement the image of O is formed at a point 45cm from the water surface as shown in the figure below.

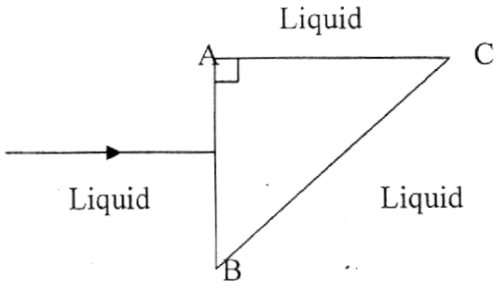


Taking the refractive index of water to be 4/3. Determine

(i) the apparent depth of the object **(2 marks)**

(ii) The real depth h, of the object **(3 marks)**

c.) A ray light is incident at right angles at the face AD, of a right angled isosceles prism of refractive index 1.6 as shown in the figure below.

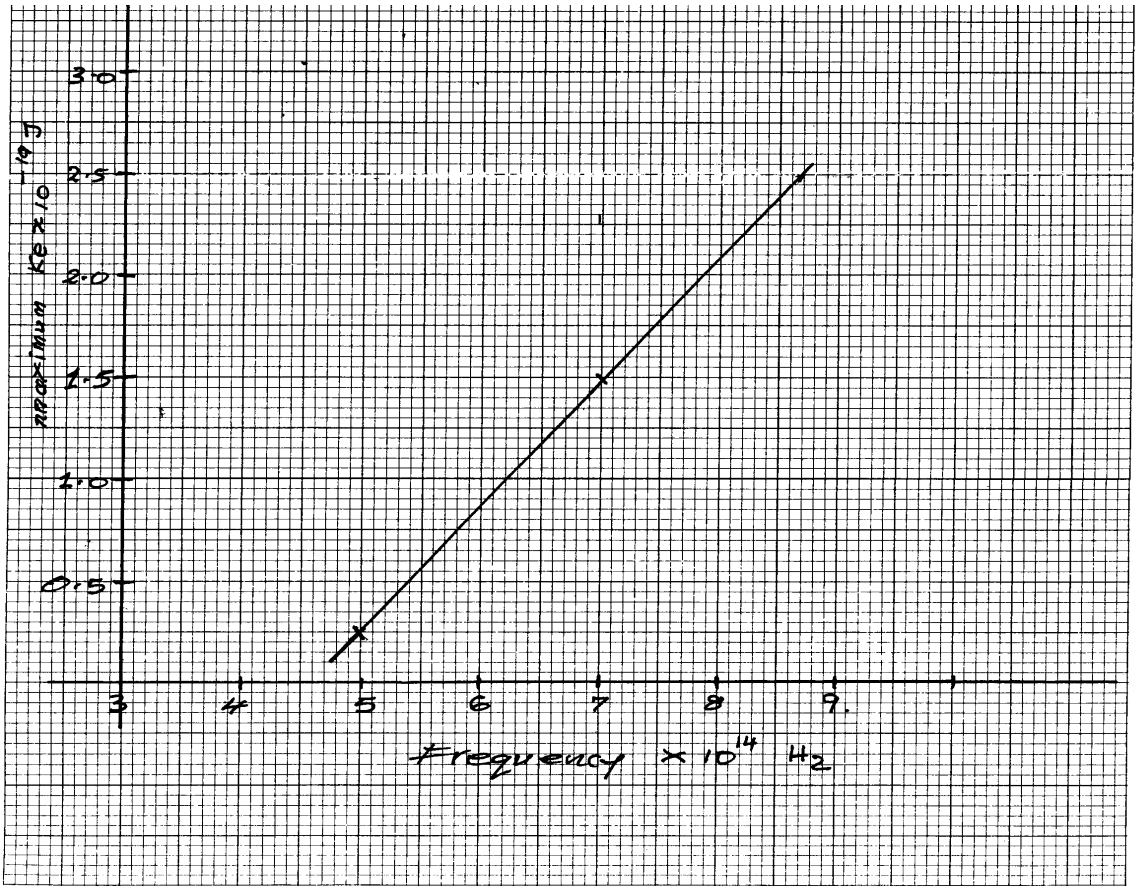


If the prism is surrounded by a liquid of refractive index 1.40.
Determine:
i) The angle of incidence on the face BC. **(1 mark)**

(ii) The angle of refraction on the face BC. **(3 marks)**

16. a) Define the term "Work function" (1 mark)

b) A student investigated how the maximum kinetic energy of the photoelectrons, emitted from a zinc cathode, varies with the frequency of the incident radiation. The results obtained were plotted as shown on the graph below.

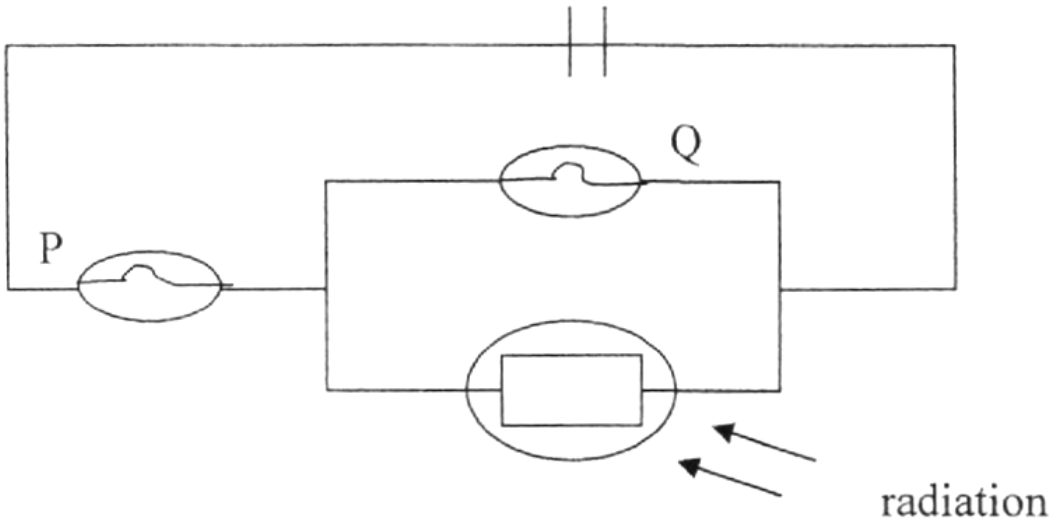


From the graph determine:

(i) The plank's constant

(ii) The work function of the cathode **(3 marks)**

C. The diagram below shows a circuit containing a battery, 2 identical lamps and a photoconductive cell or a light dependent resistor. (L.D.R)



State and explain what will be observed on the brightness of the lamp Q, if the intensity of the radiation falling on the LDR is increased gradually. **(2 marks)**

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7. a) A transformer has 960 turns in its primary coil and n turns in its secondary coil and is connected to a 240 V supply. Given that the transformer is 80% efficient and it is used to operate a 6V, 24W bulb. Find:

(i) The number of turns in its secondary coil. **(2 marks)**

(ii) The current flowing in the primary coil. **(2 marks)**

b) Explain why the voltage of mains electricity has to be stepped up immediately after power generation. **(1 mark)**

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c) An immersion heater is rated 5 KW 250V. It is used for 2 hours daily. If electricity cost sh l2.00 per unit, calculate the weekly cost of running the heater. **(2 marks)**

18. a) Explain how doping produces a p-type semi conductor for pure semi conductor material

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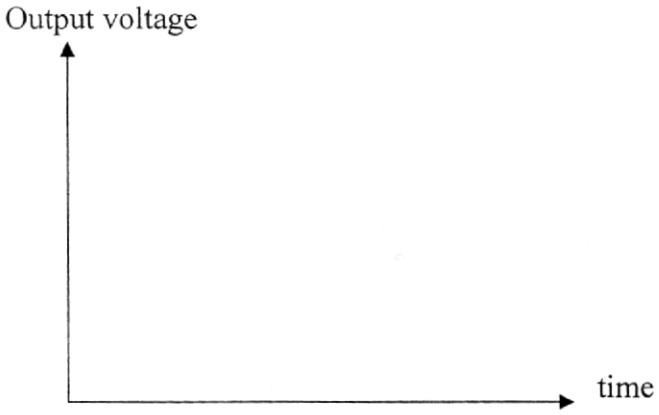
b) You are provided with 4 diodes, A resistor, an a.c of low voltage and enough connecting wires

(i) In the spaces provided below, sketch the circuit diagram for a full wave rectifier and indicate the terminals where the output voltage v may be connected. **(2 marks)**

(ii) On the axes provided below, sketch the graph of output voltage against time for the rectifier.**(1 Mark)**



(ii) A capacitor is now connected across the output. Explain its effect on the output. **(2 marks)**

……

……

……

……

19. a) Define the term "e.m.f" of a cell. **(I mark)**

……

……

……

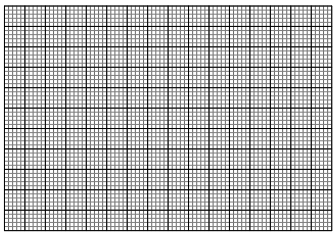
……

b) A battery is connected in series with an ammeter and a variable resistor R. The resistor is varied and the corresponding readings of the ammeter recorded in the table below.

Resistance RΩ	1.0	2.0	3.0	4.0	5.0	10.0
Current 1(A)	2.0	1.5	1.2	1.0	0.75	0.5

(i) Draw a circuit diagram of the circuit that was used to perform this experiment. **(1 mark)**

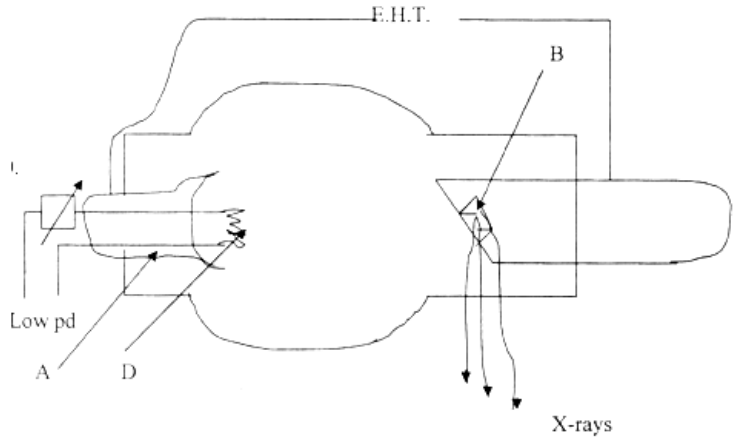
(ii) On the grip provided, plot a graph of R (y-axis) against I (x-axis). (5 marks)



(iii) Use your graph to determine the internal resistance of the battery.

(iii) Determine the e.m.f of the cell,

20. The diagram below shows an X-ray tube



a) State the functions of A and C **(2 marks)**

……

……

……

……

b) What adjustment on the x-ray tube will:

(i) Increase the hardness of the x-rays **(1 mark)**

……

……

……

……

(ii) Reduce the intensity of the x-rays. **(1 mark)**

……

……

……

c). (i) An x-ray tube has an accelerating p.d of 50 kV. Determine the shortest wavelength of its x-ray beam. (Planks constant h = $6.63X10^{-34}$ Js charge on an electron e = $1.6X10^{-19}$C average velocity of light, $c=30X10^{8}$ m/s? **(3 marks)**

(i) An isotope of uranium $^{238}_{92}U$ decays by emitting an alpha particle and a beta particle forming a new element M. Write down an equation for the reaction. **(1 mark)**

(ii) Explain what causes chain reaction in a nuclear reactor. **(1 mark)**

……

……

……

……

(iii) Give one application of radioactivity. (1 mark)

……

……

……

BRILLIANT STUDENTS TOP EXAMINERS MOCK SERIES 1

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ADM NO: …….. SIGN: ……. DATE: ……..

Kenya Certificate of Secondary Education

232/3 – PHYSICS – Paper 3

INSTRUCTIONS TO CANDIDATES

1. Write your **name, index number, class, date** and **signature** in the spaces provided above.
2. This paper consists of two questions **1** and **2.**
3. Answer all questions in the spaces provided.
4. Non-programmable calculators and mathematical tables may be used.
5. Show all your workings.

QUESTION 1	a	d	e	f	g	h	k	TOTAL
Maximum score	½	1½	1	3½	2	6½	5	20
Candidates score								

QUESTION 2	c	d	e	f	i	j	k	l	TOTAL
Maximum score	2	2	1	2	4	5	2	2	20
Candidates score									

This paper consists of 10 printed pages. Candidates should check the question paper to ensure that all pages are printed as indicated and no questions are missing

QUESTION 1

PART A

You are provided with the following:

-A watch glass

-A piece of plasticine

-A marble

-A Stopwatch

-An electronic balance (*to be shared*)

- Vernier calipers (*to be shared*)

- Geometrical set

Proceed as follows:

(a) Measure the mass, **m** of the marble.

m = **……**g **($^1/_2$mark)**

b) Place the watch glass on the table. Cut the plasticine into two pieces and use them to hold the watch glass firmly on the table as shown in **Figure 1**.

c). Release the marble from one end of the watch glass and time 5 complete oscillation with the stopwatch. Repeat this one more time.

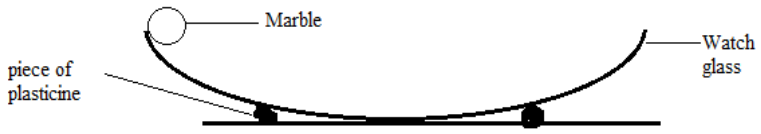


Figure 1

d) Record your values in the **Table 1** **(1 1/2 marks)**

Attempt	Time for **5** oscillations (seconds)	Periodic time, **T**(s)
1st		
2nd		

Table 1

e) Find the average periodic time **T** **(1mark)**

f) (i)Measure the diameter of the marble with the Vernier calipers, hence find its radius

Diameter, **d** = **……** **(1mark)**

Radius, **r** = **…….m** **(1/2mark)**

(ii)Determine the volume of the marble given that $V=\frac{4}{3}\pi r^3$ where π=3.142 **(1mark)**

(iii)Calculate the radius of the curvature of the watch glass R from the formula $R - r = \frac{5gT^2}{7(2\pi)^2}$

Where g=10m/s^2 and π=3.142 **(1mark)**

PART B

You are provided with the following:

- A glass prism
- A plain sheet of paper
- A soft board
- 4 optical pins
- 2 Thumb tacks

Proceed as follows:

g) (i)Firmly fix the plain sheet of paper on the soft board using the thumb tacks and place the prism at the centre of the paper. Trace the outline of the prism using a pencil.

(ii)Remove the prism from the outline and label the vertices of the outline L, M and N as shown in **Figure 2**

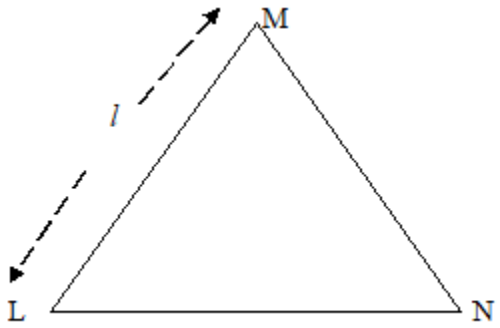


Figure 2

Measure Angle LMN and length, **l** using a ruler

Angle LMN = **……** **(1mark)**

Length, l = **……** **(1mark)**

iii) On the side ML mark a point and draw the normal at that point. Measure an angle T, 60° from the line LM and draw a line along this angle as shown in **Figure 3.**

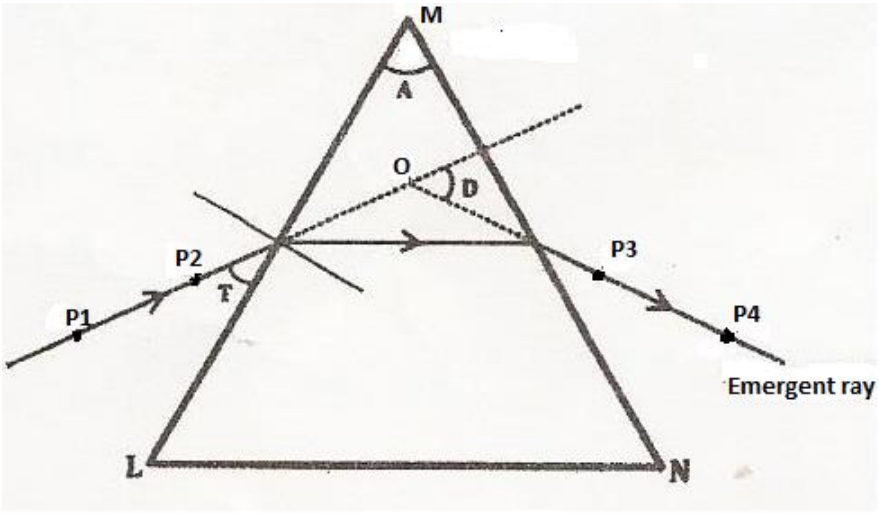


Figure 3

iv). Replace the prism on the outline and fix pins P_1 and P_2 on the 60° line at a distance of 3cm from each other. View the images of the pins P_1 and P_2 through side MN and fix P_3 and P_4 so that they appear to be on straight line with the images of P_1 and P_2.

v). Remove the prism and the pins and draw a line to pass through the holes made by pins P_3 and P_4. Extend the line into the outline as shown in figure 3 above. Also extend the 60° line so that the two lines cross each other at point O. Determine angle D and record it in the **Table 2**

h). (i)Repeat the procedure and complete the **Table 2** **(2 ½marks)**

$Angle\ T\ (°)$	60°	50°	40°
$Angle\ D(°)$			
$Angle\ I°(90° - T)$			

Table 2

(ii) Determine the average value D_m of D **(1mark)**

iii) Determine the constant ***k*** for the glass prism from the formula **(2marks)**

$$k = \frac{\sin(\frac{A + D_m}{2})}{\sin\frac{A}{2}}$$

iv) State the significance of ***k*** **(1mark)**

PART C

You are provided with the following:

- A lens holder
- Convex lens
- A candle
- A white screen
- A metre rule

Proceed as follows:

i) Set up the apparatus as shown in **Figure 4**

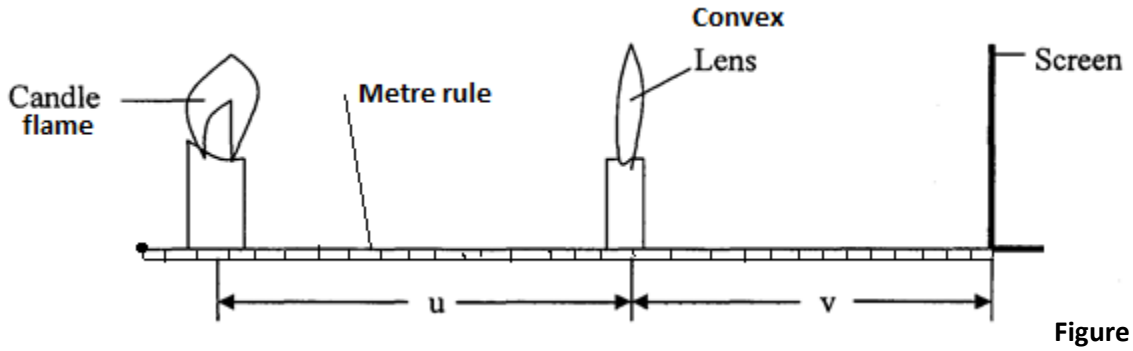


Figure 4

(j) Starting with u = 30 cm, adjust the position of the screen to obtain a sharp image of the candle flame. Record the value of v in **Table 3**.

(k)(i) Repeat the procedure in (i) for u = 30 cm. Complete **Table 3** (3marks)

u (cm)	v (cm)	m = $\frac{v}{u}$
30		
50		

Table 3

(ii) Given that the focal length f of the lens satisfies the equation f = $\frac{v}{m+1}$, determine the average value of the focal length, f.

(2 marks)

QUESTION 2

You are provided with the following:

- An ammeter (**0** – **1 A**)
- A voltmeter (**0** – **3 V** or **0** – **5 V**)
- A variable resistor
- A **10Ω** carbon resistor
- A piece of resistance wire
- Two new dry cells
- A cell holder
- A switch
- Seven connecting wires

Proceed as follows:

a) Take the resistant wire and coil it around the biro pen to make a coil.

b) Set up the apparatus as shown **Figure 5** below such that the **10Ω** carbon resistor and the coil are in parallel connection.

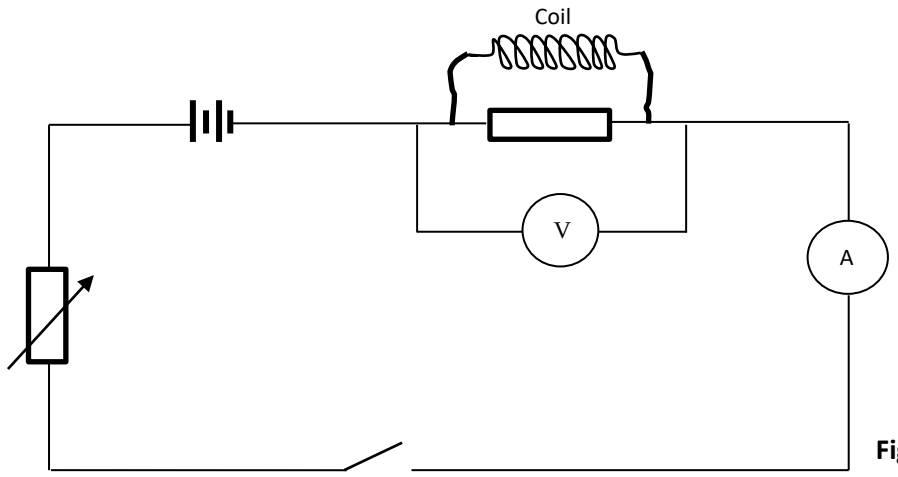


Figure 5

c) Close the switch and the adjust the variable resistor such that the ammeter read a current of I_1=**0.08A** and record the corresponding voltmeter reading $\mathbf{V_1}$

i) $\mathbf{V_1}$ =…… **(1mark)**

ii) Calculate resistance $\mathbf{R_1 = \frac{V_1}{I_1}}$ **(1mark)**

d) Repeat (c) above for current of I_2 = **0.16A** and record the corresponding voltmeter reading $\mathbf{V_2}$

i) $\mathbf{V_2}$ =…… **(1mark)**

ii) Calculate resistance $\mathbf{R_2 = \frac{V_2}{I_2}}$ **(1mark)**

e) Find the average value of resistance **R** **(1mark)**

f) Determine the resistance, **C** of the coil **(2marks)**

g) Now set up the apparatus as shown in **Figure 6** below such that the voltmeter is connected across the cells, **10Ω** carbon resistor and the coil are in parallel connection.

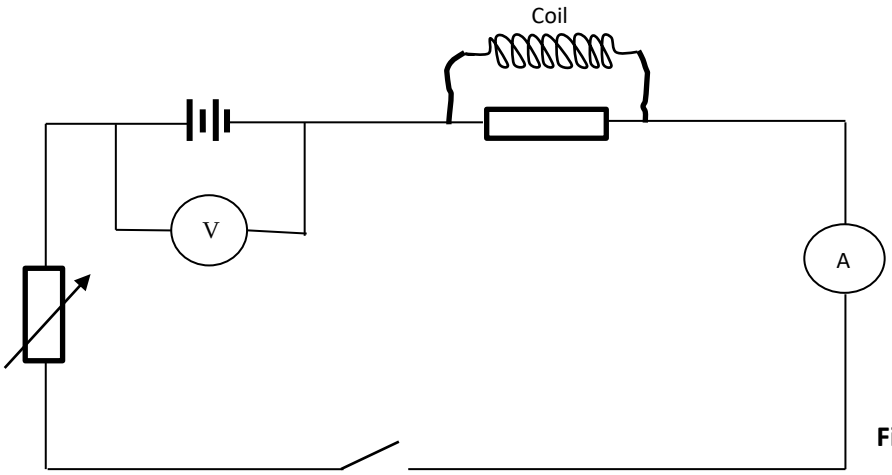


Figure 6

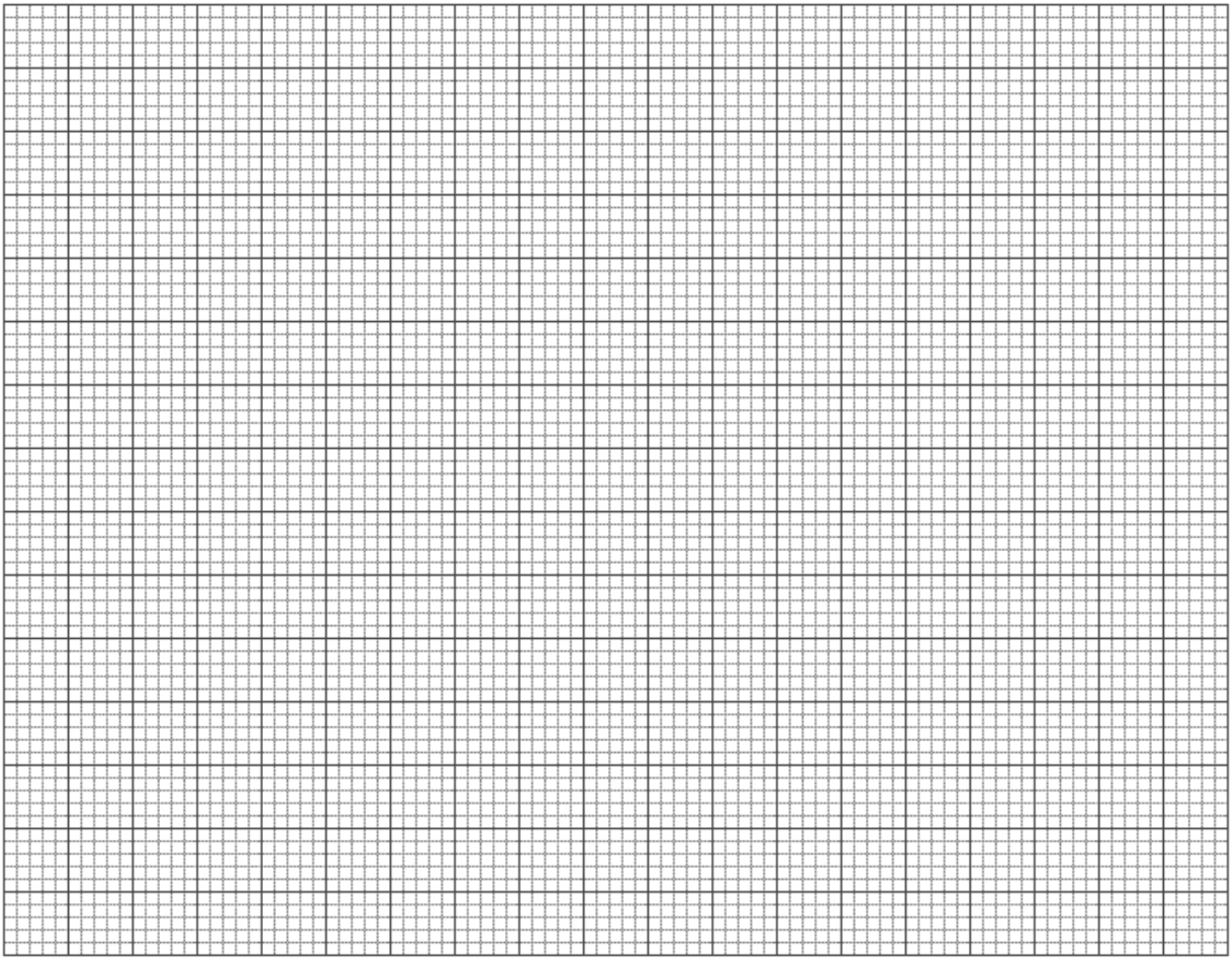
h) Close the switch and the adjust the variable resistor such that the ammeter reads a current of **0.04A** and note the corresponding voltmeter reading. Record the value in the **Table 4** below.

i) Repeat (h) above for other values of current and voltage and complete the **Table 4** below

Current, I (A)	**0.04**	**0.08**	**0.12**	**0.16**	**0.20**	**0.24**
Voltage, V(V)						

(4marks) **Table 4**

j) On the grid provided plot a graph of **Voltage, V (V)** against **Current, I (A) (5marks)**



k) Determine the slope of the of the graph **(2marks)**

l) Given that graph is related to equation $\mathbf{E = V + Ir}$ where **E** and **r** are the emf and internal resistance of the cells respectively, use your graph to determine the value of:

E =…… **(1mark)**

r =…….…… **(1mark)**