BRILLIANT STUDENTS TOP EXAMINERS MOCK SERIES 3 EXAMS *(ALL SUBJECTS TESTED)*

BRILLIANT STUDENTS TOP EXAMINERS MOCK SERIES 3 EXAMS

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For Marking Schemes

***N/B** In Response to the Huge Costs Associated in Coming Up with Such/Similar Resources Regularly, We inform us All, MARKING SCHEMES ARE NOT FREE OF CHARGE. However Similar QUESTIONS, Inform of soft Copies, are Absolutely FREE to Anybody/Everybody. Hence NOT FOR SALE*

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BRILLIANT STUDENTS TOP EXAMINERS MOCK SERIES 3

NAME: ……..

SCHOOL: ……...……

ADM NO: …….. SIGN: ……. DATE: ……..

443/1
AGRICULTURE
PAPER 1
TIME: 2 HOURS

Kenya Certificate of Secondary Education (K.C.S.E)

INSTRUCTIONS TO CANDIDATES:

- Write your name and index number in the spaces provided above.
- Sign and write the date of examination in the spaces provided above.
- This paper consists of **THREE** Sections **A**, **B** and **C**.
- Answer all questions in Section **A** and **B**.
- Answer two questions in Section **C** in the spaces provided.

FOR EXAMINER'S USE ONLY

Section	Question	Maximum Score	Candidate's Score
A	1 - 21	30	
B	22 - 26	20	
C	27 - 29	20	
		20	
Total Score		90	

SECTION A: (30 MARKS)

Answer **ALL** questions in this section in the spaces provided.

1. Name **three** forms of horticulture farming. **(1½mks)**

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2. Name any **two** factors which influence soil colour. **(1mk)**

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3. Give **three** reasons why Agricultural produce should be processed. **(1½mks)**

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4. List **two** qualities that enable sorghum to be drought resistant. **(1mk)**

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5. State **three** entries that are made in a journal. **(1½mks)**

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6. List **two** features of plastic pipes a farmer should consider before buying. **(1mk)**

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7. State **three** reasons for top dressing pasture. **(1½mks)**

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8. State **three** environmental conditions that may lead to low crop yields. **(1½mks)**

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9. Give **three** indicators of well decomposed manure. **(1½mks)**

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10. State **three** functions of plastic materials when used as mulch in crop production. **(1½mks)**

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11. Differentiate between gross domestic product and per capita income. **(2mks)**

(a) Gross domestic product.

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Per capital income.

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12. Give **two** reasons why bush burning is discouraged during land preparation. **(1mk)**

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13. State **three** causes of blossom end rot disease in tomato crop. **(1½mks)**

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14. State **three** desirable characteristics of agroforestry trees a farmer would consider before planting in the farm. **(1½mks)**

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15. Name **four** items that a maize farmer can enter into his consumable inventory records. **(2mks)**

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16. State any **three** aims of land settlement programmers in Kenya. **(1½mks)**

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17. List **two** ways in which soil of P^H3 can be raised to P^H 6.5. **(1mk)**

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18. Differentiate between hybrid and composite as used in crop breeding. (2mks)

(a) Hybrid

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(b) Composite

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19. State **two** possible causes of wilting in tomato plants despite adequate water supply. **(1mk)**

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20. Name the form in which the following nutrients are absorbed by plants. **(1½mks)**

(i) Calcium _____

(ii) Sulphur _____

(iii) Molybdenum _____

21. List **three** farming practices done to reduce water stress in crop production. **(1½mks)**

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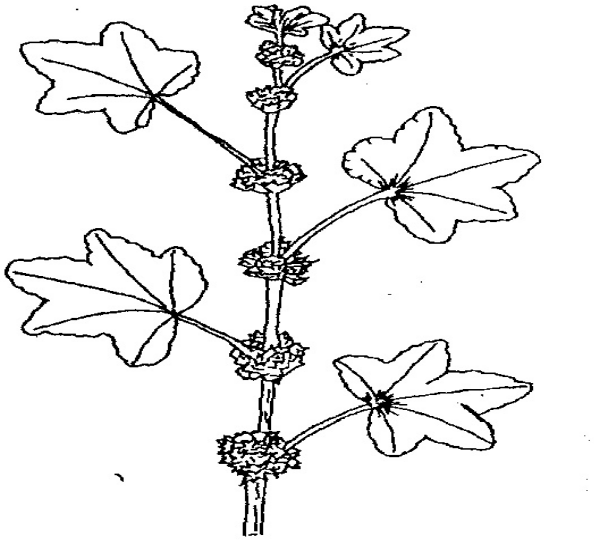
SECTION B: (20 MARKS)

Answer all the questions in this section in the spaces provided.

22. **B**elow is a diagram of a Common East African Weed.



(i) Identify the weed illustrated above. **(1mk)**

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(ii) Give **one** harmful effect of the weed illustrated above to livestock. **(1mk)**

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(iii)State **two** methods of controlling the weed illustrated above. **(2mks)**

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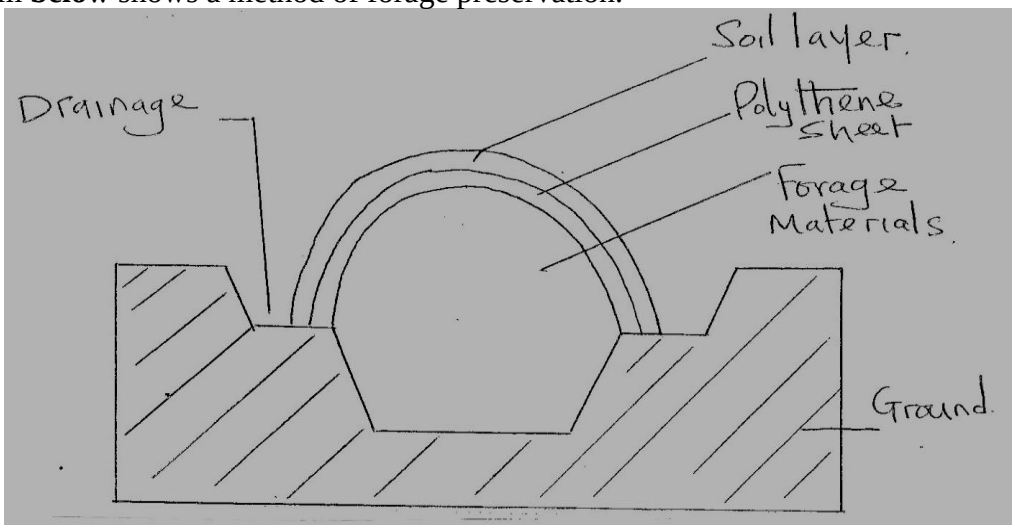
23. The diagram **below** shows a method of forage preservation.



(i) Identify the structure illustrated above. **(1mk)**

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(ii) State the form in which forage is conserved as illustrated above. **(1mk)**

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(iii)Give the role of the following in the structure above. **(2mks)**

(a) Polythene sheet.

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(b) Drainage

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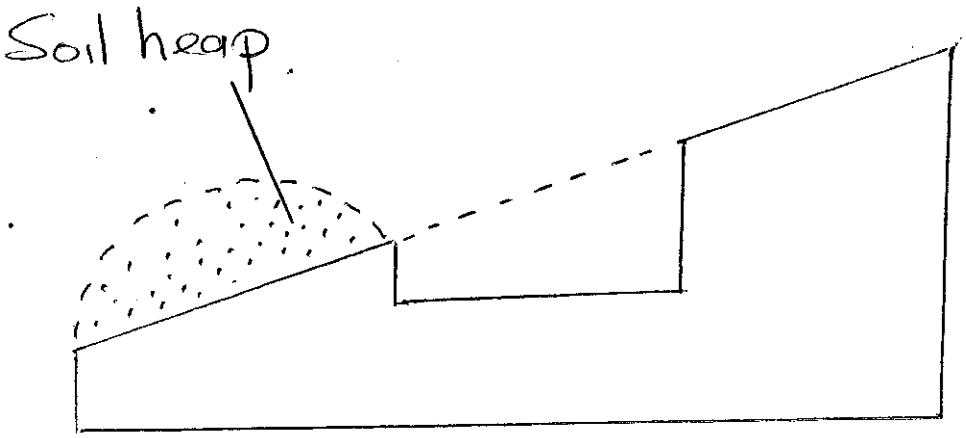
24. The illustration **below** represents a form of physical measures in conservation soil and water. Study it carefully and answer the questions that follow.



(a) Identify the illustration above. **(1mk)**

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(b) Describe how the above physical measure conserves soil and water. **(2mks)**

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(c) Name **two** other physical measures that can be used to conserve water. **(1mk)**

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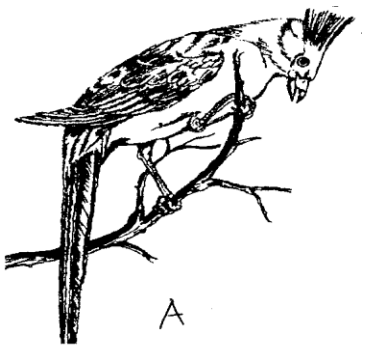
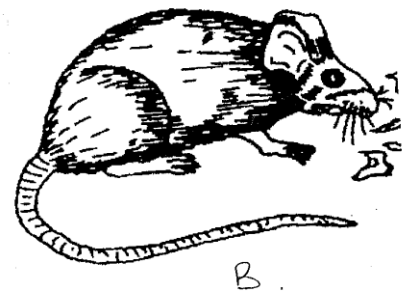
25. Study the diagram **below** carefully and answer the questions that follow.





(a) Identify the field pest shown in the illustration **A** and **B** above. **(2mks)**

A - _____

B - _____

(b) State **two** effect the pest expressed in **A** above has on maize plant. **(2mks)**

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26. A livestock farmer in Kirinyaga can rear dairy cattle, beef cattle or sheep. If the farmer undertakes each of the enterprises at a time, he is likely to get returns as follows:

Dairy cattle	Kshs.70,000
Beef cattle	Kshs.65,000
Sheep farming	Kshs.75,000

(a) From the information given which enterprise the farmer should choose? **(1mk)**

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

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(c) What is the opportunity cost of undertaking the enterprise chosen in (a) above? **(1mk)**

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(d) What is the importance of scarcity in agricultural production? **(1mk)**

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SECTION C: (40 MARKS)

Answer any **two** questions from this section in the spaces provided after question **29**.

27. (a) The information below was extracted from the financial valuation of micro-farm at the end of the year 2007.

Item	Value in Ksh.
Dairy cattle	55,000.00
Maize in store	19,000.00
Buildings	126,000.00
Calves	5,000.00
Seven mature sheep	7,000.00
Land	260,000.00
Machinery	4,000.00
Cattle feed in store	4,000.00
Office equipments	1,400.00
Tools in store	10,000.00

On the same date the farm had Ksh.50,000/- in the bank. KCC owed the farm 5,000/- for milk delivered, owed KFS 4,500/- for fertilizers, 5,000/- to Unga Limited for feeds delivered and labourers wages 12,000/-.

(i) Draw up a balance sheet for the micro-farm as at 31st December 2007. **(11mks)**

(b) Is the farm solvent or insolvent? (**1mk)**

(ii) Describe the procedure of harvesting coffee. **(4mks)**

(iii) A farmer is supposed to apply a compound fertilizer 20:30:10 on a plot measuring 5m long and 4m wide at the rate of 200kg/ha.

(a) What do the figures 20:30 stand for? **(2mks)**

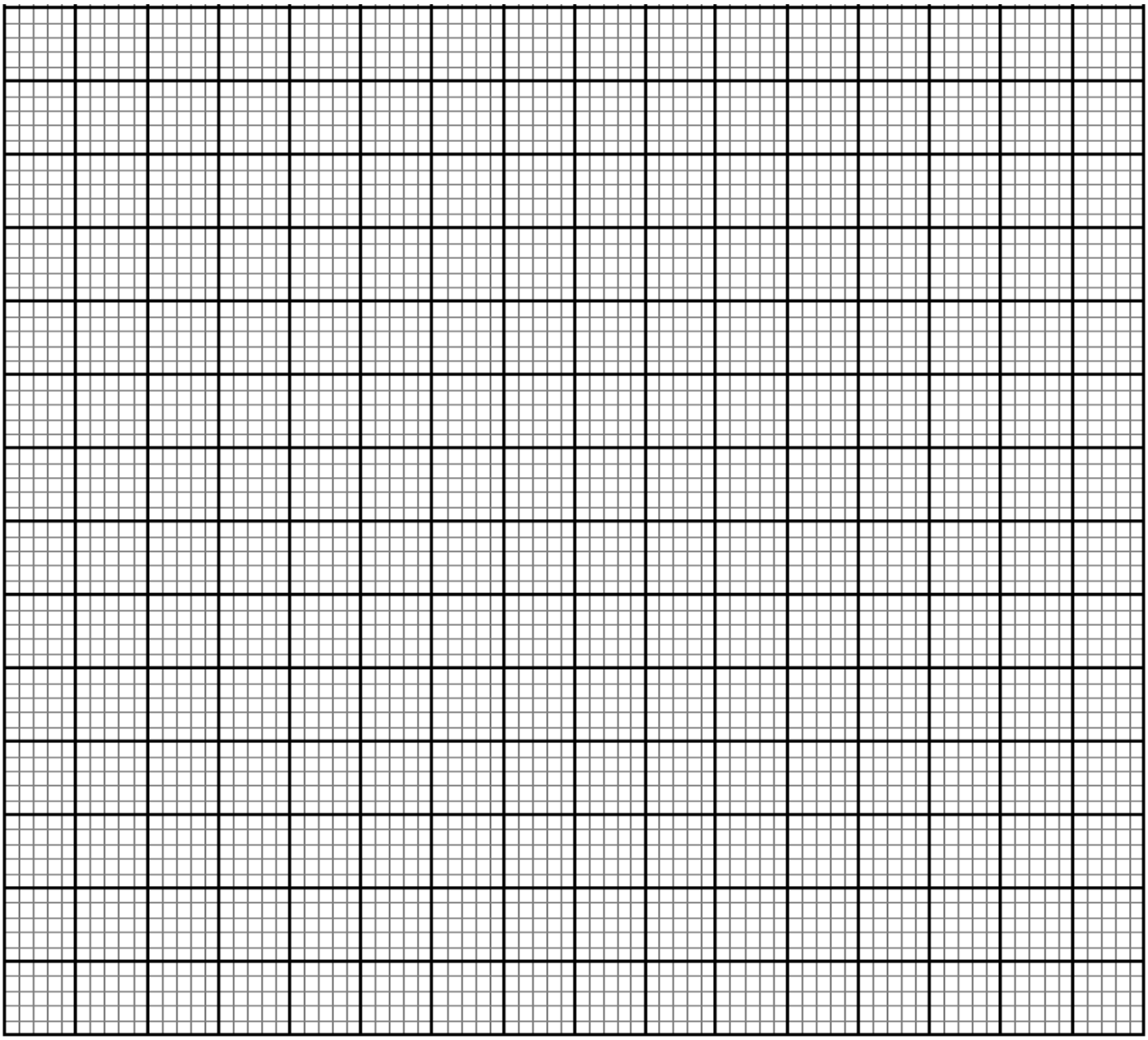
(b) Calculate the amount of fertilizer the farmer will require per plot. Show your working. **(2mks)**

28. (a) The table **below** shows the production of maize at various level of NPK fertilizer application. Study it carefully and answer the questions that follow.

Land size in ha	Variable input NPK in kg	Total product maize in 90kg bags	Marginal product maize in 90kg bags	Average product maize in 90kg bags
1	50	10	10	10
1	100	27	A	F
1	150	42	15	14
1	200	56	B	14
1	250	63	7	12.6
1	300	65	C	G
1	350	65	D	9.3
1	400	60	-5	7.5
1	450	52	E	H
1	500	42	-10	4.2

(i) Complete the above. **(4mks)**

(ii) Using the graph paper provided draw a graph of total product, marginal product and average product against variable input on the same axis and mark the three zones of production. **(7mks)**



(iii) With a reason identify the best zone of production. **(2mks)**

(b) Give **two** varieties of sorghum grown in Kenya. **(2mks)**

(c) Describe **five** effects of soil erosion. **(5mks)**

29. (a) Explain **seven** working principles of co-operative societies. **(7mks)**

(b) Describe the procedure of whip grafting in citrus propagation. **(5mks)**

(c) Describe **four** components of a well developed soil profile. **(8mks)**

BRILLIANT STUDENTS TOP EXAMINERS MOCK SERIES 3

NAME: ……..

SCHOOL: ……...……

ADM NO: …….. SIGN: ……. DATE: ……..

443/2
AGRICULTURE
PAPER 2
TIME: 2 HOURS

INSTRUCTIONS TO CANDIDATES

[a] Write your name and index number in the spaces provided above .

[b]Sign and write the date of examination in the spaces provided above .

[c]This paper consists of three sections : A ,B,C .

[d]Answer all the questions in Section A and B and any two questions in Section C

[e]All answers should be written in the spaces provided on the question paper .

FOR EXAMINERS USE ONLY

SECTION	QUESTIONS	MAX.SCORE	CAND. SCORE
A	1-19	30	
B	20-23	20	
C	24 ,25 ,26	20	
	24 ,25 ,26	20	
TOTAL SCORE		90	

SECTION A [30 MARKS]

Answer all the questions in this section in the spaces provided.

1) Name four dairy breeds of goats. **[2marks]**

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2) Give four characteristics of clean and high quality milk . **[2marks]**

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3) Name two classes of livestock feedstuff. **[1mark]**

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4) Give three systems of out breeding **.[1.5marks]**

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5) Give the pathogens that cause the following livestock diseases.

[a] Anthrax **[0.5marks]**

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[b] Gumboro **[0.5marks**

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6) State two reasons for hoof trimming in livestock **.[1mark]**

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7) Give four symptoms of Newcastle disease **.[2marks]**

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8) State four management activities done to piglets immediately after parturition **[2marks]**

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9) Give four pre disposing factors of mastitis in dairy cows. **[2marks]**

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10) State four routine management practices carried out on a replacement stock that is a heifer. **[2marks]**

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11. Outline two control measures of roundworms. **[1mark]**

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12. Give two maintenance practices carried out on a barbed wire fence . **[1mark]**

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[a] Name a pig breed that is purely black with a long back and drooping ears . **[0.5mark]**

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[b] Name four materials collected by bees. **[2marks]**

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14. State four mechanical methods of controlling ticks **. [2marks]**

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15. Give two roles of ovaries in a cows reproductive system **. [1mark]**

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16. State four reasons that make keeping of rabbits popular. **[2marks]**

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17. Give two roles of a bee drone. **[1 mark]**

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18. State four management practices carried out in a deep litter system of poultry keeping . [2marks]

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19. Name two functions of a clutch in the tractors transmission system **.[1mark]**

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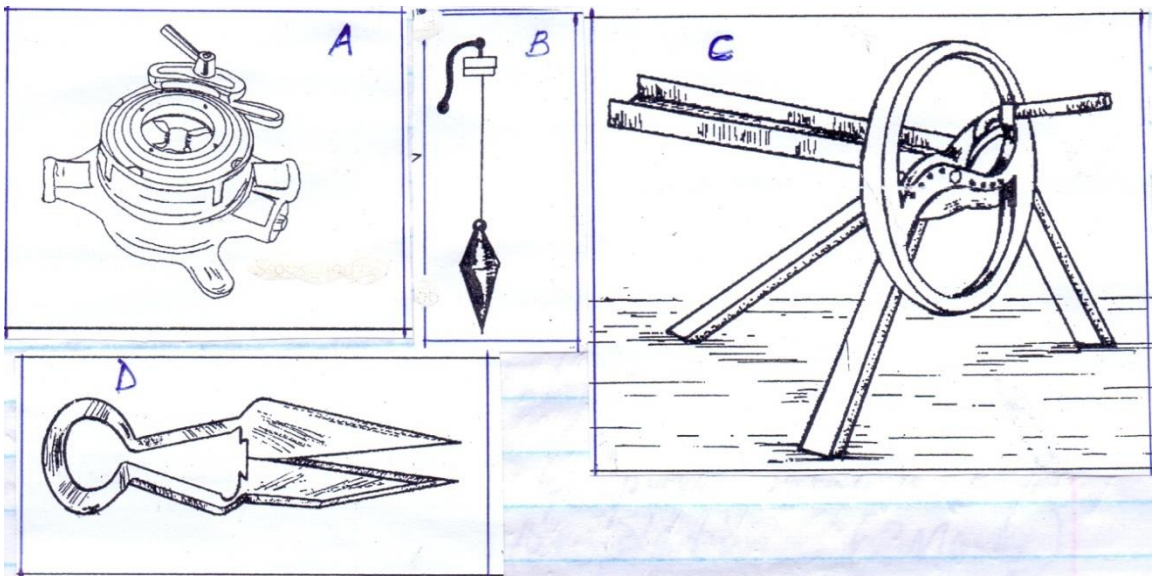
SECTION B [20MARKS]

Answer all the questions in this section in the spaces provided .

20.The diagrams below represent some farm tools and equipment .Study them and answer the questions that follow .



[a]Identify the tools labeled A and B

A…… **[1mark]**

B…… **[1mark]**

[b]State one use of each of the tools labeled C and D

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[c] Explain one maintenance practice carried out on tool D . **[1mk.]**

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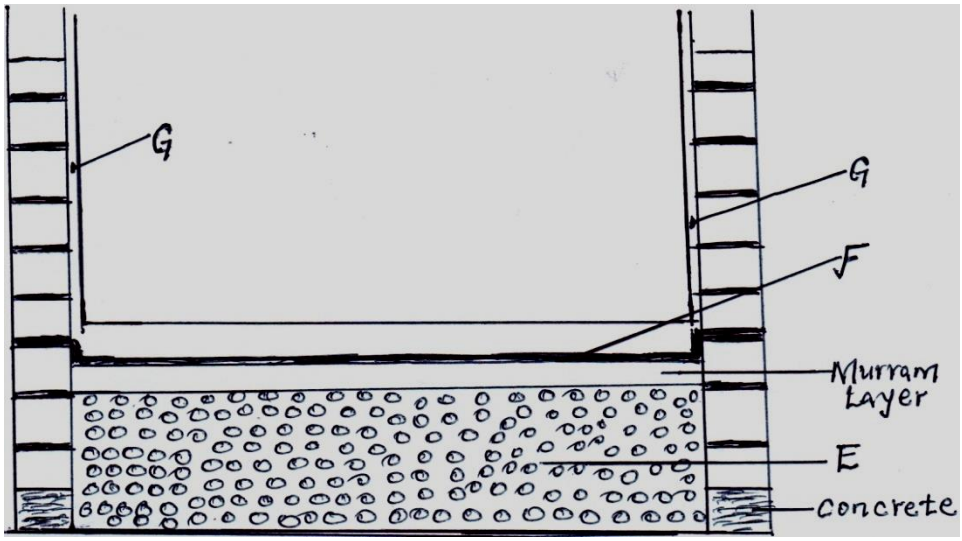
21.The diagram below represents a foundation of a farm structure .Study it and answer questions that follow .



[a] Identify the parts labeled E and F .

E…… **[1mk.]**

F…… **[1mk.]**

[b]State two uses of part labeled F in a foundation structure . **[2mks.]**

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[c]What ingredients are used to complete part G . **[1mk.]**

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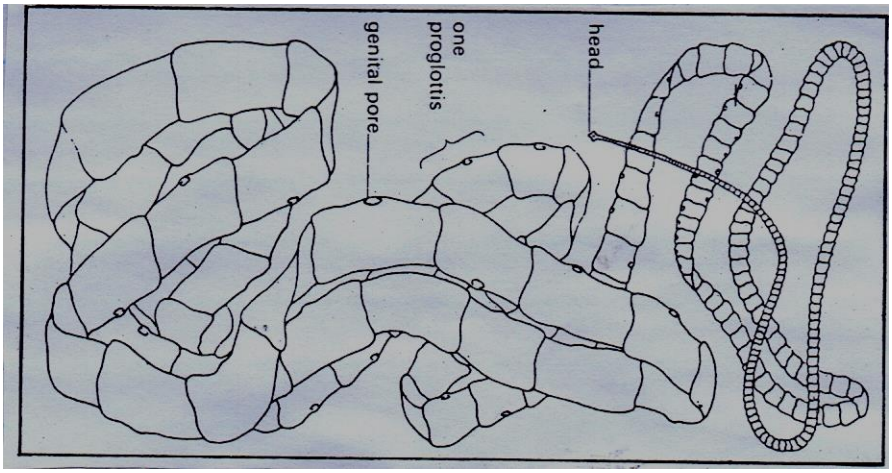
22.The diagram below illustrates an internal parasite of livestock .



[a] Identify the parasite above . **[1mk.]**

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[b]Name two common species of the parasite illustrated a bove . **[2mks.]**

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[c] Give two control measures of the above parasite . **[2mks.]**

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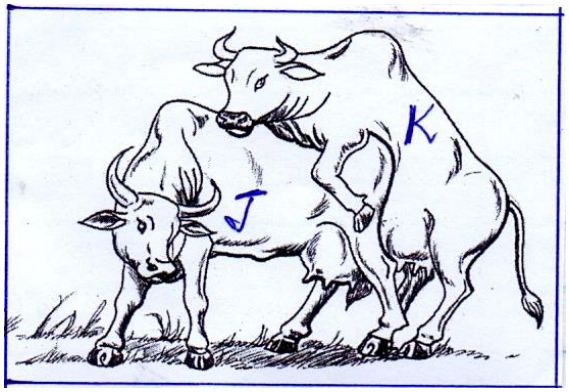
23. Study the diagram below and answer questions that follow.



[a] Which of the above cows shows the signs of heat ? **[1mk.]**

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[b]Give one reason to confirm your answer in [a] above.

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[c] State two benefits of natural mating system . [2mks.]

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[d] Name a disease that is easily spread by this method of mating . **[1mk.]**

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SECTION C [40MARKS]

Answer any two questions from this section in the spaces provided .

24. [a] Describe six signs of furrowing in a sow . **[6mks.]**

[b]Explain six benefits of the Kenya top bar hive . **[6mks.]**

[c]Explain eight factors considered when siting farm structures . **[8mks.]**

25. [a] Describe rinderpest disease under the following sub headings .

Animals affected . **[2marks]**

Causal organism . **[1 mark]**

Symptoms of attack . **[5 marks]**

Control measures . **[2 marks]**

[b] Describe the digestion of food in poultry from the beak to the duodenum . **[5marks]**

[c] Explain five uses of solar energy in a farm . **[5marks]**

26. [a]Describe the working of a two stroke cycle engine . **[10mks.]**

[b]Explain five factors considered when siting a fish pond. **[5mks.]**

[c]Explain five reasons for swarming of bees. [5mks.]

BRILLIANT STUDENTS TOP EXAMINERS MOCK SERIES 3

NAME: ……..

SCHOOL: ……..……

ADM NO: …….. SIGN: ……. DATE: ……..

231/1

BIOLOGY

PAPER 1

(THEORY)

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 examination in the spaces provided above.
3. Answer **all** the questions in the spaces provided.
4. Answers must be written in the spaces provided in the question paper.
5. Additional pages must not be inserted.
6. Check the question paper to ascertain that all the pages are printed and that no questions are missing.

FOR EXAMINER'S USE ONLY:

Question	Maximum Score	Candidate's Score
1 – 26	80	

1. Name the causative agent of cholera. **(1 mark)**

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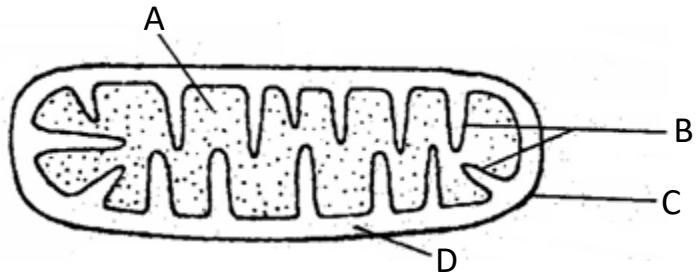
2. The diagram **below** represents a cell organelle.



(a) Identify the organelle. **(1 mark)**

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(b) Name the part labelled **B**. **(1 mark)**

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(c) State the function of part labelled **A**. **(1 mark)**

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3. State the functions of the following parts of a light microscope.

(a) Condenser. **(1mark)**

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(b) Diaphragm. (1 mark)

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4. (a) Explain **three** ways in which a red blood cell is adapted to its function. (3 marks)

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(b) In which form is carbon (IV) oxide transported. **(1 mark)**

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5.State the functions of the following organelles.

(i) Centriole. **(1 mark)**

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(ii) Nucleolus. (1 mark)

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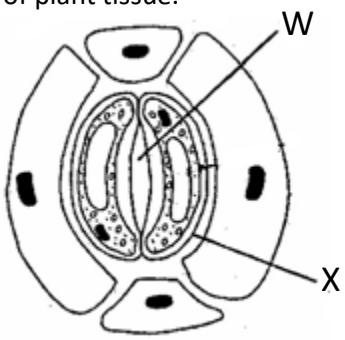
6. The diagram **below** shows part of plant tissue.



(a) Name cell labelled **X** and part labelled **W**. (2 marks)

X .....

W .....

(b) State **two** adaptations of cell labelled **X** to its function.

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7.(a) Differentiate between hypogeal germination and epigeal germination. **(2 marks)**

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(b) State **two** causes of dormancy in seed. **(2 marks)**

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8.(a) Define polyploidy. **(1 mark)**

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(b) Name **three** disorders resulting from gene mutations. **(3 marks)**

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9.(a) Distinguish between homologous and analogous structure. **(2 marks)**

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(b) Explain the term continental drift as used in evolution. **(2 marks)**

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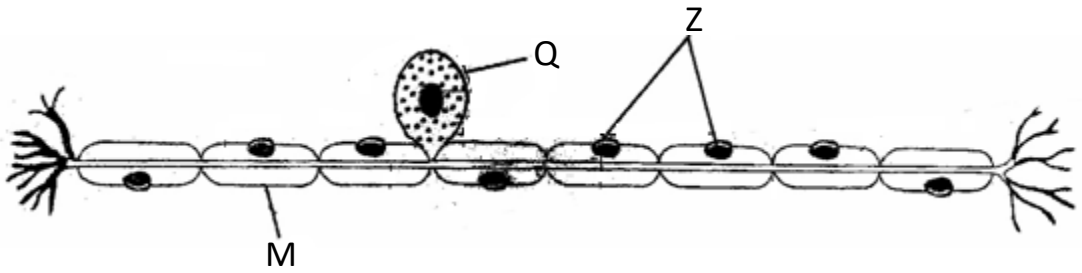
10. The diagram **below** represents a sensory cell.



(a) Identify with a reason the type of neurone above. **(1 mark)**

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Reason: **(1 mark)**

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(b) Name parts labelled. **(2 marks)**

Q _____

Z _____

11. (a) Name **three** supportive tissues in plants. **(3 marks)**

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(b) Name the type of muscles found in the gut. **(1 mark)**

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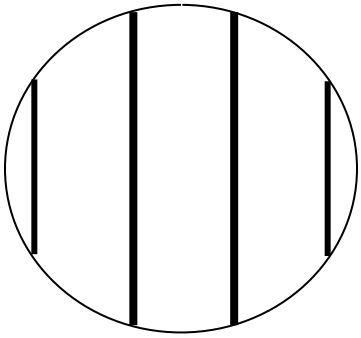
12. A form one student trying to estimate the size of onion cells observed the following on the microscope's field of view.



(a) Define the term resolving power. **(1 mark)**

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(b) If the student counted 20 cells across the field of view calculate the size of one cell in micrometers. **(2 marks)**

13. (a) Distinguish between transpiration and guttation. **(2 marks)**

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(b) State **two** importance of guttation in hydrolytes. **(2 marks)**

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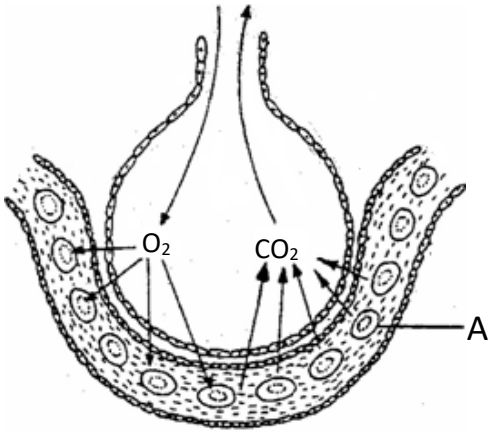
14. The diagram **below** shows the exchange of gases in alveolus.



(a) State how the alveoli are adapted to their function. **(3 marks)**

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(b) Name the cell labelled **A**. **(1 mark)**

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15. (a) Distinguish between respiratory quotient and oxygen debt. **(2 marks)**

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(b) Name the site where anaerobic respiration occurs in the cell. **(1 mark)**

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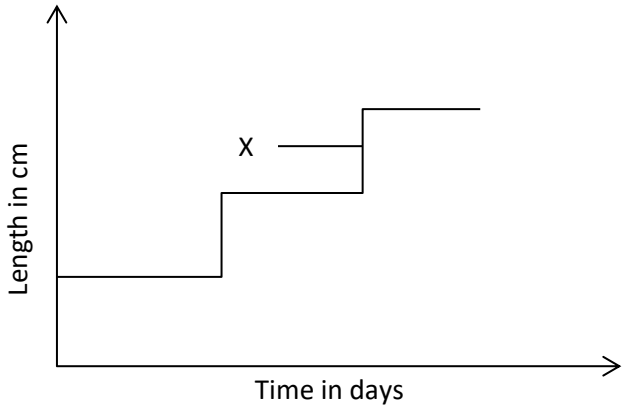
16. Study the graph **below** and answer the questions that follow.



(a) What is the name given to the type of graph? **(1 mark)**

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(b) What is the name used to describe point **X**. **(1 mark)**

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(c) State the importance of part **X**. **(1 mark)**

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(d) Name the phylum in which the graph represented in above occurs. **(1 mark)**

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17. (a) Define the term natural selection. **(1 mark)**

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(b) Name **three** evidence of organic evolution. **(3 marks)**

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18. State **one** adaptation of the following parts of mammalian eye.

(i) Fovea centralis. **(1 mark)**

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(ii) Sclera. **(1 mark)**

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(iii) Cilliary body. **(1 mark)**

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19. Name the cartilage found between vertebrae of the vertebral column. **(1 mark)**

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20. (a) Differentiate between gaseous exchange and ventilation. **(2 marks)**

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(b) Name the respiratory sites of the following:

(i) Fish (1 mark)

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.....

(ii) Insects **(1 mark)**

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21. (a) Name **two** cardiovascular diseases. **(2 marks)**

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(b) If the nerve supply to the heart of a mammal is severed the rythymic heart contraction and relaxation will go on and heart continues to beat. Explain why. **(2 marks)**

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22. Name **two** major branches of Biology. **(2 marks)**

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23. (a) State the functions of the following apparatus.

(i) Bait trap. **(1 mark)**

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(ii) Pooter. **(1 mark)**

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24. State **two** structural adaptations of veins to their function. **(2 marks)**

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25. Name the process that results to formation of tissue fluid. **(1 mark)**

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26. What is serum? (1 mark)

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BRILLIANT STUDENTS TOP EXAMINERS MOCK SERIES 3

NAME: ……..

SCHOOL: ……..……

ADM NO: …….. SIGN: ……. DATE: ……..

231/2
BIOLOGY
PAPER 2(THEORY)
TIME: 2 HOURS
INSTRUCTIONS TO CANDIDATES

- *Write your name, school and index number in the spaces provided above.*
- *This paper consist of **TWO** sections; **A** and **B**.*
- *Answer **all** the questions in the section **A** in the spaces provided.*
- *In section **B** answer Question **6 (compulsory)** and either question **7** or **8** in the space provided after question **8**.*
- *Check to ascertain that all pages are printed and that no questions are missing.*

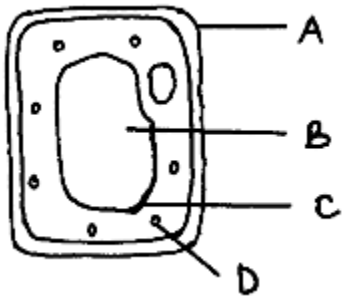
FOR EXAMINER'S USE ONLY

Section	Question	Maximum Score	Candidates Score
A	1	8	
	2	8	
	3	8	
	4	8	
	5	8	
B	6	20	
	7	20	
	8	20	
Total Score		80	

SECTION A: (40 MARKS)

Answer **ALL** the questions in this section in the spaces provided.

1. Examine the diagram **below** and use it to answer the questions that follow.



(a) Name the parts labeled. **(3mks)**

B _____

C _____

D _____

(b) What is substance which makes up part labeled **A**? **(1mk)**

……

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(c) Name the process by which mineral salts move into structure **B**. **(1mk)**

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(d) Explain what happens when a red blood cell is put in distilled water. **(3mks)**

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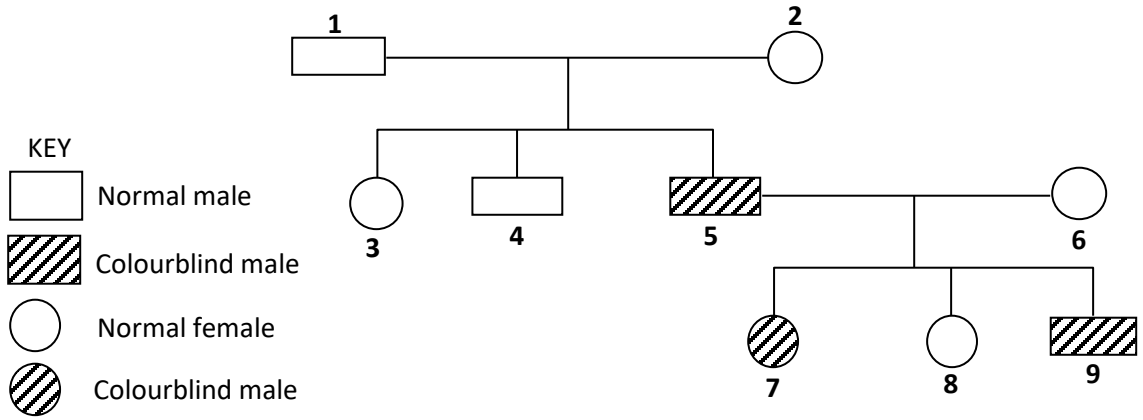
2. The figure **below** is a pedigree showing the inheritance of colourblindness, a disease transmitted through a recessive gene located on the X-chromosome.



(a) Using the symbol N for normal gene and n for colourblind gene, write down the genotypes of parents **1** and **2**. **(2mks)**

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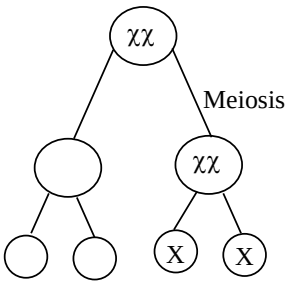
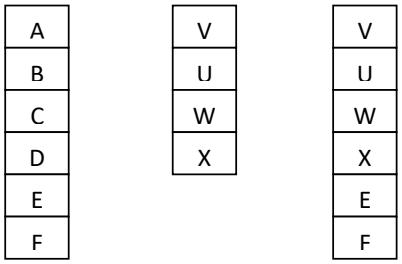
(b) Work out the possible genotypes of the children **3**, **4** and **5**. **(4mks)**

(c) The diagrams **below** illustrate some chromosome mutations.

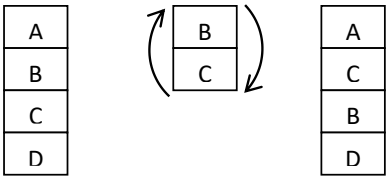
A



B



C



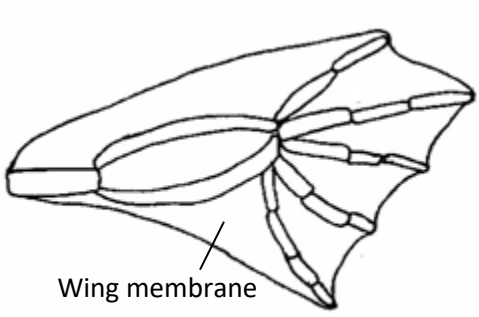
Identify the mutations. **(3mks)**

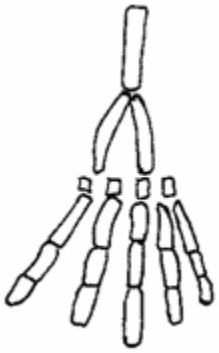
A _____

B _____

C _____

3. The diagram **below** shows structures of the bat wing and human arm.





(a) These structures are thought to have same ancestral origin. State **one** structural similarity and **one** adaptational difference between the two.

(i) Structural similarity. **(1mk)**

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(ii) Adaptational difference. **(2mks)**

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(b) Give **two** other examples of structures in nature that show the type of evolution as in (a) above. **(2mks)**

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(c) Distinguish between the terms 'chemical evolution' and 'organic evolution'. **(2mks)**

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(d) What is the study of fossils called? **(1mk)**

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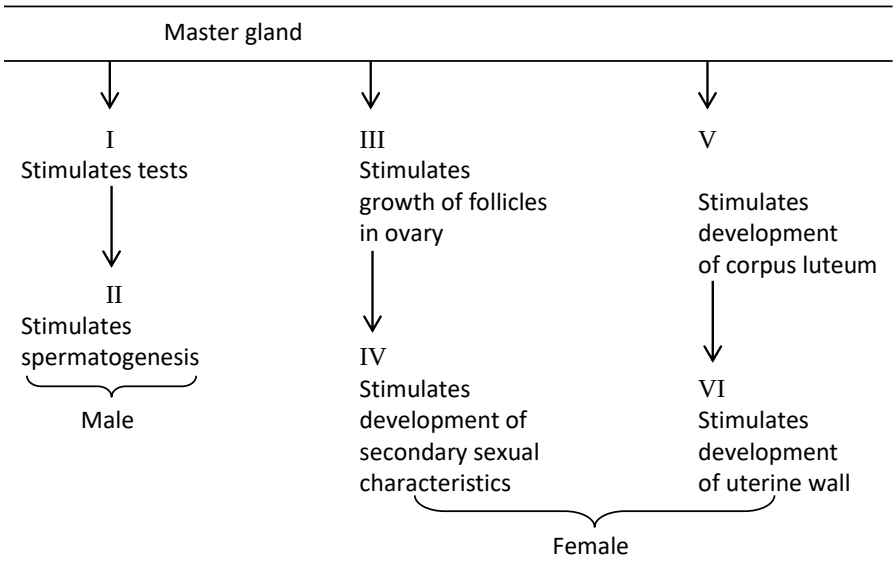
4. The diagram **below** represents some hormones, their sources and functions in a mammal.



(a) Identify the gland described as master gland. **(1mk)**

……

……

(b) Name the hormones:- **(4mks)**

II _____

III _____

V _____

VI_____

(c) Describe the consequences of deficiency of hormone **II** in man. (2mks)

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(d) Other than stimulate development of uterine wall, suggest two other functions of hormone **VI**. **(2mks)**

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5. Ascaris lumbricoides is an endoparasite.

(a) Name the genus to which it belongs. **(1mk)**

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(b) State the habitat of the organism. **(1mk)**

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(c) State **three** ways in which the organism is adapted to living in its habitat. **(3mks)**

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(d) Mention **three** ways of preventing spread of the parasite. (3mks)

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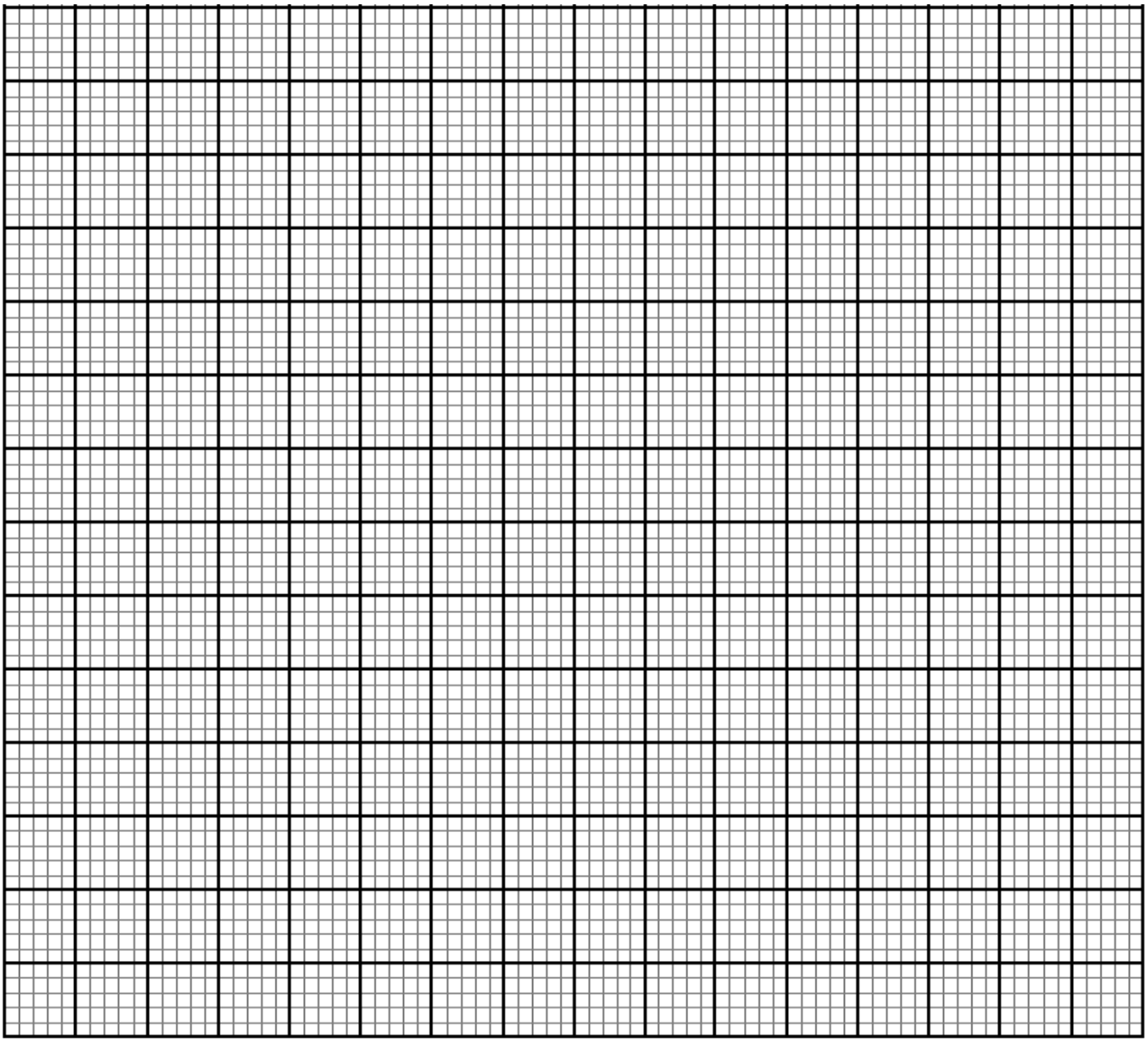
SECTION B: (40 MARKS)

Answer question **6 (compulsory)** and EITHER question **7** or **8** in the spaces provided after question **8**.

6. The table **below** shows how the quantities of sweat and urine vary with external temperature.

External temperature °C	Urine cm^3/hr	Sweat cm^3/hr
0	100	5
5	90	6
10	80	10
15	70	20
20	60	30
25	50	60
30	40	120
35	30	200

(a) On the same graph, plot the quantities of urine and sweat produced against the external temperature. **(7mks)**



(b) At what temperature are the amounts of sweat and urine produced equal? **(1mk)**

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(c) What happens to the amount of sweat produced as the temperature rises? Explain the observation**.(3mks**)

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(d) Explain the observation made on the amount of urine produced as the temperature increases. **(3mks)**

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(e) How is the skin adapted for temperature regulation? (6mks)

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7. Describe the structural adaptations of the mammalian heart to its function. **(20mks)**

8. Describe how water moves from the soil to the leaves in a tree. **(20mks)**

BRILLIANT STUDENTS TOP EXAMINERS MOCK SERIES 3

NAME: ……..

SCHOOL: ……..……

ADM NO: …….. SIGN: ……. DATE: ……..

231/3 – BIOLOGY(PRACTICAL) – Paper 3

Instructions to Candidates

- Write your name, Admission number and your other details in the spaces provided above.
- Spend the first 15 minutes of the time allocated to read through the question paper before commencing your work
- Answer **ALL** the questions in the spaces provided.
- Additional pages must **not** be inserted

• **For Examiner's Use Only**

Question	Maximum Score	Candidate's Score
1	13	
2	13	
3	14	
Total Score	40	

1.You are provided with the following materials;

- *Specimen **A***
- *Scalpel*
- *50ml beaker*
- *Glass rod*
- *8cm visking tubing*
- *2 pieces of strings*
- *20ml distilled water in a wash bottle*
- *100ml beaker*
- *10ml Iodine solution*

1.You are provided with a specimen labeled **A**. Make a transverse section of the specimen.

(a) Draw and label the section **(3mks)**

(b) What type of fruit is specimen A? (1mk)

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(c) Slice off about 2cm thick disc from the specimen. Peel it. Place the piece into a beaker and mash it into a paste using a glass rod. Add 20ml of distilled water and stir. Tie one end of the transparent tubing provided. Decant the extract into the tubing and tie the other end tightly, ensuring there is no leakage.

Immerse the tubing with its contents in a 100ml beaker containing Iodine solution for 20 minutes.

(i) Record your observations in the table below (4mks)

	Extract inside visking tubing	Iodine solution outside the visking tubing
Before the experiment		
After the experiment		

(i) Explain the results obtained from c(i) above. **(5mks)**

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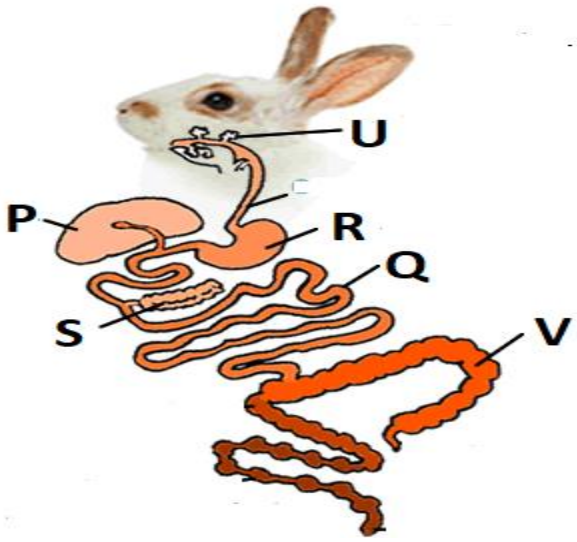
2.Study the photographs below and answer the questions that follow.



(a) With **observable** reasons identify the class of the specimen in the photograph .

(i) Class**……..(1mk)**

(ii) Reasons (2mks)

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(b) (i) Name the structures labeled **(4mks)**

P ……...

Q ……...

R ……...

S ……..

(ii) State the function of the parts labeled **(2mks)**

U ……...

V ……...

(c) Study the photographs below depicting plants growing in different habitats.

(i) Identify the habitats in which they are found **(2mks)**

Y **……...**

Z **……...**

(ii) State the significance of the following structures found in the specimens shown above (2mks)

R **……...**

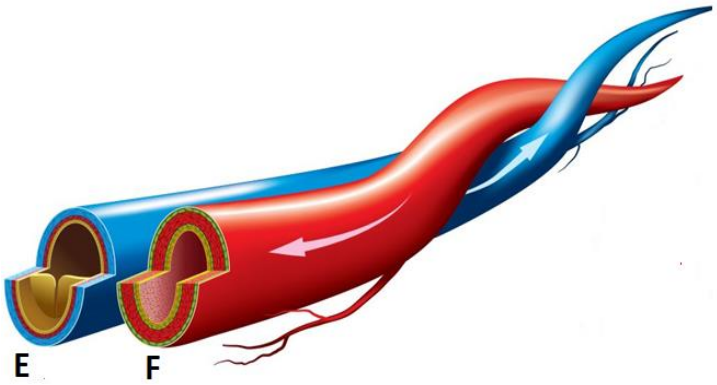
S **……...**

3. Below are photographs showing some observable features of animals

(a) Using the features in the order given below, construct a dichotomous key that can be used to identify the specimens in the photographs. **(10mks)**

- Presence or absence of backbone
- Presence or absence of wings
- Presence or absence of scales
- Presence or absence of pouch
- Bipedal or quadripedal

(b) Study the photographs below showing blood vessels in man.



(i) Using **observable features** identify the blood vessels **(2mks)**

E **……...**

F **……...**

(ii) Using **observable features only**, give two differences between the two blood vessels **(2mks)**

E	**F**

BRILLIANT STUDENTS TOP EXAMINERS MOCK SERIES 3

NAME: ……..

SCHOOL: ……..……

ADM NO: …….. SIGN: ……. DATE: ……..

565/1

BUSINESS STUDIES
PAPER 1
AUGUST/SEPTEMBER
TIME: 2 HOURS

INSTRUCTIONS TO CANDIDATES
Answer all questions in the spaces provided in the question papers.
EXAMINER'S USE

EXAMINER'S USE

1	2	3	4	5	6	7	8	9	10

11	12	13	14	15	16	17	18	18	20

21	22	23	24	25

GRAND SCORE	

1. State four reasons why one may start a business. **(4 mks)**

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2. State four features of goods. **(4 mks)**

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3. In the table below indicate the type of utility described. (4 marks)

Description	Type of utility
a) Collecting firewood	
b) Storage of maize	
c) Selling clothes	
d) Manufacturing goods	

4. State four factors that discourage entrepreneurial development in an economy. **(4 mks)**

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5. Outline four qualities that Nyakundi should posses in order to work effectively in an office. **(4 mks)**

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6. Highlight for characteristics of road side traders

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7. Momanyi a form four school leaver wants start a business sole. State four advantages he will get by doing the business jointly with another person.

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8. Highlight the role of consumer organizations in consumer protection. (4 mks)

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9. Highlight four circumstances under which containerization may be suitable in the transportation of goods. **(4 mks)**

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10. List four services that facilitate communication. (4 mks)

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11. State four importance of aware housing to a trader. **(4 mks)**

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12. Matoke insured his car for Kshs 400,000 against motor accident. The value of the car was Kshs 300,000. After one week the car was involved in an accident and los was valued at kshs 200'000. Calculate compensation that Matoke received. **(4 mks)**

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13. State three after sale services a computer firm may offer its customers. **(4 mks)**

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14. Give three reasons why demand curve of good usually slopes downwards from the left to the right

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15. State four reasons why small scale firms are more popular in Kenya than large scale firms.

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16. State four sources of oligopoly power

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17. Complete the table below. (4 mks)

Assets	Liabilities	Capital
a) 180560	----------	97200
b) ----------	99300	106000
c) 350200	167300	----------
d) 650700	----------	137200

18. State four problems associated with income approach method of measuring national income. (4 mks)

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19. State four measures that can be taken by the government to solve unemployment problem in Kenya (4 mks)

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20. For each of the following transactions indicate the account to be debited an account to be credited. (4 mks)

Transaction	Account to Debit	Account to credit
a) Started business with cash money		
b) Bought stock on credit from Mwangaza traders		
c) Bought motor vehicle on credit from Kwanza motors		
d) Paid Mwangaza traders by cash		

21. Record the following transactions of Kenyanya traders in the trial balances provided for the month ended 31st Aug, 2007.

Cash		Ksh. 100,000
Loan		Ksh. 430,500
Motor vehicle		Ksh. 700,000
Premises	Ksh.	1,200,000
Creditors	Ksh.	70,000
Capital		Ksh. 1,500,000

KENYANYA TRADERS

Trial balance as at 31st Aug, 2007.

Transaction	Account to Debit	Account to credit
a) Started business with cash money		
b) Bought stock on credit from Mwangaza traders		
c) Bought motor vehicle on credit from Kwanza motors		
d) Paid Mwangaza traders by cash		

22. State four uses of a trading account (4 mks)

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23. State four methods of credit control used by the central bank of Kenya. (4 mks)

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24. State four uses of public finance. (4 mks)

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25. From the following transactions identify the journal entry. **(5 mks)**

Transactions	Journal entry
1) Bought a business bicycle on credit	
2) Returned 10 cartons of milk to Makanyango previously bought on credit	
3) Receive one tray of eggs from lilian for sale and did not pay.	
4) Sold goods to Habiba on credit	
5) Bought goods from Karitu and paid on spot	

BRILLIANT STUDENTS TOP EXAMINERS MOCK SERIES 3

NAME: ……..

SCHOOL: ……...……

ADM NO: …….. SIGN: ……. DATE: ……..

565/2

BUSINESS STUDIES
PAPER 2
TIME: 2 HOURS

For examiner's use only

Question	**1**	**2**	**3**	**4**	**5**	**6**	**Total**
Marks							

1. (a) Explain **FIVE** ways a sender of a message can ensure it is received effectively. **(10 mks)**

   (b) Outline **FIVE** reasons why a bank may dishonour a cheque. **(10 mks)**

2. (a) Identify **FIVE** reasons for the popularity of hawking as a form of business activity in Kenya. (10 mks)

   (b) Highlight **FIVE** factors a trader would consider before giving credit to a customer. **(10 mks)**

3. (a) Explain **FIVE** reasons for the importance of commercial banks in an economy. **(10 mks)**

   (b) Describe **FIVE** ways a company may acquire monopoly status. (**10 mks)**

4. (a) Highlight **FIVE** documents used in home trade and their uses. **(10 mks**

   (b) Explain **FIVE** factors that may cause a demand curve to shift to the right. **(10 mks)**

5. (a) Identify **FIVE** characteristics of land as a factor of production**. (10 mks)**

   (b) Identify **FIVE** rules and regulations that may be highlighted in an Articles of Association. **(10 mks)**

6. (a) Identify **FIVE** problems a country with a big percentage of a young population may face. **(10 mks)**

(b) The following balances were extracted from the books of Fuatana Traders on 31st August 2013.

Sales	120,000
Stock 1.9.2012	3,500
Purchases	82,000
Carriage out	2,500
General expenses	26,000
Lighting and heating	1,200
Wages	24,000
Carriage in	3,000
Stock 31.8.2013	2,400
Capital	106,000
Creditors	60,000
Equipment	45,600
Debtors	55,700
Cash at bank	30,000
Cash in hand	12,500

Required

i. Prepare a trading and profit and loss account for the year ended 31st August 2013. (**6 marks)**

ii. A balance sheet as at the same date. **(4 marks)**

BRILLIANT STUDENTS TOP EXAMINERS MOCK SERIES 3

NAME: ……..

SCHOOL: ……..……

ADM NO: …….. SIGN: ……. DATE: ……..

233/1

Chemistry

August/September

Paper 1

2 hours

INSTRUCTIONS TO CANDIDATES:

- *Write your**name** and **index number** in the spaces provided above.*
- *Sign and write the date of examination in the spaces provided above.*
- *Answer **All**the questions in the spaces provided below each question.*
- *Mathematical tables and electronic calculators may be used*
- *All working **MUST** be clearly shown where necessary.*

For Examiner's Use Only

Question	Maximum score	Candidate's score
1-30	80	

1. (a) Aluminium is used in making cooking vessels and overhead cables. State the property of aluminium that makes it suitable for the two uses separately.

Cooking vessels**……** **(½mk)**

Overhead cables ……. **(½mk)**

(b) Explain why it is not advisable to clean surfaces of cooking vessels made of aluminium using wood –ash solution **(2mks)**

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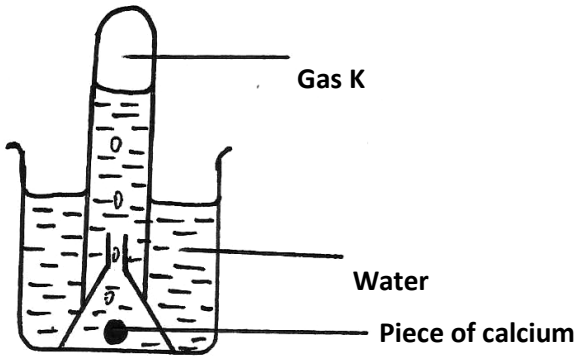
2. The set-up below was used to prepare and collect gas L, produced by the reaction between water and calcium metal



(a) Name gas K **(1mk)**

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(b) At the end of the experiments, the solution in the beaker was found to have a PH of about 11, explain **(2mks)**

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(c) Write a balanced chemical equation for the reaction that occurs **(1mk)**

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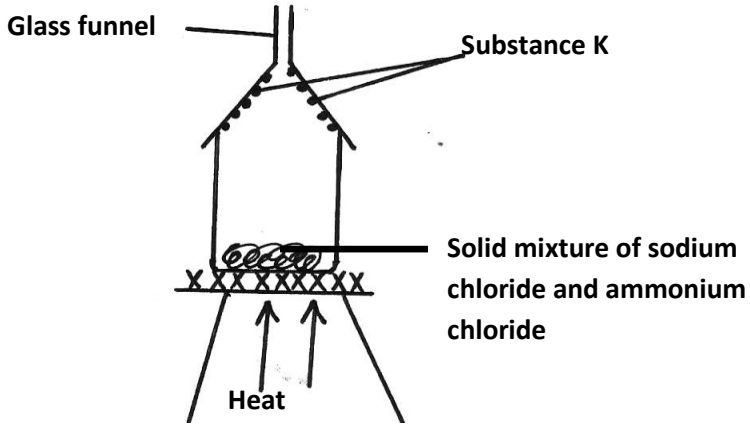
3. The following set-up shows the heating of a mixture of equal amounts of sodium chloride and ammonium chloride



(a) What is substance K? **(1mk)**

……

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(b) What is the process by which substance K is formed? **(1mk)**

……

……

4. Differentiate between the terms atomic number and mass number **(2mks)**

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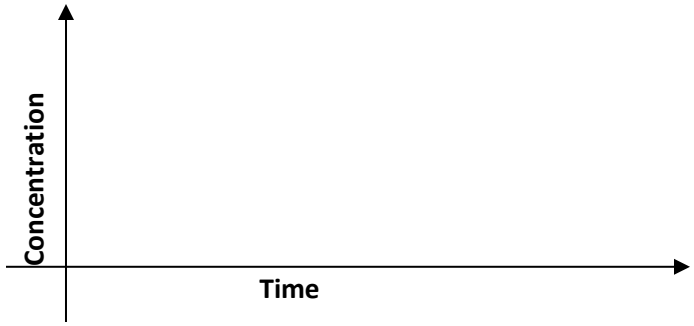
5. Study the equilibrium between gases

$E_{(g)} \rightleftharpoons F_{(g)}$

(i)Sketch a graph of the variation of the concentration of substance F with time, on the grid below



(ii) Explain the shape of the curve **(2mks)**

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6.Explain why very little carbon (IV) Oxide gas is evolved when dilute Sulphuric (VI) acid is added to Lead (II) carbonate **(2mks)**

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7.A crystal of Copper (II) Sulphate was placed in a beaker of water. The beaker was left standing for two days without shaking. State and explain the observations that were made **(2mks)**

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8. Study the information in the table below and answer the questions that follows

Ions	Electron arrangement	Ionic radius
A+ B+ C2+	2.8 2.8.8 2.8	0.95 0.1333 0.065

Explain why the ionic radius of

(a) B+ is greater than A+ **(1mk)**

……

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……

(b) C2+ is smaller than of A+ **(2mks)**

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9. (a) State Graham's law of diffusion **(1mk)**

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(b) Gas D takes 110 seconds to diffuse through a porous partition. Gas D has a relative molecular mass of 34. How long will it take for the same amount of ammonia gas to diffuse under identical conditions? (H=1, N=14) **(2mks)**

10. When reacting sulphur (VI) Oxide and Hydrogen Sulphides some traces of water vapour is required for the reaction to occur.

(a) State the role of water vapour **(1mk)**

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(b) Write an equation for the reaction that occurs **(1mk)**

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(c) Identify the reducing agent in the reaction in (b) above **(1mk)**

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11. State and explain observation made when Conc. Sulphuric (VI) acid was added to sugarcrystals **(2mks)**

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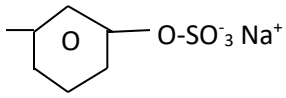
12. Name the class to which the following cleansing agents belongs

(i) $R\text{-}COO^{-}Na^{+}$ A **(½mk)**

(ii) R B 

(½mk)

(iii) Which cleansing agent is suitable for use in hard water? **(½mk)**

……

……

(iv) Which cleansing agent above is not environmentally friendly? **(½mk)**

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13. (i) Nitrogen (I) Oxide supports combustion of burning charcoal. Write an equation to show this reaction **(1mk)**

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(ii) Ammonium nitrate can be heated to give off Nitrogen (I) oxide. However a mixture of

NH_4Cl and NaNO3 is preferred. Explain **(1mk)**

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(iii) State the physical test of Nitrogen (I) Oxide **(1mk)**

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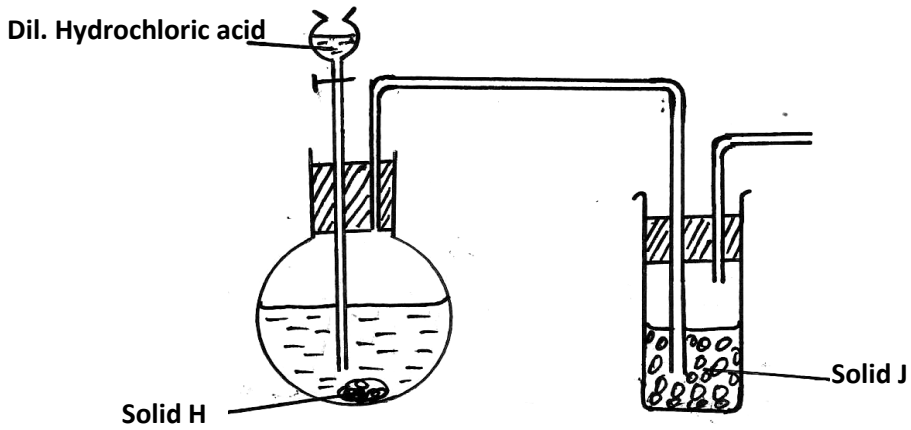
14. The set-up below was used to prepare dry sample of hydrogen Sulphide gas



(a)(i) Complete the diagram to show how the gas was collected **(2mks)**

(ii) Identify the following

I: Solid H **(1mk)**

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II.Solid J **(1mk)**

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(b) Write an equation for the reaction that occurred in the flask between solid H and dilute hydrochloric acid **(1mk)**

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15. (a) Distinguish between nuclear fusion and fission **(2mks)**

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(b) Complete the nuclear equation below

$$^{230}_{90}Th \longrightarrow {}^{230}_{91}Pa + \text{_____}$$

(c) Give one application of radioactivity in agriculture **(1mk)**

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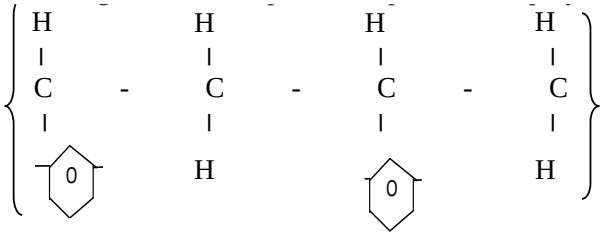
16. The formula given below represents a portion of a polymer



(a) Give the name of the Polymer **(1mk)**

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(b) Draw the structure of the monomer used to manufacture the Polymer **(1mk)**

17. Hydrogen chloride gas can be used to carry out fountain experiment. State the property of hydrogen chloride that make it suitable for this experiment **(1mk)**

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18. 0.92g of ethanol were found to burn in excess air producing a temperature rise of 32.5°C in 200cm^3 of water(C=12.0,H=1.0, O=16.0) Density of water is 1g/cm3, specific heat capacity of water is 42KjKg^{-1}K^{-1}

(a) Write the equation for the combustion of ethanol **(1mk)**

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(b) Determine the molar heat of combustion of ethanol **(2mks)**

19. Iron is extracted from its ore by blast furnace form its ore by blast furnace process.
(a) Name one ore from which iron is extracted **(1mk)**

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(b) One of the impurities in iron is removed in the form of Calcium silicate. Write equations for the reaction in which calcium silicate is produced **(2mks)**

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20. Calculate the amount of Zinc in grams that would remain if 1.96g of the metal were reacted with $100cm^3$of 0.2M hydrochloric acid. (Zn=65.0, H=1.0, Cl=35.5) **(3mks)**

21.(a) Starting with solid Magnesium Oxide, describe how a solid sample of Magnesium hydroxide an be prepared **(2mks)**

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(b) Give one use of Magnesium hydroxide **(1mk)**

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22. An oxide of element F has the following F2O5. Determine the oxidation state of F in the compound **(1mk)**

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23. A dynamie equilibrium is established when hydrogen and chlorine reacts as shown below

$$Cl_{2(g)} + H_2 \rightleftharpoons 2HCl_{(g)}$$

(a) What is meant by the term dynamic equilibrium? **(1mk)**

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(b) State and explain the effect of increasing pressure on the position of the equilibrium shown in (a) above **(2mks)**

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24. An element X has a relative atomic mass of 44. When a current of 0.5 A was passed through the molten chloride of X for 32 minutes and 10 seconds, 0.22g of X were deposited at the cathode
Determine the charge on an ion of X (1F=96,500c) **(3mks)**

25. (a) Differentiate between catalytic and thermal cracking of long chain organic compounds **(2mks)**

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(b) State the disadvantage of C.F.C based compounds (1mk)

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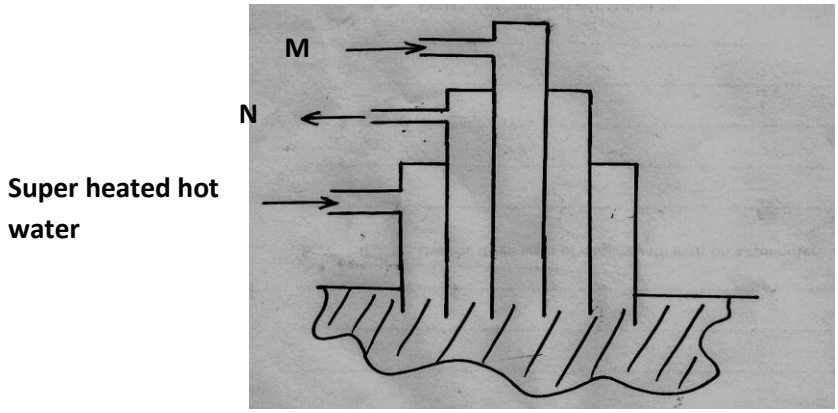
26. The figure below shows a simple extraction process of Sulphur



(a) Give the name of the process shown in the diagram above (1mk)

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(b) What is the use of the superheated hot water? **(1mk)**

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(c) State two physical properties of Sulphur that make it possible to be extracted using water **(2mks)**

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27. (a) Define molar latent heat of vaporization of a substance **(1mk)**

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(b) The Molar latent heat of vaporization of water at 100°C is 41.1kJ/mol. Calculate the heat change when 1.0g of water at 100°C is converted into vapour at 100°C (H=1, O=16) **(2mks)**

28. Metals **Q** and **T** had their half-cells connected to a Zinc half-cell and the following reduction potentials were obtained fro each metal

Metal half-cell	Reduction potential (volts)
$Q^{2+}_{(aq)}$ Q (s)	-1.37v
T+(aq)/T(s)	-0.83v

(a) What name is given to the Zinc half-cell in these circumstances, and state its reduction Potential **(1mk)**

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(b) Metals Q and T were connected to form an electrochemical full cell

(i) Write the equations for the half-cell reactions that occur at the Q and T electrodes **(1mk)**

I. At electrode Q:

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II. At electrode T:

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(ii) Calculate the e.m.f of the electrochemical full cell in b(i) above **(1mk)**

BRILLIANT STUDENTS TOP EXAMINERS MOCK SERIES 3

NAME: ……..

SCHOOL: ……...……

ADM NO: …….. SIGN: ……. DATE: ……..

233/2
CHEMISTRY
PAPER 2
(THEORY)
TIME: 2 HOURS
INSTRUCTIONS TO CANDIDATES

- *Write your name and Index number in spaces provided above.*
- *Sign and write the date of examination in the spaces provided above*
- *Answer all the questions in the spaces provided above.*
- *KNEC Mathematical tables and silent electronic calculators may be used.*
- *All working must be clearly shown where necessary.*
- *Candidates should answer the questions in English.*

FOR EXAMINERS USE ONLY

Question	Maximum score	Candidate's score
1	12	
2	11	
3	09	
4	12	
5	11	
6	12	
7	13	
Total score	**80**	

1. The table below shows elements with their atomic numbers, mass numbers and their melting points. Study it and answer the questions that follow. Letters do not represent the actual symbols of the elements

Element	B	C	D	E	F	G	H	I	J	K
Atomic number	7	8	19	15	2	9	6	16	12	11
Atomic mass	14	16	39	31	4	19	12	32	24	23
Melting point	-	-	637	44	-272	-223	vary	113	669	980

(a) Select two elements with oxidation state -2 **(1mk)**

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(b) Which element represents

(i) the most powerful oxidizing agent? **(1mk)**

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(ii) the most powerful reducing agent? **(1mk)**

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(c) Which element has the highest ionization energy? Explain **(1mk)**

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(d) Select two elements, when reacted form a compound that conducts electricity in molten and acqueous state (**1mk)**

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(e) Select two elements when reacted form a compound that dissolves in water to form acidic solution **(1mk)**

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(f) Using dot (•) and cross (x), draw the diagram that shows the bond between B and J **(2mks)**

(g) Explain why the melting point of K is higher than that of D **(2mks)**

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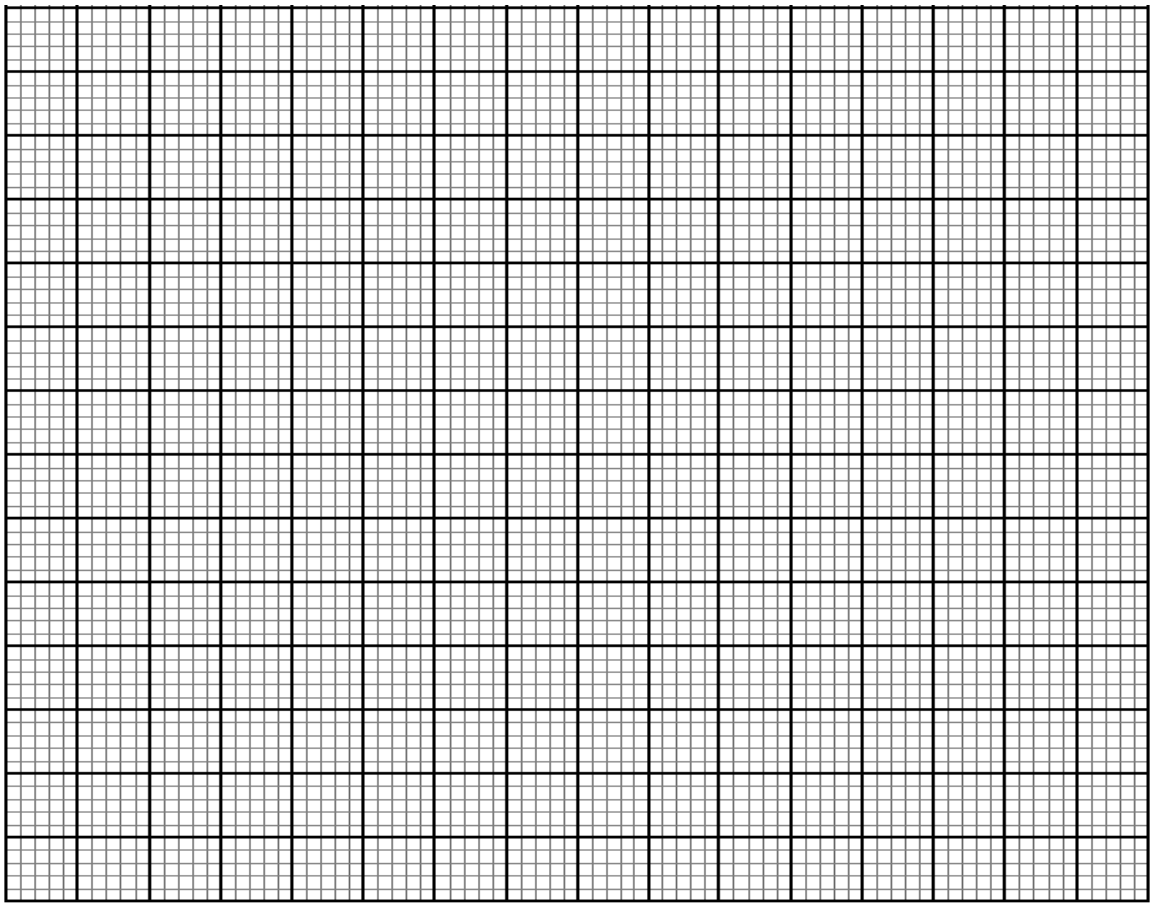
2. Pure Calcium Carbonate weighing 7.50g was placed in a flask with 50cm^3 of dilute hydrochloric acid. The flask was kept at constant temperature and the carbon (IV) oxide evolved was collected in a graduated vessel. The volume of carbon (IV) Oxide was recorded every 20 minutes intervals (some of calcium carbonate remained undissolved at the end of the experiment. The results of the experiment are given in the table; study it and answer the questions that follows

Time form at the start of reaction/min	Volume of Carbon (IV) Oxide formed at stp /cm^3
20	655
40	910
60	1065
80	1100
100	1120
120	1120

(i) On the grid provided, plot the graph of the volume of Carbon (IV) Oxide against time **(4mks)**



(ii) From the graph determine the volume of the gas collected after 43 seconds **(1mk)**

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(iii) Determine the rate of reaction at the 25^{th} minute **(2mks)**

(iv) What mass of calcium carbonate will react with the acid after 100 seconds **(3mks)**

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(II) When dilute hydrochloric acid is added to a yellow solution of Pottassium Chromate (VI)

an orange solution of Pottassium dichromate (VI) is produced as in the equation below

$$2K_2CrO_{4(aq)} + 2HCl_{(aq)} \rightleftharpoons K_2Cr_2O_{7(aq)} + H_2O_{(l)}$$

Yellow Orange

(i) What would you observe, if dilute Sodium hydroxide solution was added to the Orange solution? Explain **(2mks)**

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3.(a)(i) An evacuated flask has a mass of 90.050g. When filled with gas X at s.t.p the flask weighs 90.121g. If the volume of the flasks was 22.2cm^3. Calculate the relative molecular mass of X. (Molar gas volume at s.t.p=22.4dm^3) **(2mks)**

(ii) Write the equation of the reaction taking place when propane is burnt in excess Oxygen **(1mk)**

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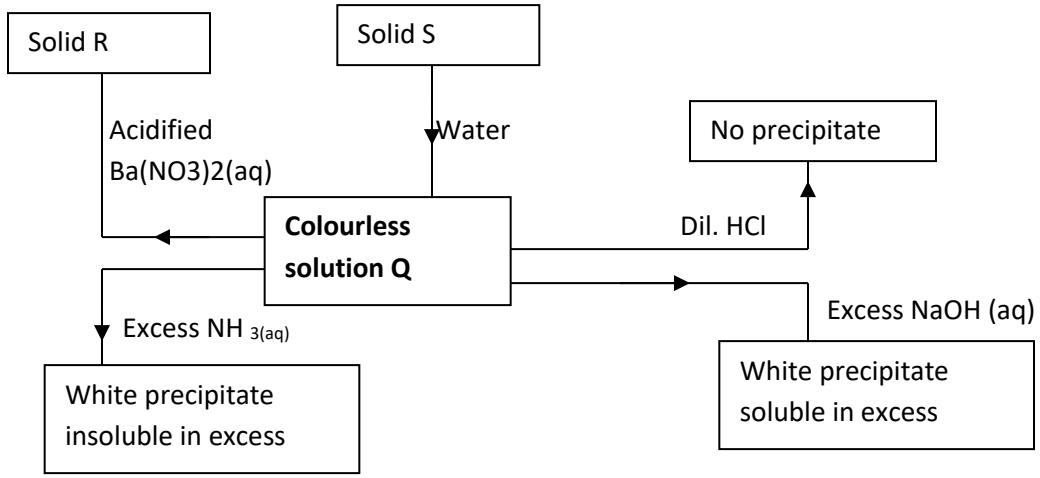
(b)(i) A fixed mass of a gas occupies 4dm3 at 227^{o}C and 152mmHg pressure. At what pressurewill the volume of the same mass of gas be 2dm^3 if the temperature is lowered to -23^{o}C **(3mks)**

(c) (i) Study the scheme diagram below and answer the questions that follow



Identify

Solution **Q…….**

Solid **R……** **(2mks)**

(d) The following is a nuclear equation *(**X** and **Y** are not actual symbols)*

$$^{a}_{m}X \longrightarrow {}^{230}_{90}Y + 2\ {}^{4}_{2}He + 2\ {}^{0}_{-1}e$$

(a) Determine the value of a and m

(b) Compare the atomic size of R and L **2mks)**

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4. (I) When hydrogen gas was passed over heated Iron (III) oxide was heated. However, when Iron (III) oxide was heated with carbon, a reaction occurred resulting in the formation of solid product Z. When solid Z was dissolved in dilute Sulpuric (VI) acid, gas Y was evolved.

(a) Explain why carbon reacted with Iron (III) Oxide while hydrogen did not? **(1mk)**

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(b) Identify gas Y **(1mk)**

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(c) (i) Write an equation for the reaction between Iron (III) Oxide and Carbon **(1mk)**

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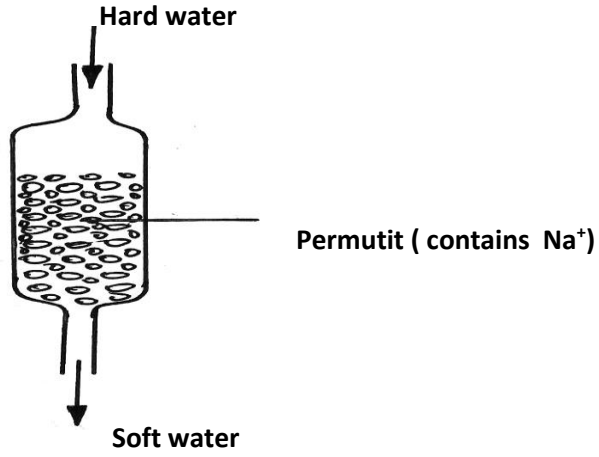
(ii) Calculate amount of solid Z formed in grams, if 1.5g of Iron (III) oxide was used *(Fe=55.8,O=16)* **(3mks)**

(II) The calcium below was used to soften hard water



(i) Explain how the hard water was softened as it passed through the column **(2mks)**

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(ii) After some time the material in the column is not able to soften hard water. How can the material be activated **(2mks)**

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(iii) Give **one** advantage of using hard water for domestic purposes **(1mk)**

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(iv) Some Copper turnings were added to dilute Nitric (V) acid at 40^oC

(a) State **one** observation made **(1mk)**

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(b) State and explanation observation you will make if the reaction temperature is increased to 55^oC **(2mks)**

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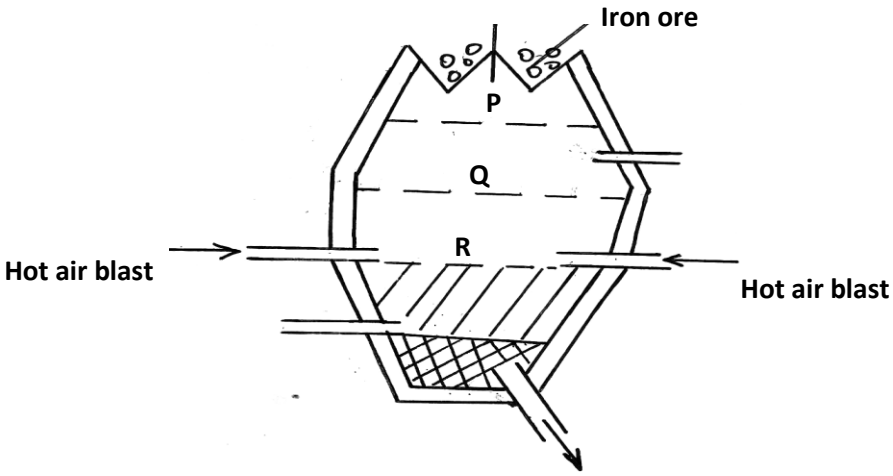
5.The diagram below shows the blast furnace for the extraction of iron. Study it and answer the questions that follow



(i) Identify the ore from which Iron is extracted from **Iron** **(1mk)**

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(ii) Which roles does the following material perform in extraction of iron

(a) Coke **(1mk)**

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(b) Carbon (II) Oxide **(1mk)**

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(iii) Write down the equation for the two chemical changes that takes place in zone P **(2mks)**

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(iv) What is the temperature range in zone R? and what the importance of the temperature for extraction of Iron metal **(1mk)**

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(v) What is the composition of slag? **(2mks)**

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(vi) List any **two** physical properties of iron metal **(2mks)**

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(II) A student was provided with $50cm^3$ of HCl in a $250cm^3$ volumetric flask (acid in excess). When the reaction stopped he filled the volumetric flask to the $250cm^3$ mark up with distilled water.

$25cm^3$ of this solution requires $2cm^3$ of 0.1M NaOH for complete neutralization

(a) Write the equation for the reaction taking place between XCO3 and HCl **(1mk)**

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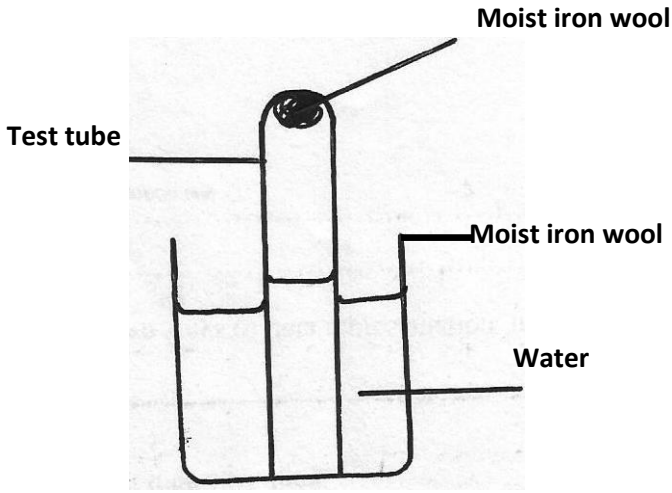
(b)(i) Calculate the number of moles of the acid in $250cm^3$ of solution **(2mks)**

(ii) How many moles of the acid reacted with XCO_3? **(2mks)**

(iii) Calculate the molecular mass of the XCO_3 **(3mks)**

(d) What is the percentage of X by mass is XCO_3? **(1mk)**

6. The set-up below was used to study some properties of air



(i) State and explain two observation that would be made at the end of the experiment (3mks)

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(ii) Write the chemical equation for the chemical change that will take place (1mk)

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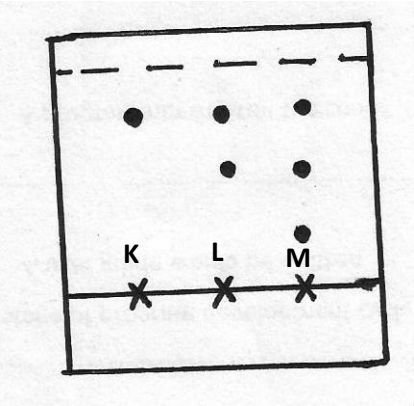
(II) The diagram below represents a paper chromatogram from three brands of juices suspected to contain burned food colour



The results showed the presence of burned formed colorings' in L and M only. On the same diagram

(a) Circle the spots which show the burned food colorings' **(1mk)**

(b) Show solvent front **(1mk)**

(III) (i) Name another gas which is used together with Oxygen in welding **(1mk)**

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(ii) Oxygen and Sulphur belong to group (VI) of the periodic table. Explain why there is big difference in their melting point (melting points of Oxygen is -216^{o}C while that of sulphur is 44^{o}C **(2mks)**

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(iv) Explain how a solid mixture of sodium sulphate can be separated from lead (I) sulphate if the two are mixed together **(3mks)**

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7.The table below shows some properties of some organic compounds. Use it to answer the questions that follows;

(i)

Compound	Molecular	Mpt^{o}c	Bpt^{o}C
P	$C_2H_4O_2$	16.6	118
Q	C_3H_6	185	-47.7
R	C_3H_8O	-127	97.2
S	C_5H_{12}	-130	36
T	C_5H_8	-90	39.3

Which of the compounds above is a gas at 25^{o}C? Explain **(2mks)**

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(ii) Describe chemical test that would distinguish between T and S **(2mks)**

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(iii) Compounds R and P reacted to form compound K. Give the name of K and state the group of compounds to which it belongs **(2mks)**

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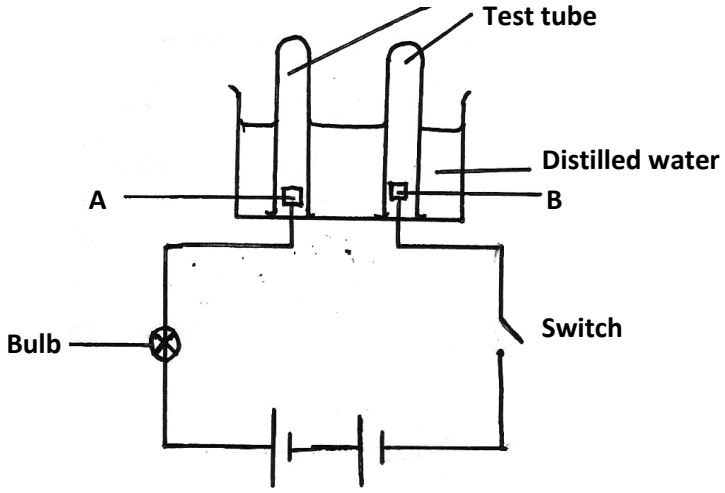
(II) Study the diagram below and answer the questions that follow;



(a) State, which electrode is the cathode and which one is anode **(1mk)**

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(b) Explain why no observation was made when the switch was closed **(1mk)**

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(c) Small amount of concentrated sulphuric (VI) acid was added to the distilled water and the Switch closed.

(i) State and explain observation made **(2mks)**

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(ii) Using equations show the reactions that took place at each electrode given that A and B are inert electrodes **(2mks)**

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(iii) Write down overall cell equation for the reaction **(2mks)**

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BRILLIANT STUDENTS TOP EXAMINERS MOCK SERIES 3

NAME: ……..

SCHOOL: ……...……

ADM NO: …….. SIGN: ……. DATE: ……..

233/3

CHEMISTRY

PAPER 3

TIME: 2 ¼ HOURS

INSTRUCTIONS TO THE CANDIDATES:-

- ***Write your name and index number in the spaces provided***
- ***Sign*** *and write the* ***date*** *of examination in the spaces provided*
- ***Answer all the questions in the spaces provided.***
- *Mathematical tables and electronic calculators may be used.*
- *All working* ***MUST*** *be clearly shown where necessary.*
- *Use the first 15minutes of the 2 ¼ hours to ascertain you have all the chemicals and apparatus tha you may need.*

For Examiners use Only

QUESTION	MAXIMUM SCORE	CANDIDATES SCORE
1	16	
2	12	
3	12	
TOTAL	40	

1. You are provided with:

Solid G, magnesium powder.

Solution N, 0.5 M Ferrous ammonium sulphate hexahydrate.

Solution M, containing 3.68 g/l, acidified potassium manganate (VII).

You are required to determine the:

-Molar enthalpy of displacement of iron (II) ions with **Solid G**.

-Mass of magnesium that reacts with **Solution N.**

Procedure 1

Using a measuring cylinder, place exactly 100 ml of **solution N** in 250 ml plastic beaker. Allow to stand for about a minute. Measure the initial temperature of the solution and record it in table 1.

Add all of the **solid G** at once to the solution. Stir the mixture carefully with the thermometer and record the highest temperature reached in table 1. **Retain the mixture for use in procedure II.**

(a) Table 1

Final temperature (^oC)	
Initial temperature (^oC)	
Change in temperature, ΔT	

(2 marks)

Procedure 1I

Filter the mixture obtained in **procedure I** into a 250 ml volumetric flask. Wash the residue with distilled water and add into the flask. Add more water to make up to the mark. Label this as **solution F**.

Using a pipette and a pipette filler, place 25.0 ml of **solution F** into a 250 ml conical flask. Titrate **solution F** with **Solution M** until a permanent pink colour just appears. Record the readings in table 2.

Repeat the titration two more times and complete table 1.

(b) Table 2

Titration number	I	II	III
Final burette reading			
Initial burette reading			
Volume of **Solution M** used, cm^3			

(4 marks)

(c) Calculate the average volume of **Solution M** used. **(1 mark)**

(d) Given the equation for the reaction between manganate (VII) and iron (II) as:

$MnO^-_{4(aq)} + 5Fe^{2+}_{(aq)} + 8H^+_{(aq)} \rightarrow Mn^{2+}_{(aq)} + 5Fe^{3+}(aq) + 4H_2O_{(l)}$

Calculate the number of moles of:

(i) Potassium manganate (VII) used. (K = 39, Mn = 55, O = 16) **(1 mark)**

(ii) Iron (II) ions in 25.0 ml **solution F**. **(1 mark)**

(iii) Iron (II) ions in 250 ml **solution F**. **(1 mark)**

(iv) Iron (II) ions in 100 ml **solution N** after the reaction with magnesium. **(1 mark)**

(v) Iron (II) ions in 100 ml **solution N** before the reaction with magnesium. **(1 mark)**

(vi) Iron (II) ions that reacted with magnesium. **(1 mark)**

(e) Calculate the mass of magnesium that reacted. (Mg = 24) **(1 mark)**

(f) Calculate the:

(i) Heat change for the displacement reaction of iron (II) with magnesium.

(Assume for the mixture, specific heat capacity = 4.2 $Jg^{-1}K^{-1}$ and density = 1.0 gcm^{-3}) **(1 mark)**

(ii) Molar enthalpy of displacement of iron (II) with magnesium. **(1 mark)**

2. You are provided with **solid L**. Carry out the tests below. Record your observations and inferences in the spaces provided.

(a) Place **about half** of **solid L** in a clean test-tube and add about 8 ml of distilled water and shake. **Retain the other half of solid L for use in part (c) while the solution is for use in part (b) (i) to (iv).**

Observations	Inferences
1 mark	**1 mark**

(b) Divide the solution obtained in part (a) above into four portions.

(i) To the first portion, add 2 M ammonium hydroxide solution drop-wise until in excess.

Observations	Inferences
1 mark	**1 mark**

(ii) To the second portion add 2 – 3 drops of barium nitrate solution.

Observations	Inferences
1 mark	**1 mark**

(iii) To the third portion add about equal volume of chlorine water.

Observations	Inferences
1 mark	**1 mark**

(iv) To the fourth add 2 – 3 drops of lead (II) nitrate solution.

Observations	Inferences
1 mark	**1 mark**

(c) Clean a metallic spatula and rinse it with distilled water. Dry the spatula on a Bunsen burner using non-luminous flame for about one minute and then allow it to cool. Place a little of **solid L** on the spatula and heat it strongly with a non-luminous flame.

Observations	Inferences
1 mark	**1 mark**

3. You are provided with:

Solid W

Bromine water

Acidified potassium manganate (VII)

Sodium carbonate

Solid W is suspected to be an organic compound.

(a) Using the reagents provided describe the tests that could be performed consecutively to confirm which type of organic compound is **Solid W**. Record the tests and expected observations in the spaces provided.

(i)

Test 1	Expected Observations
1 Mark	**1 Mark**

(ii)

Test 1	Expected Observations
1 Mark	**1 Mark**

(iii

Test 1	Expected Observations
1 Mark	**1 Mark**

(b) Carry out the tests described in (a) above using **solid W** and record the observations and inferences in the spaces provided.

(i) Test 1

Test 1	Expected Observations
1 Mark	**1 Mark**

(ii) Test 2

Test 1	Expected Observations
1 Mark	**1 Mark**

(iii) Test 3

Test 1	Expected Observations
1 Mark	**1 Mark**

BRILLIANT STUDENTS TOP EXAMINERS MOCK SERIES 3

NAME: ……..

SCHOOL: ……...……

ADM NO: …….. SIGN: ……. DATE: ……..

451/1

COMPUTER STUDIES

TIME: 2 ½ HRS

Instructions to candidates

1.This paper consists of TWO sections; A and B
2.Answer all questions in sections A.
3.Answer question 16 and any other THREE questions from section B.

FOR EXAMINERS USE ONLY

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

SECTION A (40 MARKS)

ANSWER ALL QUESTIONS IN THIS SECTION

1.Differentiate between cold booting and warm booting in computing **(2mks)**

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2.Define parallel processing **(1mk)**

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3.(a) Mention any **TWO** reasons why command-based operating systems are not common in today's business computer systems. **(2mks)**

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(b) Explain any **THREE** functions of an operating system with respect to memory management **(3mks)**

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4.Differentiate between partitioning and formatting as used in disk management **(2mks)**

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5.Name the type of scanner used to capture data from the following document format below **(1mk)**

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……

Computer output can now be in form of spoken words in digitized speech. An example of such application is spell learning devices for children. State ONE advantage of speech output. (1mk)

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6.Mention any **TWO** features that are considered before buying a main memory module. **(2mks)**

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7.A technician recommended a computer in the principal's office needs upgrading of the CPU. State any TWO reasons that may have necessitated the upgrading of the CPU. **(2mks)**

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8.State **TWO** reasons why secondary storage is preferred to main memory in data storage. **(2mks)**

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9.(a) State **ONE** advantage of relational database model over flat files (1mk)

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(b) State **TWO** uses of primary keys in a database **(2mks)**

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(c) A database requires data to be defined by assigning data types to fields for purposes of consistent storage. Describe any **FOUR** data types that can be allowed in Ms Access. **(4mks)**

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(d) Define the term macro as used in databases **(1mk)**

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10. State any **ONE** reason why USB interface cables are widely used in computing devices **(1mk)**

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11. A company is considering replacing some of its software, including its word processing package, and to acquire an integrated software package. State **TWO** advantages for the company in using in tegrated software rather than separate packages. **(2mks)**

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12. (a) State **TWO** types of DTP software **(2mks)**

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(b) List **FOUR** page formatting features in DTP **(2mks)**

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13. (a) Explain the meaning of "what if analysis" in spread sheets **(2mks)**

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(b) The table below shows items consumed by some students for breakfast in a given day.

	A	B	C	D	E	F
1		ITEM (				
2	NAME		SAUSAGE	TEA	BANANA	TOTAL COST
3			15.00	10.00	5.00	
4	Charles		1	1	2	35
5	Amoit		2	4	2	80
6	David		3	1	2	
7	Okello		2	1	2	50

(i) Using an expression, find the total expenditure incurred by David **(2mks)**

(ii) State what you would obtain from the expression = Count IF (F4:F7, ">45") (1mk)

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14. Define the following terms as used in relation to operating systems (2mks)

(i) Folder

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(ii) Drive

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SECTION B (60 MARKS)
ANSWER QUESTION 16 AND ANY OTHER THREE QUESTIONS FROM THIS SECTION

15. (a) State any THREE advantages of using Object Oriented programming for writing programs (3mks)

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(b) In a computer contest with 40 entries, three papers are tested and the final marks awarded according to the average of the papers. The final marks are then ranked to get position 1, 2 and 3 who are awarded trophy, cash and scholarship, trophy and cash, and cash respectively

Write a program pseudocode and flowchart that will prompt for the name, school and marks for each paper then compute the final marks and rank and display the students name, school, final marks position and award.

i. Pseudocode **(5mks)**

ii. Flowchart **(7mks)**

16. (a) With the aid of a well labeled diagram, describe control and feedback model in a system **(4mks)**

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17. (b) Distinguish between the following terms as used in system development **(4mks)**

i. Hard system and soft system

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ii. Operational feasibility and technical feasibility

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(c) State **THREE** ways in which organizations manage system entropy **(3mks)**

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(d) Explain any **TWO** reasons for system maintenance **(1mk)**

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(e) Briefly explain **THREE** ways in which computers can be used in motor vehicle manufacturing companies **(3mks)**

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18. (a) Distinguish between the following terms as used in data communication **(4mks)**

i. Guided transmission and unguided transmission

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ii. Multiplexing and demultiplexing

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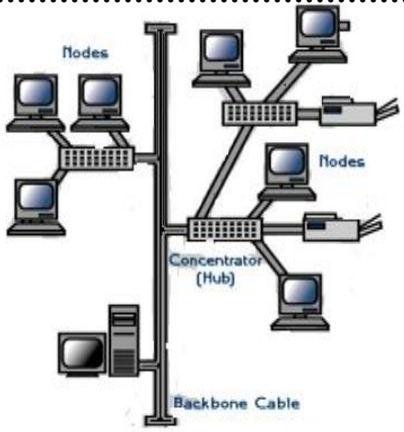
(b) Below is a diagram of a network topology.



i. Name the above topology (1mk)

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ii. State **ONE** advantages and **ONE** disadvantage of using the topology named above **(2mks)**

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(c) (i) State **TWO** ways in which users in an organization can be a security threat to data in an information system. **(2mks)**

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(ii)Define cyber terrorism **(1mk)**

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(d) A school intends to set-up an e-mail.
L**ist FOUR** activities likely to be provided by the e-mail facility. **(2mks)**

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(e)Define the following terms as used in the internet. **(2mks)**

(i)Internet blog

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(ii) Webportals

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(f) Kenya publishing and printing company wishes to employ an ICT professional to assist in making publications .State the suitable ICT professional the firm could employ **(1mk)**

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19. (a) (i)List and explain the THREE types of errors that can occur during data collection stage of data processing cycle **(3mks)**

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(ii)Distinguish between master file and transaction file **(2mks)**

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(iii) Define real time processing **(1mk)**

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(iv) Explain a situation where the batch processing would be appropriate **(1mk)**

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(b) Using twos complement, perform the following operation and give your answer in decimal notation

- $777_8 - 25_{10}$ **(4mks)**

(c) Solve $AC_{16}+101_2=X_2$ **(2mks)**

(d) Convert binary number 11010110.1001_2 into octal number. **(2mks)**

20. (a) State any TWO negative effects of introducing robots in a manufacturing plant **(2mks)**

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(b) State THREE advantages of using computers (3mks)

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(c) Name THREE types of special purpose memories used in a computer **(3mks)**

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(d)Explain the purpose of the system clock **(2mks)**

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(e) (i) In word processing, differentiate between text wrap and word wrap **(2mks)**

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(ii) List any THREE types of section breaks used in word. **(3mks)**

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BRILLIANT STUDENTS TOP EXAMINERS MOCK SERIES 3

NAME: ……..

SCHOOL: ……...……

ADM NO: …….. SIGN: ……. DATE: ……..

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

Instructions to candidates.

a) Indicate your name and index number at the top right hand corner of each printout.
b) Write your name and index number on the CD provided.
c) Write the name and version of the software used for each question attempted.
d) Answer **all** questions.
e) All questions carry equal marks.
f) Passwords should not be used while saving.
g) Make a print out of the answers on the answer sheet.
h) Hand in all the print out and the CD.

This paper consists of 4 printed pages.
Candidate should check the question paper to ascertain all pages are printed as indicated

1. The table below shows the admission numbers and names of five students and their scores in six subjects in a mock examination.

ADM. NO.	Name	English	Maths	Biology	Chemistry	Physics	History
2020	Victor Mutiso	77	68	75	35	58	80
2032	Zablon Onyango	44	77	80	42	60	73
2037	Pauline Nafula	68	59	91	39	59	75
2040	Naom Cherop	55	80	89	48	38	66
2044	Jameleck Kioko	69	62	83	43	44	70

a) Enter the above data into a worksheet and save the file as 'mock results' **(13mks)**

b) Using a formula, calculate the; **(4mks)**

a) Total score for each students

b) Mean score for each student

c) Use a function to obtain the mean for each subject **(3mks)**

d) A student is awarded a 'pass' if their mean score is 60% or more. Use a function to determine the number of students who are awarded 'pass' **(2mks)**

e) Format the worksheet as follows

- Borders : single line
- Subject heading : align 90°
- Marge the cells above all the subjects headings so that the text 'SUBJECT' is above them.
- Mean score : One decimal place **(4mks)**

f) Copy the contents of the worksheet to a blank worksheet and insert a blank column after every subject.

Label the new columns as Eng B, math B, Bio B, Chem B, Phy B, and Hist B respectively. On the inserted columns, compute the grades using IF function based on the following criteria.

(10mks)

Mean score	Grade
score≥75	A
60 ≤ score <75	B
50≤score < 60	C
45 ≤score <50	D
Score < 45	E

g) Hide all the columns containing score values and save the worksheet as "Mock results 2" **(2mks)**

i)Create a bar chart to compare students mean score and label the chart accordingly. **(10mks)**

j) Print the two worksheets and the bar chart **(4mks)**

2. The data in the table was extracted from a survey data on employment.

Table 1: EMPLOYEE TABLE

Name	Year of birth	Employee ID NO	Employer ID	Job category
DAISY	1980	13144	01	GK4
DAVID	1970	11100	04	GK3
DOREEN	1984	14010	02	GK1
DAVIN	1976	12110	05	GK1
ALLAN	1973	11410	03	GK2
KATE	1968	10570	04	GK3
ZEDDY	1990	11040	05	GK3
PIUS	1998	15978	03	GK2
ZION	1992	17192	02	GK4
BOB	1993	18965	05	GK4

Table 2: EMPLOYMENT TYPE

Job Category	Job Description
GK1	Casual
GK2	Temporary
GK3	Contract
GK4	Permanent

Table 3: EMPLOYER TABLE

EMPLOYER ID	EMPLOYER NAME
01	ONYANGO
02	WAMBUA
03	OSHIRO
04	KATANA
05	AWINJA

a) i) Create a database named "STAFF" to store the above **(14mks)**

ii) Create relationships between the tables **(4 ½ mks)**

iii) Use forms to enter data into the tables **(10 ½ mks)**

b) i) Generate a report to display the name year of birth, age and employer's name for the employees who will be over 30years old by the year 2015 **(10mks)**

ii) Compute the mean age of employees on the report you created in b(i) above. **(2mks)**

c) i) Create a query to display the employees and their jo description. Save the query as "STAFF TYPE" **(3mks)**

ii) Create a pie chart based on the query in c(i) above to display the proportion of employees in various job description.

Save the report as CHART

d) Print i) Three tables

ii) Two reports

iii) Output of query results for STAFF TYPE.

BRILLIANT STUDENTS TOP EXAMINERS MOCK SERIES 3

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						

This paper consists of 2 printed pages. Candidates should check the question paper to ensure that all pages are printed as indicated and no questions are missing

Answer any FIVE questions

1.(a) Identify **six** literary forms used in writing the Bible. **(6mks)**

(b) Define the following terms: **8mks)**

(i) Bible

(ii) Septuagint

(iii)Translation

(iv) Apocrypha

(c) Give ways in which Christians use the Bible to spread the Gospel. **(6mks)**

2.(a) Describe the making of the Covenant between God and Abraham. **(8mks)**

(b) Identify **seven** promises God gave to Abraham. **(7mks)**

(c) Outline the significance of initiation rites in African Traditional Communities. **(5mks)**

3.(a) Why did the Israelites ask to be given a King? **(7mks)**

(b) State **seven** promises that God gave to King David through Prophet Nathan. **(7mks)**

(c) What lessons do Christian leaders learn from greatness of King David? **(6mks)**

4.(a) Describe the role of Prophets to the people of Israel. **(7mks)**

(b) State the teachings of Prophet Amos on the day of the Lord. **(8mks)**

(c) Identify ways in which God speaks to Christians today. **(6mks)**

5.(a) Describe Jeremiah's message at the Temple sermon. **(8mks)**

(b) State the teachings of Jeremiah about the false prophets. **(7mks)**

(c) State **five** ways in which Christians can promote true teachings of God. **(5mks)**

6.(a) Identify the role of parents in Traditional African Community. **(5mks)**

(b) State the reasons why childlessness was seen as a misfortune in Traditional African Communities. **(7mks)**

(c) Give reasons why initiation is still practiced in the modern African community. **(8mks)**

BRILLIANT STUDENTS TOP EXAMINERS MOCK SERIES 3

NAME: ……..

SCHOOL: ……...……

ADM NO: …….. SIGN: ……. DATE: ……..

313/2
CHRISTIAN RELIGIOUS EDUCATION
PAPER 2
TIME: 2½ HOURS

INSTRUCTIONS TO CANDIDATES:

(a) *This paper consists of **SIX** questions.*

(b) *Answer any **FIVE** questions in the answer booklet provided.*

ANSWER ANY FIVE QUESTIONS

1. (a) Describe the message of the Angel of the Lord to Zachariah in the annunciation of John's birth. **(8mks)**

(b) Identify the evidence in Luke's gospel that show Jesus was a Messiah sent to the poor. **(7mks)**

(c) What do Christians learn from Simeon's prophecy when baby Jesus was presented in the temple? **(5mks)**

2. (a) Describe the healing of the centurion's servant by Jesus. **(8mks)**

(b) Outline the parable of the great feast. **(6mks)**

(c) State the role of Christians in a burial ceremony. **(6mks)**

3. (a) Explain Jesus' teachings on the Kingdom of God. **(8mks)**

(b) Mention **five** reasons why Jesus condemned those requesting for a sign of God's kingdom. **(5mks)**

(c) Outline **seven** ways in which Christians can prepare themselves for the kingdom of God. **(7mks)**

4. (a) Identify Peter's teachings about Jesus on the day of the Pentecost. **(7mks)**

(b) Describe the meaning of the church according to Paul's teaching in Ephesians 5: 21-32 **(7mks)**

(c) Explain causes of disunity in the church today. **(6mks)**

5.(a) Identify **six** ways in which sex is abused in Kenya. **(6mks)**

(b) What are some of the problems that children of single mothers face? **(7mks)**

(c) In what ways can the church strengthen family relationships? **(7mks)**

6. (a) Explain **four** reasons which the supporters of cosmetic or plastic surgery give for it as a necessary practice. **(8mks)**

(b) State **six** reasons why Christians are against human cloning. **(6mks)**

(c) What are the **six** criteria of judging whether a scientific or technological innovation is ethical or not? **(6mks)**

BRILLIANT STUDENTS TOP EXAMINERS MOCK SERIES 3

NAME: ……..

SCHOOL: ……...……

ADM NO: …….. SIGN: ……. DATE: ……..

101/1

ENGLISH

PAPER 1

FUNCTIONAL SKILLS

TIME: 2 HOURS

INSTRUCTIONS TO CANDIDATES

- Answer ***all*** the questions in this question paper.
- All answers must be written in spaces provided
- Answer all questions in English.

For Examiners Use Only

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

1. **FUNCTIONAL WRITING** **(20MKS)**

You are the secretary of the social welfare club that has been asked to investigate and recommend the best ways to send a donation to your school. The club has observed the following needs

(a) Improve library services

(b) Expand recreational facilities

(c) Start a school farm

(i) Write the report to the principal **(12mks)**

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(ii) Write an e-mail to Melvin Johns, one of the oversees sponsors of the school, asking him to send the donation to your school, at the same time giving him the progress of your club and the schools immediate needs

2. **Cloze test** **(10mks)**

Fill in the gaps in the passage below with the most appropriate words

He _____to tell his story, but four people lost their lives and 21 escaped with critical injuries yesterday. _____it not for the jamming of the gun aimed at his head, Mr. Bartholomew Odhiambo, 31_____not have told of the attack by unknown people_____to kill as many people as possible at Joy in Jesus church in Likoni

When I heard the first shot, my _____told me to run and this is the time I came face to face with death. The bullet aimed_____me hit a woman behind me. I went down and _____death," he said while on his way to the doctor receiving his X-rays result.

Matters did not end there, he explained. The gunman, after_____the fire arm had jammed walked to _____he was lying and stepped on his back telling him: Unabahatisana."(You are very lucky)

"As I lay there praying, he poked my back hard with the gun until I felt sharp pains all _____my body," he said

3. Oral skills (30mks)

Read the conversation below then answer the questions that follow

Narrator: I salute you old man and women of this land?

Audience : We salute you too….

Narrator: Is this where you live?

Audience: Yes, this is where we live. It is where old age found us

Narrator: Shall I tell you a story?

Audience: Yeees?

Narrator: A good one or a bad one?

Audience: A good one!

Narrator: Long, long time ago, in the days of the ogres…

(i) Give two reasons why the narrator uses the above introduction **(2mks)**

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(ii) How can the audience contribute towards the successful delivery of the introduced narrative **(3mks)**

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(iii)Explain the kind of preparations the narrator might have had in readiness for theperformance above **(2mks)**

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(iv) Suppose you are the narrator in the exchange above. What problems are you likely to encounter when narrating the story as started above to a large audience? **(3mks)**

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(b) Two of your classmates have disagreed over a certain issue leading into a conflict. As the tudent in charge of the class, you decide to arbitrate. Identify four negotiation skills you will use to ensure that an agreement is arrived at (4mks)

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(c) Indicate whether the following items have falling or rising intonation (5mks)

(i) Where is my mother?----------

(ii) Oh my God!_____

(iii) Is it hot?_____

(iv) She will be coming wont she? (threating)_____

(v) She will come tomorrow_____

(d) Your classmates intend to visit a neighboring school to take part in a debate for the first time. Give one of the speakers guidelines that he/she should observe before and during the debating session **(4mks)**

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(e) For each of the following words, write another word that is pronounced in the same way **(4mks)**

(i) Foul_____

(ii) Rest_____

(iii) Soar_____

(iv) Bail_____

(f) You are in the field carrying out some field research and oral literature. Explain some of the field etiquette you are to observe (3mks)

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BRILLIANT STUDENTS TOP EXAMINERS MOCK SERIES 3

NAME: ……..

SCHOOL: ……...……

ADM NO: …….. SIGN: ……. DATE: ……..

101/2
ENGLISH
Paper 2
(Comprehension, Literary Appreciation and Grammar)
Time: 2 ½ Hours

Instructions to students

- *Write your **name, admission number** and **class** in the spaces provided.*
- *Sign and write the date of the examination in the spaces provided.*
- *Answer **all** questions in the spaces provided*
- *All your answers must be written in the spaces provided in this question paper.*
- *This paper consists of **11 printed** pages.*
- *Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing*
- *Candidates must answer all questions in English*

Question	Maximum Score	Student's Score	Examiner's Initials
1	20		
2	25		
3	20		
4	15		
TOTAL	80		

1.*Read the passage below and answer the questions that follow.* ***(20 marks)***

The core element of Artificial Intelligence (AI) and a functioning production IT system is an interactive, lifelong process of learning from the human partner and responding to human needs. For example, the AI system must be able to draw up highly complex plans as needed by the customer and to produce them **autonomously**. A production robot, in particular, is supposed to be designed in such a way that it has nearly human capabilities such as fine motor skills, perception, adaptability and cognition. In order to achieve its full functionality, however, it must be programmed dynamically and rigidly.

Modern information technologies and the advent of machines powered by artificial intelligence have already strongly influenced the world of work in the 21st century. Computers, algorithms and software simplify everyday tasks.

When we transfer the experience of the past to the future, disturbing questions arise: what will the future world of work look like and how long will it take to get there? Will the future world of work be a world where humans spend less time earning their livelihood? Alternatively, are mass unemployment, mass poverty and social distortions also a possible scenario for the new world, a world where robots, intelligent systems and algorithms play an increasingly central role? What is already clear and certain is that new technical developments will have a fundamental impact on the global labour market within the next few years, not just on industrial jobs but on the core of human tasks in the service sector that are considered **untouchable**.

In addition to companies, employees and societies, education systems and legislators are also facing the task of meeting the new challenges resulting from constantly advancing technology. Legislators are already lagging behind and the gap between reality and laws relating to AI is growing.

Both blue-collar and white-collar sectors will be affected. The faster the process of the division of labour and the more process steps can be described in detail, the sooner employees can be replaced by intelligent algorithms. One third of current jobs requiring a bachelor's degree can be performed by machines or intelligent software in the future. Individual jobs will disappear completely, and new types of jobs will come into being.

Robots and intelligent machines can have not only supporting, but even lifesaving functions. Examples are robots used in medical diagnostics, which have high accuracy, or for the assessment of dangerous objects using remote control and integrated camera systems. These make it possible, for example, to defuse a bomb without a human having to come close to it. The 'Robo Gas Inspector', an inspection robot equipped with remote gas sensing technology, can inspect technical facilities even in hard-to-reach areas without putting humans at risk, for example, to detect leaks in above-ground and underground gas pipelines.

Owing to the great number of emerging multidisciplinary support alternatives due to AI and machines, the requirements for future employees will change. There will be hardly any need for employees who do simple and/or repetitive work. Already today, the number of factory workers is constantly decreasing, and humans are ever more becoming the control mechanism of the machine. The automotive industry, where many production steps are already fully automated, is the **pioneer** in this respect.

The lower the demand for workers, the higher will be the companies' demand for highly qualified employees. According to common belief, better education helps. Better education helps, however, only in certain circumstances. The additional qualification of an individual employee must be connected to the work in question. Additional qualifications as an accountant will be of little benefit for the individual employee, because – over time – there is a 98 per cent probability that the work of an accountant can be done by intelligent software. Creative people who are talented in mathematics and sciences are best qualified for the new labour market.

Although not every future employee will be required to be an IT programmer, they should have a fundamental grasp of analytical and technical matters. Employees should be able to form a unit with supporting machines and algorithms and to navigate the internet comfortably and move safely in social networks. To do this, it is necessary to know how the basic structurework. The employee should also be able to examine machines and artificial intelligence software critically. It is not necessary only to oversee machines, but also to coordinate them. The interfaces between humans and machines and the overlaps in the area of responsibility among the more flexible humans must also be coordinated.

a) What is the importance of humans to AI systems? **(2 marks)**

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b) Using illustrations from the passage, explain why the term artificial intelligence is appropriate. **(2 marks)**

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c) The author seems to have contradictory views about the introduction of Artificial Intelligence in the workplace. Explain. **(2 marks)**

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d) In your own words and according to the passage, explain why the gap between reality and laws relating to AI is growing. **(2 marks)**

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e) What **two** characteristics, according to the passage, must an employee have to survive in the new work environment dominated by AI? **(2 marks)**

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f) Giving a reason, explain whether machines are superior to humans when it comes to work**.** **(1 mark)**

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g) Modern information technologies have already strongly influenced the world of work in the 21st century. (Rewrite adding a question tag) (1 mark)

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h) Make notes on the implications of AI in the workplace. (5 marks)

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i) Explain the meanings of the following words as used in the passage. **(3 marks)**

i. Autonomously

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ii. Untouchable

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iii. Pioneer

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2. *Read the excerpt below and then answer the questions that follow.* **(25 marks)**

Read the following excerpt from the novel Blossoms of the Savannah and answer the questions that follow.

"Not really, my husband," she said **ruefully**, beating a hasty retreat. "Our culture is everything and it rules our lives."

"Good," he said authoritatively. "Now listen, you must immediately start counselling the girls to Understand their roles as potential wives of the men of Nasila. Prepare them to appreciate and accept their future responsibilities as mothers and home builders.

"I'll do that, my husband," she said quietly.

"One other thing," he said evenly. "I'll ask Simiren to request the young teacher called Parmuat, who is of our clan and therefore a brother to the girls, to find time to teach them a few **home truths**. After that we shall call enkamuratanito play her part before we give them away.

Those were the words, whose utterances she so dreaded. And once uttered, she knew, the words instantly because an **inviolable edict**. Now that he had spoken, the pain was already harrowing and the torment in her heart Unbearable.

She was torn between her love for her daughters and her dutiful role of a faithful and obedient wife of Ole Kaelo, but in her culture there was no room for dissent, especially if the subject was in conformity with the culture. Who would side with her if she were to oppose the cultural rituals?

Her only ally would be the woman the elders of Nasila contemptuously called entangoroior the wasp. Those who honoured her called her Emakererei, for she was said to have attended Makerere University in Uganda, where she obtained her degree in veterinary science. Mama Milanoi knew her well. Her actual names were MinikeneNkoitoi.

Outside Nasila, she was respected and honoured. At thirty, she was already managing an expansive government sheep ranch reputed to hold hundreds of thousands of sheep, about one hundred kilometers away from Nasila. Under her were hundreds of employees who worked at the ranch.

Questions

a) "Not really, my husband." What is Mama Milanoi responding to? **2mks**

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b) Identify two people who have influenced Ole Kaelo to initiate his daughters and how. 4mks

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c) Ole Kaelo appoints Parmuat to educate the girls about their culture. What is their reaction? **3mks**

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d) Describe the character traits of Ole Kaelo. **2mks**

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e) Identify and explain one thematic concern that emerges in this excerpt. **3mks**

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f) "She was torn between her love for her daughters and dutiful role of a faithful and obedient wife". Give examples of other times when Mama Milanoi's duty as a wife superseded her love for her daughters.**3mks**

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g) Give two roles that Emakererei plays in this text. **4mks**

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h) Describe the attitude of the Nasila people towards Emakererei. **2mks**

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i) Give the meaning of the following expressions as used in this excerpt: 2mks

- Home truths
- Inviolable edict

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3. Read the poem below and answer the questions that follow. **(20 marks)**

Footpath

Path – let … Leaving home, leading out
Return my mother to me.
The sun is sinking and darkness coming,
Hens and cocks are already inside and babies drowsing,
Return my mother to me.
We do not have firewood and I have not seen the lantern,
There is no more food and the water has run out
Path – let me pray, you return my mother to me.
Path of the small hills, path of the small stones
Path of slipperiness, path of the mud

Return my mother to me.
Path of papyrus, path of the rivers
Path of small forests, path of reeds
Return my mother to me
Path, I implore you, return my mother to me
Path of the crossways, path that branches off,

Path of the stringing shrubs, path of the bridge
Return my mother to me
Path of the open, path of the valley
Path of the steep climb, path of the downward slope
Return my mother to me.
Children are drowsing about to sleep,
Darkness is coming and there is no firewood,
And I have not found the lantern;
Return my mother to me.

Stella Ngatho.

(a) Who is the persona in this poem? **(2 marks)**

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(b) Identify and explain the effectiveness of any **two** stylistic devices. **(6 marks)**

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(c) What is the quality of the voice in the poem? **(2 marks)**

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(d) Comment on the title of the poem**.** **(2 marks)**

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(e) Describe the general atmosphere created in the poem. **(2mks)**

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(f) With illustrations, briefly state **three** problems that the persona is facing**.** **(3 marks)**

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(g) Describe the setting of this poem. **(3 marks)**

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4. *a)* ***Rewrite the following sentences as instructed, without changing the meaning. (2 marks)***

(i) Pandya said, "I shall find it difficult to find the office without proper directions." (*Rewrite as* ***reported speech****, using* ***'unless'****.)*

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(ii) Should Mrs. Okello see you, she would be surprised. *(Rewrite, Beginning: **Were** …)*

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*b) Complete the following sentences with the most appropriate **prepositions.** **(3marks)***

(i) Subsequent **…….....**the heavy rains many schools were closed in some parts of the country.

(ii) The three students were sent home **……** their unbecoming behaviour.

(iii) The farmers continued working on their farms **…….....** the unfavourable climatic conditions.

c) (i) I went into the room with a pile of files. I tripped on the carpet which had been rolled up. *Rewrite as one sentence, using a **present participle**.* (1 mark)

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(ii) Adela is not accustomed to such behaviour. She was deeply shocked. *(Use a **past participle** to join the two sentences.* **(1 mark)**

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*d) Complete each of the following sentences using appropriate **phrasal verbs**, made up of the words given in bracket.* **(2 marks)**

(i) Eggs don't **…….....** me. (agree)

(ii) Can I **…….....** you for help? **(count)**

*f) In each of the sentences below a group of words is underlined. Write down the **best single word** which may be used to replace it.* **(3 marks)**

(ii) She is <u>the one who filed the law suit</u>.

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(iii) His argument is <u>quite incapable of being understood</u>.

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*e) Explain the difference in **meaning** between the pair of sentences.*

(a.i) I saw the Secretary and Treasurer.

(a.ii) I saw the Secretary and the Treasurer.

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(b.i) Jane shouldn't have seen me yesterday.

(b.ii) Jane couldn't have seen me yesterday.

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BRILLIANT STUDENTS TOP EXAMINERS MOCK SERIES 3

NAME: ……..

SCHOOL: ……...……

ADM NO: …….. SIGN: ……. DATE: ……..

101/3 ENGLISH

PAPER 3

TIME: 2½HRS

Instructions to students

- Write your **name, admission number** and **class** in the spaces provided.
- Sign and write the date of the examination in the spaces provided.
- Answer **all** questions in the spaces provided
- All your answers must be written in the spaces provided in this question paper.
- This paper consists of **2 printed** pages.
- Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing
- Candidates must answer all questions in English

Question	Maximum Score	Student's Score	Examiner's Initials
1	20		
2	20		
3	20		
TOTAL	60		

1 (a) write a composition to illustrate the proverb: **(20 MKS)**

"As you make your bed, so you must lie on it."

OR

(b) "Education is the surest way to achieve the much needed national integration in Kenya today. "Write a composition supporting or opposing this statement.

2. **The compulsory set text: (20MKS)**

The novel; A Doll's House by Henrik Ibsen

'Women are portrayed as loving and self-sacrificing in Henrik Ibsen's A Doll's House, ' Write an essay to show the truth of this statement.

3. Optional set text

Answer any of the following questions

(a) Memories we lost and other stories. "Greed and Materialism can lead to grave consequences." In reference to the story 'How Much Land Does a Man Need' by Leo Tolstoy, write an essay to illustrate the truth of this statement. **(20 MKS)**

(b) The novel: the pearl by John Steinbeck. "Greed leads to evil." Write a composition to show the truth of this statement using illustrations from john Steinbeck's the pearl**.(20 MKS)**

(c) The play: inheritance by David Mulwa.

'Lacuna is an epitome of evil.' Drawing examples from David Mulwa's inheritance, write an essay illustrating the truth of the statement

BRILLIANT STUDENTS TOP EXAMINERS MOCK SERIES 3

NAME: ……..

SCHOOL: ……...……

ADM NO: …….. SIGN: ……. DATE: ……..

312/1

GEOGRAPHY

Kenya Certificate of Secondary Education (K.C.S.E)

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 (25MARKS)

Answer all the questions in this section

1.(a) What is the relationship between Geography and Chemistry? **(2marks)**

(b) Give three reasons why the interior of the Earth is hot. **(3marks)**

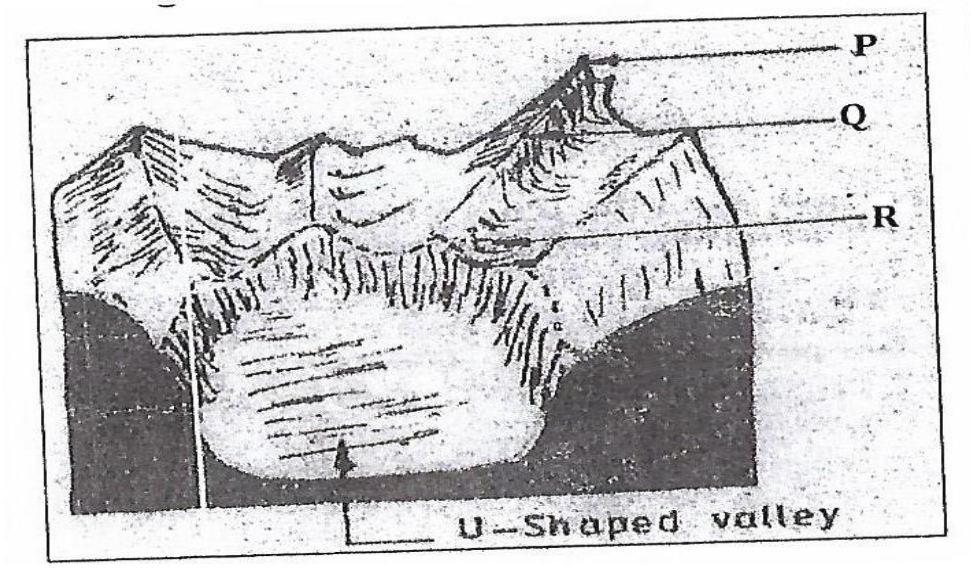
2.(a) Distinguish between Vulcanicity and Volcanicity. **(2marks)**

(b) Give two characteristics of basic lava domes. **(2marks).**

3.(a) What is desertification? **(2marks)**

(b) State three negative effects of desertification. **(3marks)**

4.The diagram below shows an upland area.



(a) Name the feature P, Q and R. **(3 marks)**

(b) How is a u-shaped valley formed? **(3 marks)**

5.(a) State three ways in which lakes are formed. **(3 marks)**

(b) Give two characteristics of lakes formed due to faulting. **(2 marks)**

SECTION B

Answer question 6 and any other TWO questions from this section

6.Study the map of Busia (1:50,000) sheet 101/1 provided and answer the following questions.

(a) (i) Give the latitudinal and longitudinal position of South East corner of the map **(2marks)**

(ii) Give two methods that have been used to represent relief. (**2marks)**

(b)(i) What is the length in Kilometres of the All-weather loose surface road (C526) from?

the road junction at Odiado to the road junction at Bumula. **(2marks)**

(ii) What is the bearing of the road junction at Matayo from the air photo Principal **(2 marks)**

(iii) Give three social services that are provided at Funyula. **(3 marks)**

(c) Describe the drainage of the area covered by the map. **(6marks)**

(d)(i) Apart from trading, name two other economic activities in Busia area. **(2marks)**

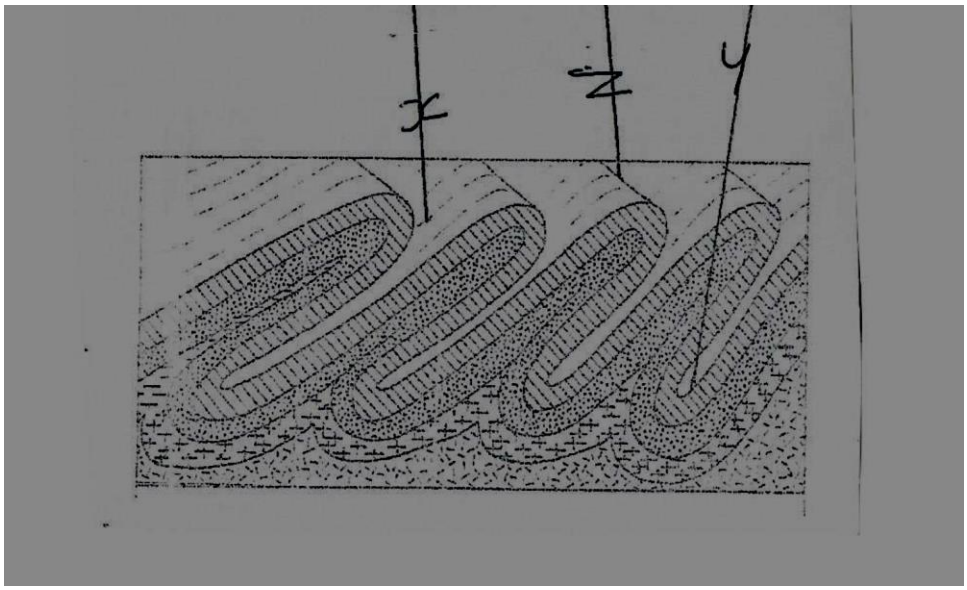
(ii) Citing evidence from the map, explain three factors that favour trading in the area covered by the map. **(6marks)**

7.(a)(i) What is folding? **(2marks)**

(ii) Name one country where the following fold mountains are found.

- Andes **(1mark)**
- Atlas **(1mark)**

(b) The diagram below shows a types of fold.



Name the features marked **x, y** and **z** **(3marks)**

(c) With the aid of a labelled diagram, describe how an over thrust fold is formed. **(6 marks**)

(d) Explain four effects of fold mountains on climate **(8marks)**

(e) Form four students in your school are planning to study land forms through field work.

Give four reasons why it is important to study the folded landforms through fieldwork.**(4 marks)**

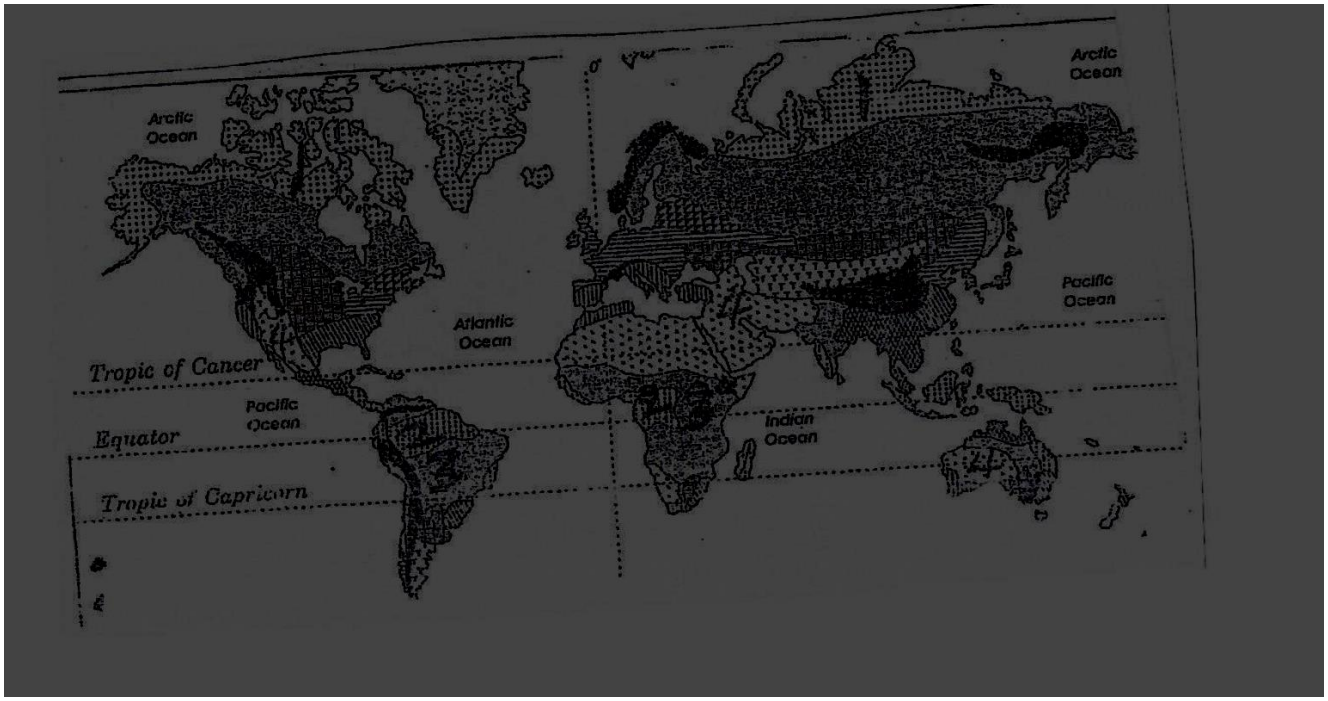
8.(a) Define the term vegetation **(2marks)**

(b) Explain how the following factors influences the distribution of vegetation

(i) Aspect **(2marks)**

(ii) Relief **(3marks)**

(c)The map below shows world vegetation zone



(i) Name vegetation type marked 1,2, 3, and 4 **(4marks)**

(d) Explain four ways in which trees in coniferous forests are adopted to the climatic condition **(8marks)**

(e)A form four Geography class is planning to carry out a field study in Kakamega forest.

(i) State how they would use the following tools during the study.

- - A tape recorder **(1mark)**
- A sketch map **(1mark)**
- A camera **(1mark)**

(ii) Give three methods they would use to collect the data during the study. **(3 marks)**

9.(a) (i) Differentiate between river catchment and watershed. **(2marks)**

(ii) Describe three processes by which a river transports its load. **(6marks)**

(b) Explain three factors that lead to rejuvenation of a river. **(6marks)**

(c)Describe each of the following drainage patterns.

(i) Centripetal drainage pattern **(2marks)**

(ii) Superimposed drainage pattern **(3marks)**

(e) You are to carry out a field study of a river within the vicinity of your school.

(i) State two reasons why you need a working schedule. **(2 marks)**

(ii) State two characteristics of a river you are likely to observe in its lower course. **(2 marks)**

(iii) State two follow up activities you are likely to carry out after the study. (**2marks)**

10. (a) (i) Name two components of soils. **(2 marks)**

(ii) State three characteristics of desert soils. **(3 marks)**

(iii) List two factors that contribute to soil leaching. **(2 marks)**

(b) Describe how lateralization occurs. **(6 marks)**

(c) Explain how the following processes occurs.

(i) Splash erosion **(2 marks)**

(ii) Gulley erosion **(2 marks)**

(d) (i) What is soil conservation? **(2 marks)**

(ii) Explain in three ways of maintaining soil fertility. **(6 marks)**

BRILLIANT STUDENTS TOP EXAMINERS MOCK SERIES 3

NAME: ……..

SCHOOL: ……...……

ADM NO: …….. SIGN: ……. DATE: ……..

312/2
GEOGRAPHY
PAPER 2
2 ¾ HOURS
INSTRUCTIONS

(a) Write your name and index number in the spaces provided in the question paper.

*(b) This paper has two sections **A and B**.*

*(c) Answer **All** the questions in **Section A.***

*(d) In **section B** answer **question 6** and **any other two questions**.*

(e) All the answers must be written in the answer booklet provided.

For Examiner's Use Only

QUESTION	1	2	3	4	5	6	7	8	9	10
MARKS										

TOTAL MARKS

SECTION A:

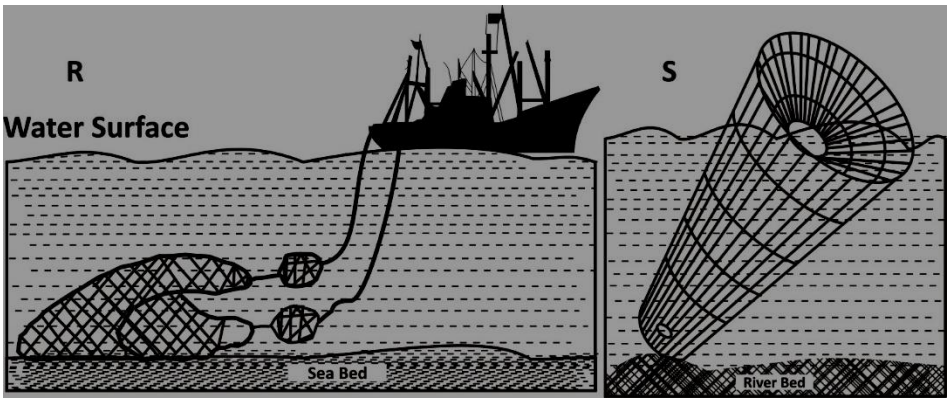
(Answer all the questions in this Section)

1. (a) Define:

(i) Environment **(2mks)**

(b) Name **three** non-governmental organizations involved in the Management and conservation of environment in Kenya. **(3mks)**

2. (a) The diagrams below represents some fishing methods.



(i) Name **R** and **S.** **(2mks)**

(b) State **three** reasons why marine fisheries are underdeveloped in East Africa. **(3mks)**

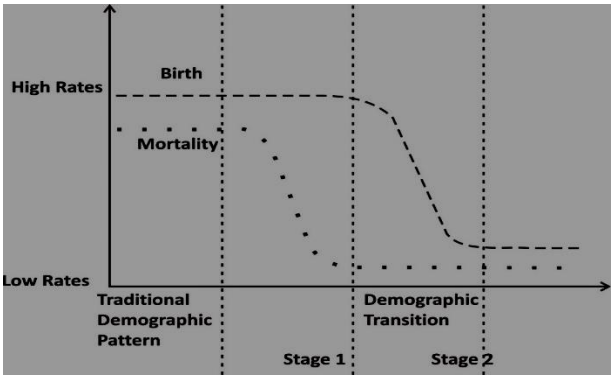
3. (a) Name any **two** places where gold is mined in Tanzania. **(2mks)**

(b) State **three** ways in which Bamburi cement manufacturing company has tried to solve land dereliction. **(3mks)**

4. (a) State **two** benefits of decentralization of industries in Kenya. **(2mks)**

(b) State **three** advantages of the Jua Kali sector in Kenya. **(3mks)**

5. The diagram below shows the demographic transition of a given region. Use it to answer the questions that follow:



a) Give **two** characteristics of stage 1. **(2mks)**

b) State **three** reasons for the high death rates in the traditional stage. **(3mks)**

SECTION B

Answer Question 6 and any other TWO questions.

6. (a) The table below shows the value of export crops from Kenya between 1995 and 1998 in million Ksh. Use it to answer questions below.

Crop /year	**1995**	**1996**	**1997**	**1998**
Maize	224	210	360	286
Coffee	168	190	267	310
Tea	320	280	299	388
Horticultural	200	240	315	461
Total	**912**	**920**	**1241**	**1445**

(i) **Calculate** the total export value for tea. **(2mks)**

(ii) Using a scale of 1cm to represent Ksh. 100 million, draw a cumulative bar graph to represent the data above. **(7mks)**

(b) (i) **Distinguish** between the following terms Balance of trade and Balance of payment. **(2mks)**

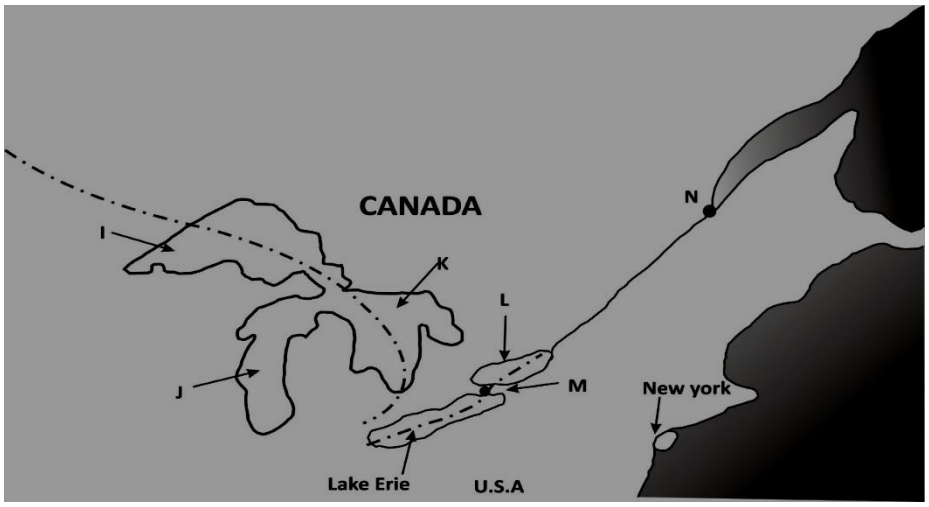
(ii) **Explain three** factors that influence trade in Kenya. **(6mks)**

(c) (i) **State three** main regional trading blocs in Africa. **(3mks)**

(ii) **Highlight three** common problems facing the African regional trading blocs. **(3mks)**

(ii) **Give two** efforts made by the Kenya government to enhance external trade. **(2mks)**

7. Use the sketch map of the Great Lakes and St. Lawrence Seaway given to answer the questions below:



a) Name

(i) The port marked **N** **(1mk)**

(ii) The waterfall marked **M** **(1mk)**

(iii) The lakes marked **J, K and L** **(3mks)**

b) Give **three** benefits that Kenyans enjoy due to the new regulations introduced in the transport sector, especially "matatu" transport. **(3mks)**

c) Mention **three** ways in which containerization has improved the handling of goods at a port. **(3mks)**

d) (i) Explain **three** factors that have hindered the development of river transport in Africa. **(6mks)**

(iii) Explain **four** contributions of the St. Lawrence Seaway to the economy of Canada and the U.S.A **(8mks)**

8 a) Define the following terms

i) Wildlife **(1mk)**

ii) Eco-tourism **(1mk)**

b) Give **five** reasons why it is necessary to conserve wildlife. **(5mks)**

c) i) Name **two** coastal tourist attractions in Kenya **(2mks)**

ii) Explain **three** benefits that Kenya gets from tourism. **(6mks)**

d) i) State **four** reasons for encouraging domestic tourism in Kenya. **(4mks)**

ii) Explain **three** factors which make Switzerland receive more tourists than Kenya**.** **(6mks)**

9. (a) (i) Name **two** indigenous softwood trees found in Kenya. **(2mks)**

(ii) Differentiate between natural forests and planted forests. **(4mks)**

(b) Explain **four** physical conditions that hinder lumbering of tropical forests. **(8mks)**

(c) Compare forestry in Kenya and Canada under the following sub –headings:

(i) Growth **(2mks)**

(ii) Harvesting **(2mks)**

(iii) Marketing **(2mks)**

(d) State **five** measures taken by the Kenyan government to conserve forests. (**5mks)**

10. (a) Mention **three** problems facing dairy farming in Kenya. **(3mks)**

(b) State **five** human factors that have favoured beef farming in Argentina. **(5mks)**

(c) Compare beef farming in Kenya and in Argentina. **(6mks)**

(d) What effort is Kenyan government making to improve beef farming? **(5mks)**

(e) You intend to conduct a field study on beef farming near your school.

(i) State **two** objectives for your study. (2mks)

(ii) Give **four** advantages of studying beef farming through field work (4mks)

BRILLIANT STUDENTS TOP EXAMINERS MOCK SERIES 3

NAME: ……..

SCHOOL: ……...……

ADM NO: …….. SIGN: ……. DATE: ……..

311/1
HISTORY AND GOVERNMENT
PAPER 1
TIME: 2 ½ HOURS

INSTRUCTIONS TO CANDIDATES

- This paper consists of three sections A, B and C.
- Answer **all** the questions in section **A**, **three** questions from section **B** and **two** questions from section **C**.
- Answers to all questions **MUST** be written in the answer booklet provided.
- This paper consists of 2 printed pages .Candidates should check to ensure that all pages are printed as indicated and no questions are missing

SECTION A (25 MARKS)

1.Name two earliest inhabitants of Kenya? **(2marks)**
2.Identify the original homeland of the Bantus? **(1mark)**
3.State two religious functions of the Orkoiyot among the Nandi in the 19th century? **(2marks)**
4.State two factors which made it possible for the Arab traders to come to the Kenyan Coast before 1500? **(2marks)**
5.Name the document which contains the rights of citizens in Kenya? **(1mark)**
6.Identify one method used by the British to administer Kenya colony between 1920 and 1963**? (2marks)**
7.What is dual citizenship? **(1mark)**
8.State two merits of democracy? (2marks)
9.Identify two consequences of conflicts? **(2marks)**
10. Identify two problems faced by settlers in Kenya during the colonial period?**(2marks)**
11. Who was the second Prime Minister of independent in Kenya? **1mark)**
12. Identify two demands made by Young Kavirondo Association? **(2marks)**
13. Who was the founder of the Green Belt movement in Kenya? **(1mark)**
14. State the main function of parliament in Kenya? **(1mark)**
15. Define the term 'Devolved government' (**1mark)**

16. What is capital expenditure? **(1mark)**

17. Name two sources of government revenue in Kenya? **(2marks)**

SECTION B (45MARKS)

Answer three questions from this section

18. (a)Give five reasons which led to the migration of the plain Nilotes during the pre- colonial period? **(5marks)**

(b) Explain five functions of the council of elders among the Somali during the pre-colonial period? **(10marks)**

19. (a) Give the reasons why Portuguese were able to conquer the Kenyan coast during the sixteenth Century? (16^{th} C) **(5marks)**

(b) Explain five positive results of Portuguese rule along the East Coast of Africa? **(10marks)**

20. (a) Sate five challenges faced by Daniel Arap Moi during his rule in Kenya**?** **(5marks)**

(b) Explain five contribution of Prof. Wangari Maathai towards environmental conservation in Kenya? **(10marks)**

21. (a) Describe five common characteristics of political parties which were formed in Kenya after 1945? **(5marks)**

(b) Explain five factors that promoted the rise of African nationalism in Kenya after 1945? **(10marks)**

SECTION C (30MARKS)

Answer two questions from this section

22.(a)Give three requirements that one must meet to be registered as a voter in Kenya**?** **(3marks)**

(b)Explain six roles of the National Assembly in Kenya? **(12marks)**

23.(a)Name five rights of a person with disability in Kenya? **(5marks)**

(b)Explain five conditions necessary for democracy to succeed in a country like Kenya? **(10marks)**

24.(a) Give three principles of devolved government in Kenya? **(3marks)**

(b)Explain six challenges facing county governments in Kenya? **(12marks)**

BRILLIANT STUDENTS TOP EXAMINERS MOCK SERIES 3

NAME: ……..

SCHOOL: ……...……

ADM NO: …….. SIGN: ……. DATE: ……..

311/2

HISTORY & GOVERNMENT

PAPER 2

TIME: 2 ½ HOURS

INSTRUCTIONS TO CANDIDATES

- This paper consists of **three** sections; **A, B** and **C.**
- Answer ALL the questions in section **A, THREE**questions from section **B** and **TWO** questions from section **C.**
- Answers to all the questions **MUST** be written on the answer sheets provided.

FOR EXAMINER'S USE ONLY

	QUESTION	SCORE
SECTION A	1 - 17	
SECTION B	18	
	19	
	20	
	21	
SECTION C	22	
	23	
	24	
TOTAL SCORE		

SECTION A: (25 MARKS)

Answer all the questions in this section in the answer booklet provided.

1. Give **two** chemical dating methods used by archeologist. **(2mks)**
2. State **one** important point in Charles Darwin's theory of natural selection. **(1mk)**
3. Mention **two** ways in which the invention of the wheel promoted early transport. **(2mks)**
4. Name **two** metals that were used as currency in pre-colonial Africa **(2mks)**
5. Identify **one** social consequence of the development of early agricultural in Egypt **(1mk)**
6. Give **two** main items of the trans-Saharan trade from western Sudan **(2mks)**
7. State **one** limitation of using fire and smoke signals in communication **(1mk)**
8. Identify **two** social functions of the ancient Greek city of Athens. (**2mks)**
9. Name the chartered company that was used to administer Tanganyika during the process of Colonization **(1mk)**
10. Name **one** mandated territory in Africa **(1mk)**
11. Give **two** economic reasons which made European countries to scramble for colonies in Africa **(2mks)**
12. Name the leader of the Inkatha Freedom party (IFP) during the elections of 1994 in South Africa **(1mk)**
13. Identify **two** ways in which Mwalimu Julius Nyerere promoted the development of education in Tanzania after independence **(2mks)**
14. State the main duty of the executive secretary of the economic community of West African States. **(1mk)**
15. Give the main role of the British Monarch in relation to the Anglican church of England **(1mk)**
16. Name **one** of the main political parties in Britain **(1mk)**
17. Identify **two** treaties signed between the allies and the central powers at the end of the first world war. **(2mks)**

SECTION B: (45 MARKS)

Answer any three questions from this section.

18. (a) Give **three** similarities between early agriculture in Mesopotamia and Egypt **(3mks)**

(b) Explain **six** results of agrarian revolution in Britain **(12mks)**

19. (a) State **five** factors that facilitated the development of trans- Saharan trade **(5mks)**

(b) Explain ways in which the trans –Saharan trade led to the development of Kingdoms in western Sudan **(10mks)**

20. (a) State **five** resolutions of the conference of 1884- 1885 **(5mks)**

(b) Explain the role played by religion in the Maji Maji uprising of 1905- 1907 (**10mks)**

21. (a) State **three** characteristics of direct rule in Zimbabwe **(3mks)**

(b) Explain **six** results of the British direct rule in Zimbabwe **(12mks)**

SECTION C: (30 MARKS)

Answer any two questions from this section

22. (a) State **three** functions of the Assembly of the League of nations **(3mks)**

(b) Explain **six** causes of the first world war. **(12mks)**

23. (a)Identify **three** aims of Pan-African movement **(3mks)**

(b) Explain **six** challenges that faced the East African community before 2001 **(12mks)**

24. (a) State **five** advantages of federal system of government as practiced in the united states of America **(5mks)**

(b) Describe **five** functions of the house of commons of the British parliament **(10mks)**

BRILLIANT STUDENTS TOP EXAMINERS MOCK SERIES 3

NAME: ……..

SCHOOL: ……...……

ADM NO: …….. SIGN: ……. DATE: ……..

441/1
HOMESCIENCE
Paper 1
THEORY
Time: 2 ½ Hrs

INSTRUCTIONS TO CANDIDATES

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

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

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

d) Answer **all** the questions in sections A and B and any **two** questions from section C in the spaces provided.

For examiner's use only

Section	Question	Maximum score	Candidates score
A	1-15	40	
B	16	20	
C		20 20	
Total Score		100	

SECTION A:(40MARKS) COMPULSORY

1.Stainless steel is the best material for making knives. Give two reasons for its popularity.**(2mks)**

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2.Give the meaning of each letter in the acronym RICE in first aid. **(2mks)**

R……

I……

C……

E……

3.Mention three desirable characteristics of a duster. **(3mks)**

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4.Give three characteristics of a well made French seam. **(3mks)**

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5.List down four methods of neatening an open seam. **(2mks)**

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6.List down three positive effects of advertising to a consumer. **(3mks)**

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7.Mention three measures a person handling food should take to ensure the food does not get contaminated. **(3mks)**

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8.State two ways of ensuring that fresh milk at home is safe for consumption. **(2mks)**

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9.Saucepans should be covered when cooking. Give three reasons for doing this. **(3mks)**

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10. Food can be contaminated through various ways. Identify three ways in which food can be contaminated by a cook. **(3mks)**

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11. Give two reasons for use of each of the following items in laundry work.

i) Fabric conditioner **(2mks)**

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ii) Salt **(2mks)**

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12. Mention two ways of preventing infections in a baby through the umbilical cord. **(2mks)**

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13. Describe three ways of reinforcing the end of a machine stitched dart. **(3mks)**

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14. List down two functions of openings. (2mks)

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15. Give three disadvantages of using charcoal when cooking. (3mks)

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SECTION B: COMPULSORY (20 marks)

16. You visited your aunt and are required to help her with household chores;

a) Describe the procedure you would use to thoroughly clean a discoloured melamine cup. **(9mks)**

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b) Outline the procedure you would follow when cleaning water glasses **.(6mks)**

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c) Explain how you would finish a white cotton table cloth. **(5mks)**

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SECTION C:(40 marks)

Answer any <u>TWO</u> questions

17. a) Explain four ways in which old newspaper may be used when cleaning a house. **(4mks)**

b) Discuss five factors that may influence the frequency of cleaning a house. **(10mks)**

c) Mention four types of information which may be found on the labels of goods. **(4mks)**

d) Describe any two types of drainage found in modern homes. **(2mks)**

18. a) Discuss four factors that determine the method of cooking to be used. **(8mks)**

b) Mention five causes of malnutrition in Kenya today. **(5mks)**

c) Give three reasons for food fortification. **(3mks)**

d) Mentiontwo factors to consider when selecting fastenings. **(2mks)**

e) List down two qualities necessary for a fabric used for an apron. **(2mks)**

19. a) Describe three physical changes that occur in girls during adolescence. **(3mks)**

b) Mention four advantages of baking. **(4mks)**

c) Give three reasons why a mother may decide to deliver at home. **(3mks)**

d) Explain four dangers of teenage pregnancy. **(8mks)**

e) Mention any two types of thread. **(2mks)**

BRILLIANT STUDENTS TOP EXAMINERS MOCK SERIES 3

NAME: ……..

SCHOOL: ……...……

ADM NO: …….. SIGN: ……. DATE: ……..

441/2

HOMESCIENCE

(CLOTHING CONSTRUCTION)

PAPER 2

TIME: 2 ½ HOURS

INSTUCTIONS T CANDIDATES

A pattern of a girls skirt is provided. You are advised to study the sketches, instructions and the layout carefully before you begin the test.

Materials provided.

1. Pattern pieces

A - BACK SKIRT

B -LOWER FRONT SKIRT

C - SKIRT YOKE

D - FRONT WAIST BAND

E - BACK WAIST BAND

F - INTERFACING (CUT WAIST BANDS)

2. Plain light weighed cotton fabric 40cm long by 90cm wide.
3. Sewing thread to match
4. White 7 inches zip
5. On envelope.

THE TEST

Using the materials provided, cut out and make the LEFTHALF of the girls skirt to show the following

(a) Working of the back dart.

(b) Preparing and Stitching of the tucks on the lower skirt..

(c) Joining of the yoke to the lower skirt using aunneatened overlaid seam.

(d) Joining of the side seam using a neatened open seam and leaving the zip opening ready.

(e) Insertion of the zip fastener using semi-concealed method.

(f) Preparing and attachment of the interfaced waist bands.

(h) Cutting and working of the 1cm long button hole on the front waist band.

At the end of the examination firmly sew onto your works on 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.

All cut pattern pieces must be enclosed even if not used. However; do not put scraps of fabric in the envelope.

BRILLIANT STUDENTS TOP EXAMINERS MOCK SERIES 3

NAME: ……..

SCHOOL: ……...……

ADM NO: …….. SIGN: ……. DATE: ……..

441/3
HOME SCIENCE
PAPER 3
(Food and Nutrition)
Practical
1 ¼ Hours

PLANNING SESSION: 30 Minutes

PRACTICAL TEST SESSION: 1 ¼ Hours

Instructions to candidates

a. Read the test carefully.

b. Text books and recipe books may be used during the planning session as reference materials.

c. You will be expected to keep your order of work during the practical session.

d. You are only allowed to take away your reference materials at the end of the planning session.

e. You are not allowed to bring additional notes to the practical session.

THE TEST

You have been left at home with your 10year old Nephew who is going for a trip after lunch.
Using all the ingredients listed below.
(a)Prepare a suitable one-course lunch for two.
(b)Prepare and pack two suitable snacks and include a refreshing drink.

Ingredients

1.Maize flour/Rice/Spaghetti

2. Beef

3. Kales/cabbage

4. Mango/pineapple/pawpaw

5. Garlic

6. Green paper/Capsicum

7. Onions

8. Tomatoes

9. Cooking fat/oil

10. Salt

11. Carrots

12. Royco

13. Eggs

14. Wheat flour

15. Baking powder

16. Dhania

17. Sugar

PLANNING SESSION-30MINUTES

For each task listed below use separate sheets of paper and carbon paper to make duplicate copies then proceed as follows:

1.Identify the dishes and write their recipes.

2.Write your order of work.

3.Make a list of foodstuff and equipment you will require.

BRILLIANT STUDENTS TOP EXAMINERS MOCK SERIES 3

JINA: ……..

SHULE: ……...……..

NAMBARI YA USAJILI: ……. SAHIHI: ……. TAREHE: ……

102/1

KISWAHILI

KARATASI YA 1

(INSHA)

MUDA: SAA 1 ¾

MAAGIZO:

- Andika insha mbili. Insha ya kwanza ni ya **lazima**
- Kisha chagua insha moja nyingine kutoka kwa hizo tatu zilizobakia.
- Kila insha isipungue maneno 400
- Kila insha ina alama 20
- Karatasi hii ina kurasa mbili. Watahiniwa ni lazima waangalie kama kurasa zote zakaratasi hii zimepigwa chapa sawasawa na kuwa maswali yote yamo

1. SWALI LA KWANZA

Unataka kuanzisha shule ya kibinafsi (kiwango cha sekondari) mwakani.Andika tangazo litakalovutia wazazi na wanafunzi watakaoleta watot wao au watakaojiunga na shule yako.

2. Teknolojia ya kisasa ni kama sarafa yenye sura mbili.faida na madhara. Jadili.
3. Usipoziba ufa utajenga ukuta.
4. Andika insha itakayomalizika kwa maneno haya……..ilinichukua muda mrefu kuyaamini niliyoyasikia.

BRILLIANT STUDENTS TOP EXAMINERS MOCK SERIES 3

JINA: ……..

SHULE: ……..……..

NAMBARI YA USAJILI: ……. SAHIHI: ……. TAREHE: ……

102/2

KISWAHILI: LUGHA

(Ufahamu, Ufupisho, Matumizi ya Lugha na Isimu Jamii)

KARATASI YA 2

MUDA: SAA 2½

MAAGIZO KWA MTAHINIWA

Jibu maswali yote.

Majibu yote yaandikwe katika nafasi zilizoachwa katika kijitabu hiki cha maswali.

Karatasi hii ina kurasa nane. Watahiniwa ni lazima waangalie kama kurasa zote za karatasi hii zimepigwa chapa sawasawa na kuwa maswali yote yamo

KWA MATUMIZI YA MTAHINI PEKEE

SWALI	UPEO	ALAMA
1	15	
2	15	
3	40	
4	10	
JUMLA	80	

UFAHAMU (ALAMA 15)

Soma makala yafuatayo kisha ujibu maswali.

Ni dhahiri shairi kwamba uharamia umechipuka kama desturi na mfumo wa maisha katika siku za karibuni.Janga hili limeshamiri hususan pembeni mwa bara la Afrika na kanda ya Afrika mashariki.Taarifa za Uharamia zimetawala vyombo vya habari. Kiasa cha kwamba haipiti siku bila kuripotiwa visa vipya vya matendo haya mabovu ambayo yanaweza tu kumithilishwa na uhayawani.Matukio haya yamewalimbikizia mabaharia na nchi husika, simanzi na masaibu yasiyoweza kutiwa kwenye mizani.
Yamkini tatizo hili halitokei pasi na kumotishwana kitita kikubwa cha fidia kinachodaiwa na maharamia hawa. Aghalabu, suala hili lahusishwa pakubwa na azma na ari ya kuendeleza ujambazi kimataifa sawia na ulipuaji wa bomu mijini Nairobi na Dar es Salaam mnamo Agosti 7.1998 na tukio la septemba 11, mwaka 2001 kule marekani. Maafa na uharibifu wa mali si hoja, la maana kwa maharamia ni kutosheleza matakwa yao.Kwa upande mwingine, ukosefu wa tawala wajibika katika maeneo kunakotokea unyama huu ni thibitisho tosha la mazingira yanayowezesha na kuruhusu kuchipuka kwa janga hili.

Mchipuko wa baa la uharamia umelenga jamii ya kimataifa ambayo ni mhudumu mkuu wa harakati za kusitisha majanga makubwa kama vile njaa, umaskini na magonjwa yaliyoshesheni pakubwa barani.Bila shaka, hili ni suala linalilozalishwa kinyume mbele. Maharamia wanatishia utangamano wa kimataifa wanapotibua usafiri wa abiria na shehena zinazoelekezwa sehemu tofauti ulimwenguni.

Matumizi ya kidiplomasia na mashauriano hayaelekei kuzalisha matunda katika juhudi za kudhibiti uharamia. Zaidi ya hayo matumizi ya nguvu yahusishayo mashambulizi pamoja na maharamia kufunguliwa mashtaka nchini Kenya na Ufaransa,kunaelekea kuzipiga jeki juhudi za uharamia ulimwenguni. Aidha, utawala wa nchi kunakochipuka uharamia haujajizatiti kuharamisha doa hili linalotisha ustawi wa kimataifa.

Mathalan, ni jambo lisilopingika inapobainika kuwa uharamia umedumaza biashara ya kimataifa, inayochangia upungufu na ucheleweshi wa bidhaa muhimu zinazoendeleza ustawi wa uchumi.Dosari hii inaelekea kukwamiza mojawapo wa malengo ya maendeleo ya milenia yanayosisitiza uimarishaji na ushirikikiano wa maendeleo na upanuzi wa masoko ulimwenguni. Ni muhali kwa utalii kustawi kwenye maeneo yaliyo na tishio la usalama, ikakumbukwa bayana kwamba watalii hawasafiri tu kwa ndege bali hata kwa meli.

Jitahidi za kuweka laini mawasiliano chini ya bahari ili kurahisisha na kupunguza gharama za mtandao ulimwenguni ni ndoto ambayo haijatimia hadi hivi sasa, kutafutia juhudi za maharamia katika bahari Hindi. Kwa mujibu wa hali hii, mawasiliano mepesi na nafuu yasitarajiwe hivi karibuni.Licha ya hayo, shughuli za uvuvi na biashara nyenginezo kwenye kanda ya mwambao zimetiliwa shaka si haba. Itabidi mikakati na suluhisho la kudumu liweze kupatikana ili vitendo vya uharamia viweze kusitishwa.

MASWALI

a) Kwa nini uharamia umetamalaki ulimwenguni? **(alama 3)**

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b) Fafanua dhana ya "kinyume-mbele" kwa mujibu wa taarifa hii. **(alama 2)**

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c) Uharamia unaelekea kumtia hofu mwandishi.fafanua. **(alama 3)**

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d) Thibitisha kwa kuwa Kenya imeathirika pakubwa kutokana na vitendo vya uharamia**.(alama 4)**

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e) Ukirejelea kifungu, eleza maana ya **(alama 3**

i) Uharamia

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ii) Mtandao

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iii) Mwambao

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2. UFUPISHO Alama 15

<u>Soma kifungu hiki kisha ukifupishe kwa kujibu maswali yatakayofuata.</u>

Ukitaka kufaulu maishani lazima ujue kuwa una kazi kubwa sana inayokungoja. Baada ya kuikabili vilivyo kazi hiyo kwa kutumia Nyanja mbalimbali utayaimarisha maisha yako. Karibu kila mtu aliyestawi amepitia katika vikwazo vingi tena vya kutatiza kuliko vikwazo wanavyovipata vijana wa kisasa. Vijana wote wanatakiwa sasa wasugue bongo zao sawasawa watende mambo mengi mazuri kuliko yale wanayoyaona. Wasitosheke na yale yaliyotendwa na wazee. Kila kijana iwapo atakuwa na moyo kama huo nchi zote zitaendelea kwa kasi.

Kwa kujisaidia katika kujiendeleza, yafuatayo yanafaa kuzingatiwa.Vijana wanatakiwa wawe watoto wenye kuelewana na wazazi wao ambao watawaelekeza vyema kitabia na wakiwa ni wazazi waelewa, watapata watoto wao maelekeo na radhi ambayo ni bora kuliko mali.watoto wenyewe wajue wanataka nini, wawe na malengo katika maisha yao na wakazanie kupata kile wanachokitaka bila kukata tamaa,watie bidii sana, wapende kusoma bila kulazimishwa kwani kulazimishwa hakusaidii chochote. Ni sawa na ng'ombe alazimishwaye kwenda kunywa maji lakini akifika mtoni akatae kunywa maji yale.Mtoto mwenyewe anatakiwa ajitafutie na ajue kuwa hasara ni yake asipofanya bidii na ajiamshe kifikira.Mtoto huyu asiridhishwe na vitu vidogo vidogo ama kuwa wa tamaa anayependa kupewa zawadi ama peremende kila saa. Lazima ajue kuwa kupewa au kutopewa ni mamoja.Wazazi wakiwa na kitu cha kumpa ni sawa, wakiwa hawana pia sawa.Mtoto anatikiwa kuwa muelewa sana.Anatakiwa awe na ile fikira ya kujitafutia. Hata kama anatoka katika hali ya utajiri azidi kutafuta ili ikiwezekana atajirike hata Zaidi.Asitegemee cha ndugu kwani huenda akafa akiwa maskini. Chako ni bora kuliko kikubwa cha mwenzio.

Vijana wanatakiwa kuwa na nidhamu ya kiwango cha juu popote walipo. Wawe ni watu wenye kujiamini. Wasikate tamaa kwa ajili masomo ni magumu bali wakazane kuyaelewa kwani mwisho, wataelewa na kufanikiwa.Yafaa waelewa kuwa hakuna kizuri kinachopatikana kwa urahisi, mtaka cha mvunguni sharti ainame. Lazima wadhurike wakitaka kufarikiwa. Wasiwadharau walimu au wenzao, wasipoteze wakati wao kusengenya. Wawapuuze wanaowanyanyasa,hata neno moja la kuwaudhi wanaloambiwa na watoto waovu. Vijana wawe tayari kukosolewa na kuomba msamaha wa makosa yao. Wewe ni watu wanaowaelewa wenzao na kuwachukulia vizuri, wawaheshimu kwa vile walivyo.Wasithamini vitu vya anasa sana kama mavazi ya

kitajiri wengi wasio na chochote wanaopuuza mambo ya anasa ndio wanaofaulu sana katika maisha. Wenye tamaa hawafaulu, hugeuka kuwa wezi na kuishia gerezani.

Maswali

a) Fupisha aya ya kwanza kwa maneno 30. (alama 5 mtiririko 1)

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b) Bila kupotosha ujumbe uliokusudiwa na mwandishi, fupisha aya mbili za mwisho. (maneno 95-100) (alama 10 mtiririko, 2)

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3.LUGHA **(Alama 40)**

a) Taja sauti mbili zinazotamkiwa kwenye kaakaa laini **(alama 1)**

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b) Eleza tofauti za sentensi zifuatazo **(alama 2)**

i) Amerudi shuleni!

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ii) Amerudi shuleni.

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c) Tambua aina za maneno yaliyopigiwa mstari.

i) Afisa mkuu anafuata sheria <u>sembuse</u> wewe. **(alama 1)**

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ii) Ameenda huko mbali <u>sokoni</u> **(alama 1)**

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d) Tambua aina ya vihusishi katika sentensi zifuatazo

i) Jumba alifuatalo li mbele ya msikiti wa Musa **(alama 1)**

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ii) Kisiwa cha Ginigi kimekauka **(alama 1)**

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e) Tambua hali katika sentensi ifuatayo.

Vyungu vya aina hii vyafinyangwa na huyu. **(alama 1)**

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f) Toa maana mbili za neno lifuatalo **(alama 2)**

Somo

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g) Kanusha

Mama alimwambia sipo alime haraka **(alama 1)**

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h) Nyambua vitenzi vifuatavyo katika kauli zilizowekwa katika mabano

i) Lia (Kutendeshwa) **(alama 1)**

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……

ii) -Ja (Kutendea) **(alama 1)**

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……

i) Andika katika hali ya wastani umoja

Kigombe kile kiliumia kikwato **(alama 2)**

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j) Akifisha sentensi ifuatayo.

Je kuna manusura wowote yeye alitaka kujua. **(alama 2)**

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k)

i) Eleza maana ya kirai **(alama 1)**

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ii) Onyesha aina ya virai katika sentensi ifuatayo.

Nilimpata akilalama ndani ya darasa **(alama** 2)

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l) Andika sentensi ifuatayo katika usemi halisi.

Mwelekezi wake alimwambia kuwa angeweza kuwa mwindaji mashuhuri ikiwa angeyafuata mashauri yake.

(alama 2)

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m) Changanua sentensi ifuatayo kwa kutumia mishale.

Mtoto mmoja aliyekuwa mgonjwa sana alitibiwa jana. **(alama 4)**

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n) Andika sentensi hii upya bila kubadilisha maana ukitumia “o” rejeshi

Mwanafunzi alitumwa nyumbani juzi na hajapata karo hadi leo **(alama 1)**

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o) Ainisha shamirisho na chagizo katika sentensi ifuatayo

Wachimba migodi wanafanya kazi haraka ipasavyo. **(alama 2)**

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p) Tumia kivumishi kimilikishi nafsi ya pili wingi katika sentensi (alama 2)

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q) Onyesha viambishi katika fungutenzi hili **(alama 2)**

Sajilika

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r) Eleza matumizi ya “na” katika sentensi ifuatayo. **(alama 2)**

Ndovu aliuawa <u>na</u> wawindaji haramu <u>na</u>mi nikawaripoti

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s)Unda nomino kutokana na vitenzi vifuatavyo **(alama 2)**

i) Takrimu

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……

ii) Sakini

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……

t) Weka vitenzi hivi katika hali ya kuamrisha kulingana na maelezo katika mabano **(alama 2)**

i) -nywa (umoja)

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……

ii) Tubu (wingi)

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u) Weka neno lifuatalo katika ngeli mwafaka **(alama 1)**

Nyasi

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ISIMU –JAMII

4. a) Eleza mitazamo mitatu kuhusu chimbuko la Kiswahili (alama 6)

b) Taja sifa nne za sajili ya utingo

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BRILLIANT STUDENTS TOP EXAMINERS MOCK SERIES 3

JINA: ……..

SHULE: ……..……..

NAMBARI YA USAJILI: ……. SAHIHI: ……. TAREHE: ……..

KISWAHILI

KARATASI YA 3,

FASIHI

MUDA: 2 ½

MAAGIZO

1.Jibu maswali manne pekee

2.Swali la kwanza ni la lazima

3.Maswali hayo mengine matatu yachaguliwe kutoka sehemu zilizobaki

4.Usijibu maswali mawili kutoka katika sehemu moja

5.Kila swali lina alama 20

Swali	1	2	3	4	5	6	7	8	Jumla

LAZIMA SEHEMU YA A: TAMTHILIA P. Kea: Kigogo

1a. Mmesikia? Hamtatuletea wazimu wenu hapa! Nendeni kama mmekuja kutuhasimu.

i. Eleza muktadha wa maneno**. (alama 4)**

ii. Jadili umuhimu wa msemaji kwa hoja nne**. (alama 4)**

iii. Fafanua mbinu ya lugha iliyotumika. **(alama 2)**

b. Kenga alichangia pakubwa msiba wa Wanasagamoyo. Thibitisha kwa hoja zozote kumi. **(Alama 10).**

SEHEMU B: RIWAYA Assumpta *Matei*: *Chozi la Heri*

Jibu swali la 2 au 3

2 '…familia yake bado inamiliki mashamba ya michai na mibuni pamoja na mashirika mengi…'

(a Weka dondoo hili katika muktadha wake. **(alama 4)**

(b) Kwa kurejelea mifano **minane**, eleza umuhimu wa msemaji katika kujenga riwaya hii. **(alama 8)**

(c) Jadili kwa hoja **nane** suala la ukoloni mambo leo lilivyoshugulikiwa katika riwaya. **(alama 8)**

Au

3 Tathmini umuhimu wa mbinu zifuatazo katika kuijenga riwaya ya *Chozi la Heri*

Nyimbo **(alama 10)**

Barua **(alama 10)**

SEHEMU C: HADITHI FUPI; CHOKOCHO NA D. KAYANDA: *Tumbo Lisiloshiba na Hadithi Nyingine*

Jibu swali la 4 au 5

NDOTO YA MASHAKA

(4)"...dunia imenikunjulia mikono kunifariji baada ya kunicharaza fimbo yake aushi yangu yote."

a) Eleza muktadha wa dondoo hili **(al.4)**

b) Tambua na ueleze mbinu ya lugha iliyotumiwa katika dondoo. **(al.2)**

c) Eleza jinsi dunia ilimcharaza fimbo msemaji kwa kutolea hoja kumi na nne. **(al.14)**

AU

(5) Kwa kurejelea hadithi ya Mapenzi ya Kifaurongo, Mame Bakari, Nizikeni Papa Hapa , Mtihani wa Maisha na Mkubwa, eleza changamoto zinazowakumba vijana. **(al.20)**

SEHEMU D: USHAIRI

Jibu swali la 6 au 7

6. SOMA SHAIRI LIFUATALO KISHA UJIBU MASWALI. **(alama 20)**

Pana haja ya kupima, neno tuzowele –angu

Tusizowee kusema , hili ni teuo langu

Huenda huji mapema , -angu huja kuwa tungu

Ikaja kukusakama, na kukuposha kwa Mungu

Pana haja ya kupima.

Neno huwa ni la kwako, likiwa ndani moyoni

Lakini katu si lako, likishavuka menoni

Kwa hivyo likutokako, liweke kwenye mizani

Linaweza kuwa cheko, ama tusi kwa wendani

Pana haja ya kupima.

Vivyo hivyo kwa lebasi , huwa yako kisutuni

Hivyo nina wasiwasi, wambe yako sebuleni

Itavutiya matusi, ya wenzio insane

Wakakuchoma nafusi, kwa mishale ya lisani

Pana haja ya kupima.

Mwana ujuwe ni wako, punje ukiimezele

Lakini katu si wako, nde ukimuletele

Akiwa yu ndani yako, ni wa duniya vivile

Ukishishilia ni wako, muavye takakuole

Pana haja ya kupima.

Maisha nayo si wako, utabaradi milele

Ungayaishi ja yako, ni tunu ya maumbile

Mgawa si kufu yako, mshindane hili lile

Akupapo akupoko, utaishi palepale

Pana haja ya kupima.

Ni chetu chako si chako, ulimwengu huwa vile

Juhudi zingawa zako, wa kufaidi ni wale

Ikifika siku yako, nyono zikukae mbele

Ulichosema ni chako , huwabakiya wawale

Pana haja ya kupima.

Kaseme na moyo wako , Ubaini haya yale

Ukiambacho ni chako , kisikupe mageule

Kitu utajacho chako , huenda kiwe cha wale

Na usemacho si chako, kiwe chako ndicho kile

Pana haja ya kupima.

MASWALI

a). Eleza dhamira ya shairi hili. **(alama 2)**

b) Eleza bahari zozote tatu za shairi hili. **(alama 6)**

c) Andika ubeti wa nne kwa lugha tutumbi. **(alama 4).**

d) Dhihirisha kwa kutoa mifano mitatu matumizi ya uhuru wa mshairi **.** **(alama 3)**

e) Tambua **(alama 2)**

i. Nafsi nenewa

ii. Toni

g) Eleza maana ya maneno haya kama yalivyotumika katika shairi . (alama 2)

Lebasi

Punje ukiimezele

au

7. SOMA SHAIRI LIFUATALO KISHA UJIBU MASWALI. **(alama 20)**

1. Nikiwa na njaa na matambara mwilini

Nimehudumika kama hayawani

Kupigwa na kutukanwa

Kimya kama kupita kwa shetani

Nafasi ya kupumzika hakuna

Ya kulala hakuna

2.Ya kuwaza hakuna

Basi kwani hili kufanyika

Ni kosa gani lilotendeka

Lilonileta adhabu hii isomalizika ?

3.Ewe mwewe urukaye juu angani

Wajua lilomo mwangu moyoni

Niambie pale mipunga inapopepea

Ikatema miale ya jua

Mamangu bado angali amesimama akinisubiri?

Je nadhari hujitokeza usoni

Ikielekea huku kizuizini?

Mpenzi mama , nitarudi nyumbani

Nitarudi hata kama ni kifoni

Hata kama maiti imekatikatika

Vipande elfu , elfu kumi

Nitarudi nyumbani

4.Nikipenya kwenye ukuta huu

Nikipitia mwingine kama shetani

Nitarudi mpenzi mama

Hata kama kifoni

Maswali

a.Taja mambo manne anayoyalalamikia mshairi**. (alama 4)**

b. Fafanua dhamira ya shairi hili. **(alama 2)**

c. Eleza mbinu nne za kimtindo. **(alama 4)**

d. i. Hili ni shairi la aina gani? **(alama 1)**

ii. Thibitisha jibu la i hapo juu. **(alama 4)**

e. Tambua katika shairi ; **(alama 3)**

i. Nafsineni

ii. Nafsi nenewa

iii. Toni

f. Eleza maana ya maneno haya kama yalivyotumiwa katika shairi.(alama2)

Hayawani

Nadhari

SEHEMU YA E: FASIHI SIMULIZI (alama 20)

8

i. Fafanua sifa tano za hekaya. **(Alama 5)**

ii. Eleza maana ya; **(alama 5)**

a. Vitanza ndimi.

b. Tahalili

c. Vivugo

d. Matambiko

e. Maapizo

iii. Jadili mifano mitano ya ngomezi za kisasa. **(al 5)**

iv. Eleza kwa hoja tano udhaifu wa hojaji kama njia ya kukusanya Fasihi Simulizi. **(al 5)**

BRILLIANT STUDENTS TOP EXAMINERS MOCK SERIES 3

NAME: ……..

SCHOOL: ……...……

ADM NO: …….. SIGN: ……. DATE: ……..

121/1
MATHEMATICS
PAPER 1
2 ½ HOURS

INSTRUCTIONS TO DANDIDATES

1. Write your name, index number and class in the spaces provided.
2. Sign and write date of the of the examination in the spaces provided.
3. The paper contains two sections: Section I and II
4. Answer ALL questions in section I and 2 **STRICTLY FIVE** questions from section II.
5. All working and answers must be written on the question paper in the spaces provided below each question.
6. Show all the steps in your calculations, giving you're your answers at each stage in the spaces below each question.
7. Marks may be awarded for correct working even if the answer is wrong.
8. Non-programmable silent electronic calculators and KNEC mathematical tables may be used except where stated otherwise.

FOR EXAMINER'S USE ONLY

SECTION 1

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	TOTAL

SECTION II

GRAND TOTAL

17	18	19	20	21	22	23	24	25	TOTAL

SECTION I:(50 Marks).

Answers all questions in this section

1.Without using a calculator evaluate **(3 Marks)**

$$\frac{\left(3\frac{1}{3}+1\frac{1}{9}\right)\div 1\frac{1}{3}}{\left(4\frac{2}{9}-\ 2\frac{5}{9}\right)x\ \frac{2}{3}}$$

2.The number $5.\dot{8}\dot{1}$ contains an integral part and a recurring decimal. Convert the number into an improper fraction and hence a mixed fraction. **(3 Marks)**

3.The gradient of curve at any point is given by 2x – 1. Given that the curve passes through point (1, 5),find the equation of the curve. **(3 Marks)**

4.Simplify: $\frac{9x^2-1}{3x^2+2x-1}$ **(3 Marks)**

5.A man invests KSh. 24,000 in an account which pays 16% interest p.a. The interest is compounded quarterly. Find the amount in the account after 1 ½ years. **(3 Marks)**

6.Given that $-\frac{3}{5}x + 3y - 6 = 0$is an equation of a straight line,find:

(i) The gradient of the line **(1 Mark)**

(ii) Equation of a line passing through point (2,3) and parallel to the given line. **(2marks)**

7.A two digit number is formed from the first four prime numbers.
(a) Draw the table to show the possible outcomes. **(1 Mark)**

(b) Calculate the probability that a number chosen from the two digit numbers is an even number.**(1 Mark)**

8.Solve for x given that
Log (x – 4) + 2 = log 5 + log (2x + 10) **(3 marks)**

9.The position vectors of A and B are given as $\mathbf{a} = 2\mathbf{i} - 3\mathbf{j} + 4\mathbf{k}$ and $\mathbf{b} = -2\mathbf{i} - \mathbf{j} + 2\mathbf{k}$ respectively.
Find to 2 decimal places, the length of vector **AB**. **(3 Marks)**

10. A regular polygon has internal angle of 150^0 and side of length 10cm.

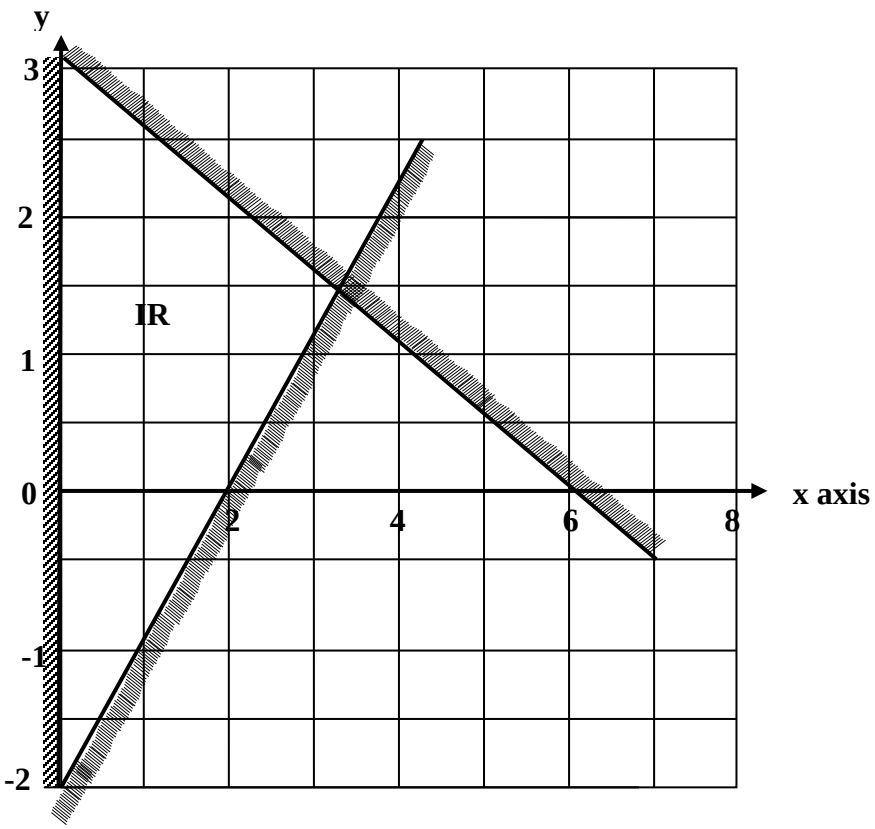
(a) Find the number of sides of the polygon. **(2 Marks)**

(b) Find the perimeter of the polygon. **(2 Marks)**

11. Solve for x in the equation. **(3 Marks)**

$9^{(2x-1)} \times 3^{(2x+1)} = 243$

12. The region R in the figure below is defined by the inequalities L1, L2 and L3.



Find the three inequalities **(3 Marks)**

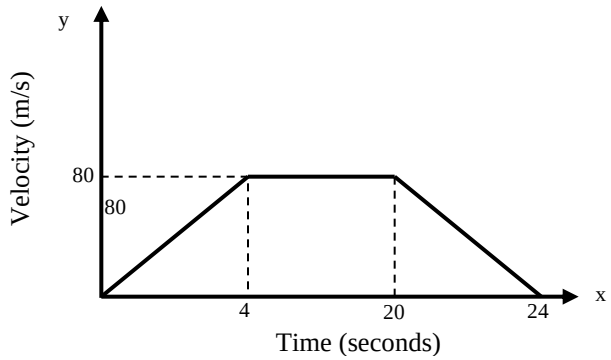
13. Two boys and a girl shared some money. The elder boy got $\frac{4}{9}$ of it, the younger boy got $\frac{2}{5}$ of the remainder and the girl got the rest. Find the percentage share of the younger boy to the girl's share. **(4 Marks)**

14. Use tables of reciprocals only to find the value of

$$\frac{5}{0.0829} - \frac{14}{0.581}$$

(3 marks)

15. The figure below is a velocity – time graph for a car. (not drawn to scale).



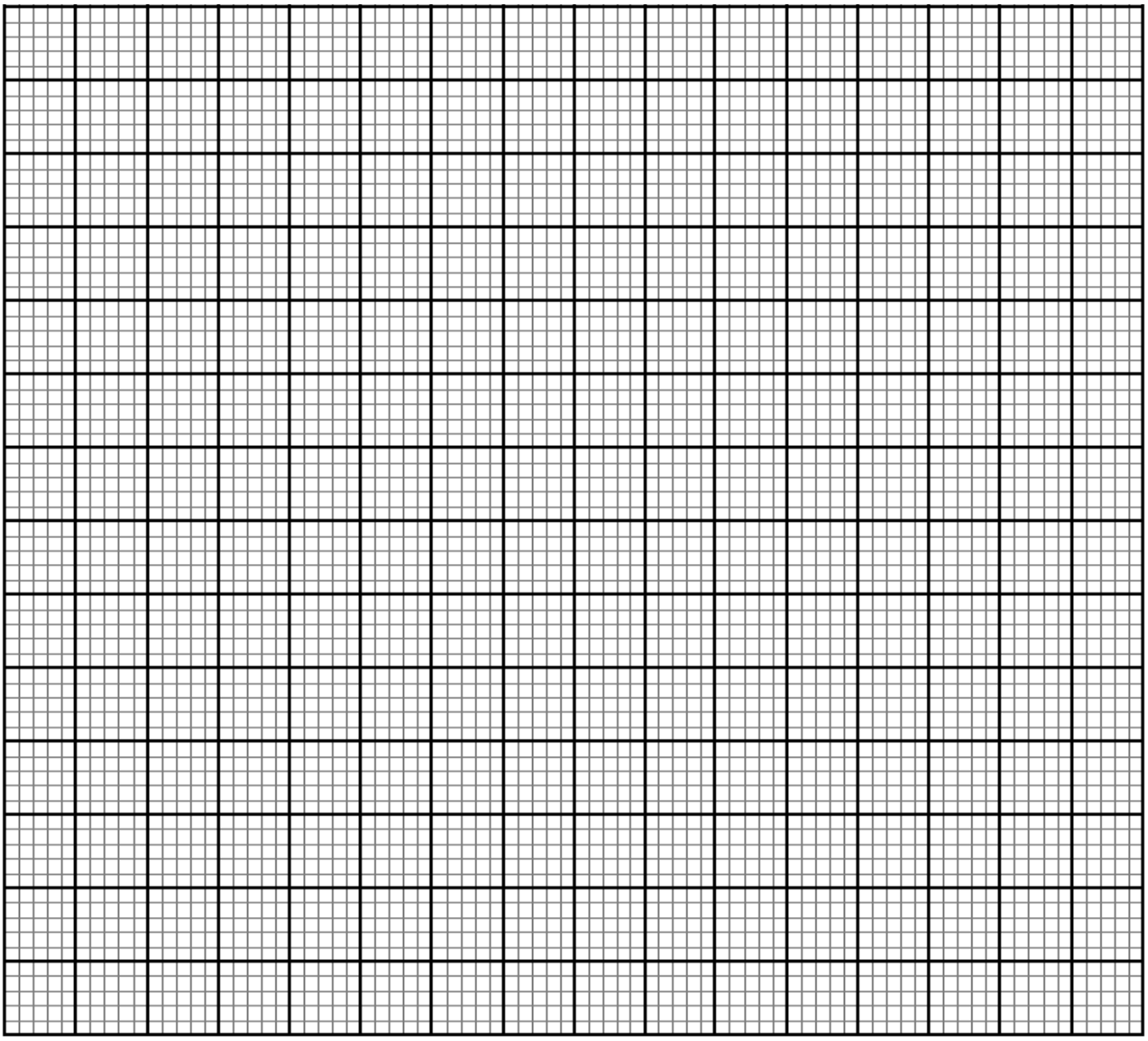
(a) Find the total distance traveled by the car? **(2 Metres)**

(b) Calculate the deceleration of the car. **(2 Marks)**

16. The table below shows marks obtained by a form four class in a certain school.

Marks (x)	8≤X<9	9≤X<11	11≤X<13	13≤X<16	16≤X<20	20≤X<21
No. of contents y	2	6	8	3	2	1

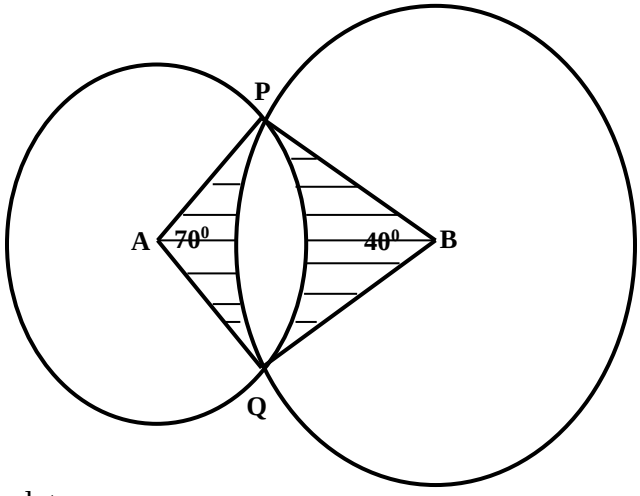
Use the table to represent the information on a histogram. **(3 Marks)**



SECTION II (50 MARKS):

Answer any five questions in this section.

17. The diagram below shows two circles, centres A and B which intersect at points P and Q. Angle PAQ = 70^0, angle PBQ = 40^0 and PA = AQ = 8cm.



Use the diagram to calculate

(a) PQ to correct to 2 decimal places **(2 Marks)**

(b) PB to correct to 2 decimal places **(2 Marks)**

(c) Area of the minor segment of the circle whose centre is A **(2 Marks)**

(d) Area of shaded region **(4 Marks)**

18. The income tax rates in a certain year are as shown below.

Income (k£ – p.a	Rate (KSh. per £)
1 – 4200	2
4201 – 8000	3
8001 – 12600	5
12601 – 16800	6
16801 and above	7

Omar pays Sh. 4000 as P.A.Y.E per month. He has a monthly house allowance of KSh.10800 and is entitled to a personal relief of KSh. 1,100 per month. Determine:

(i) his gross tax per annum in Kshs **(2 Marks)**

(ii) his taxable income in K£ per annum **(2 marks)**

(iii) his basic salary in Ksh. per month **(2marks)**

(iv) his net salary per month **(2 marks)**

19. A straight line passes through the points (8, -2) and (4,-4).

(a) Write its equation in the form ax + by +c = 0, where a, b and c are integers. **(3 Marks)**

(b) If the line in (a) above cuts the x-axis at point P, determine the coordinates of P. **(2 Marks)**

(c) Another line, which is perpendicular to the line in (a) above passes through point P and cuts the y- axis at the point Q. Determine the coordinates of point Q. **(3 Marks)**

(d) Find the length of QP **(2 Marks)**

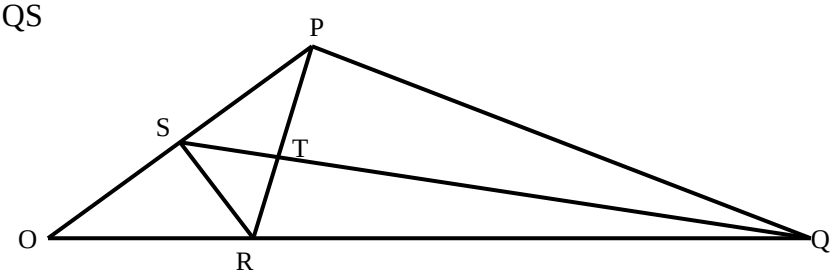
20. A bus and a Nissan left Nairobi for Eldoret, a distance of 340 km at 7.00 a.m. The bus travelled at 100km/h while the Nissan travelled at 120km/h. After 30 minutes, the Nissan had a puncture which took 30 minutes to mend.

(a) Find how far from Nairobi the Nissan caught up with the bus **(5 Minutes)**

(b) At what time of the day did the Nissan catch up with the bus? **(2 Marks)**

(c) Find the time at which the bus reached Eldoret **(3 Marks)**

21. The figure below shows triangle OPQ in which OS = $\frac{1}{3}$ OP and OR = $\frac{1}{3}$OQ. T is a point on QS such that QT = $\frac{3}{4}$ QS



(a) Given that OP = p and OQ = q, express the following vectors in terms of p and q.

(i) $\underset{\sim}{SR}$ $\underset{\sim}{\quad}$ (1 Mark)

(ii) $\underset{\sim}{QS}$ **(2 Marks)**

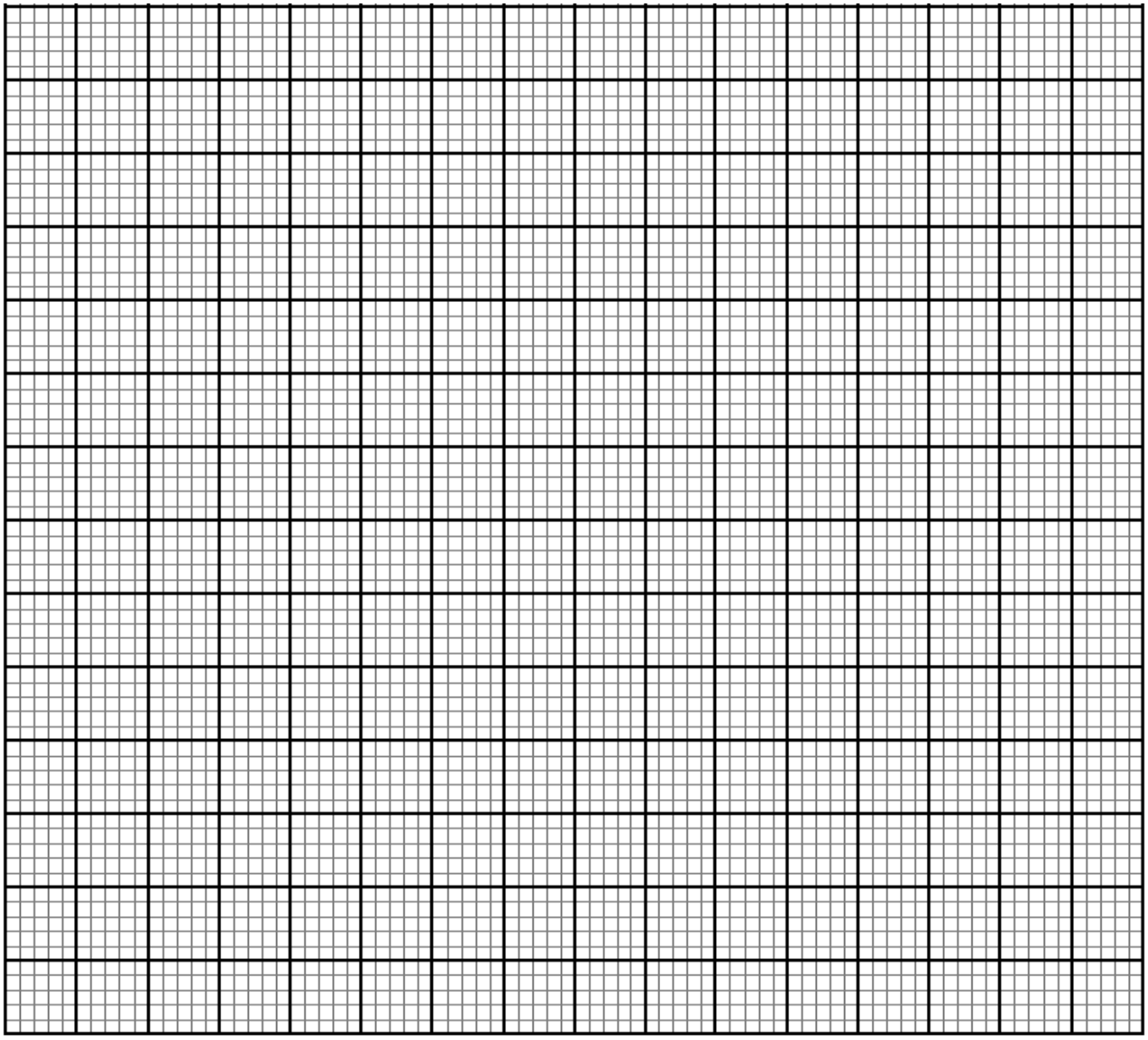
(iii) $P\underset{\sim}{T}$ **(2 Marks)**

(iv) $T\underset{\sim}{R}$ **(2 Marks)**

(b) Hence or otherwise show that the points P, T and R are collinear. (**3 Marks)**

22. On the grid provided below:

(a) Draw triangle ABC whose coordinates are A (8,6), B(6,10) and C(10,12) and its image A'B'C' after undergoing a reflection in the line y = x. Write the co – ordinates of A' B' C' **(4 Marks)**



(b) Triangle A'B'C' undergoes an enlargement centre (0,0) scale factor ½ to form triangle A''B''C''.Draw triangle A''B''C''. **(3 Marks)**

(c) Triangle ABC is stretched with y – axis invariant and stretch factor of ½ to obtain triangle A'''B'''C'''. Draw triangle A''B''C'''. **(3 Marks)**

23. Three Kenyan warships A, B and C are at sea such that ship B is 450km on a bearing of 030^0 from ship A. Ship C is 700km from ship B on a bearing of 120^0. An enemy ship D is sighted 1000km due south of ship B.

(a) Taking a scale of 1cm to represent 100km locate the position of the ships A, B, C and D. **(4 Marks)**

(b) Find the compass bearing of:
(i) Ship A from ship D **(1 Mark)**

(ii) Ship D from ship C **(1 Mark)**

(c) Use the scale drawing to determine
(i) The distance of D from A **(1 Mark)**

(ii) The distance of C from D **(1 Mark)**

(d) Find the bearing of:
(i) B from C (**1 Mark)**

(ii) A from C **(1 Mark)**

24. (a) Fill the table below for the function $y = 2x^2 + 6x - 5$, for $-4 \leq x \leq 3$ **(2 Marks)**

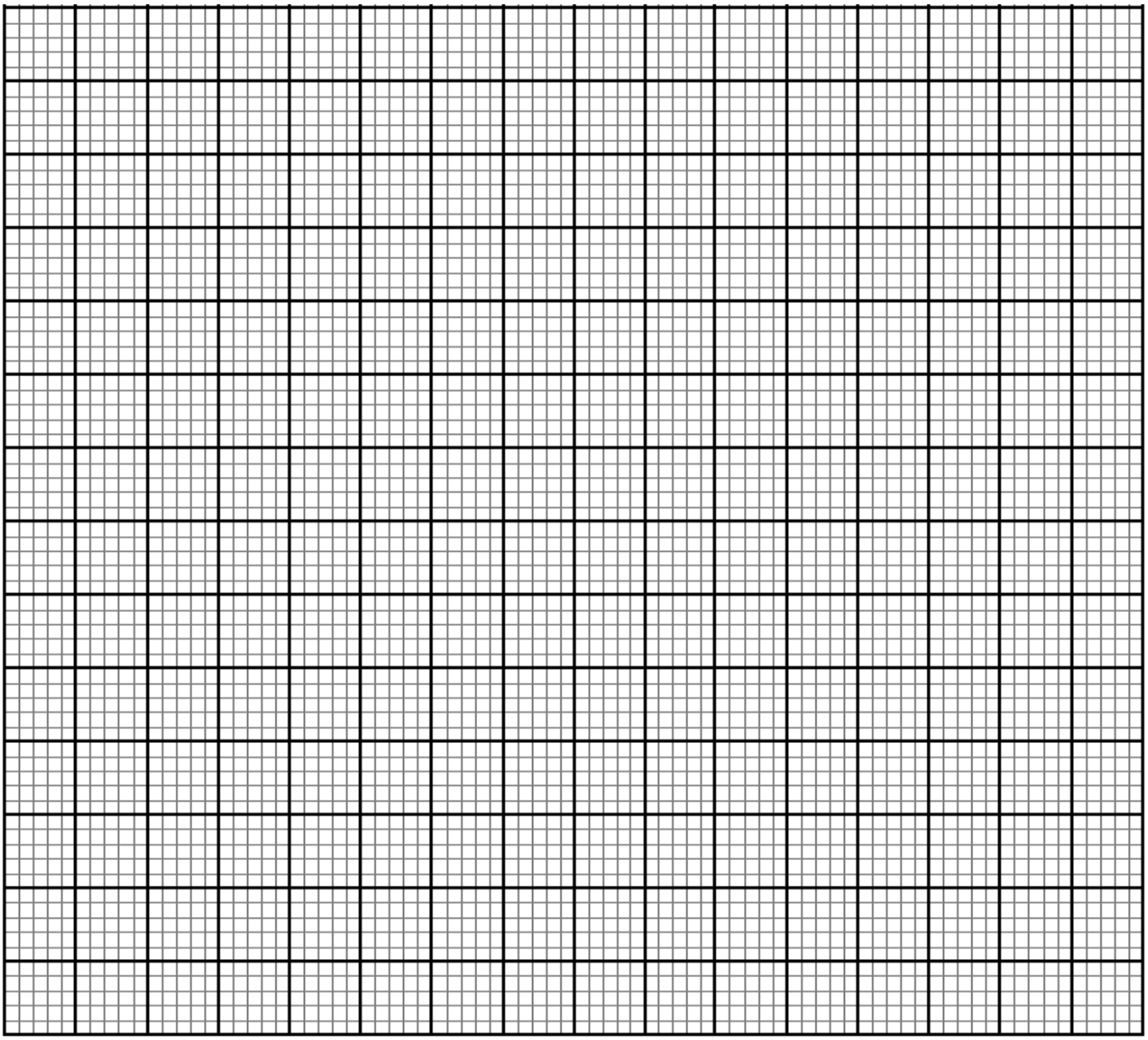
X	-4	-3	-2	-1	0	1	2	3
Y								

(b) (i) Draw the curve for $y = 2x^2 + 6x – 5$, for $-4 \leq x \leq 3$ on grid given **(1 Mark)**

(ii) On the same axes, draw line $y = 7x + 1$ **(1 Mark)**

(c) Determine the values of x at the points of intersection of the curve $y = 2x^2 + 6x – 5$ and line $y = 7x + 1$ **(1 Mark)**

(d) Find the actual of the region bounded by the curve $y = 2x^2 + 6x – 5$ and line $y = 7x + 1$ **(4 Marks)**



BRILLIANT STUDENTS TOP EXAMINERS MOCK SERIES 3

NAME: ……..

SCHOOL: ……...……

ADM NO: …….. SIGN: ……. DATE: ……..

121/1
MATHEMATICS
PAPER 2
2 ½ HOURS

INSTRUCTIONS TO DANDIDATES

1. Write your name, index number and class in the spaces provided.
2. Sign and write date of the of the examination in the spaces provided.
3. The paper contains two sections: Section I and II
4. Answer ALL questions in section I and **STRICTLY FIVE** questions from section II.
5. All working and answers must be written on the question paper in the spaces provided below each question.
6. Show all the steps in your calculations, giving you're your answers at each stage in the spaces below each question.
7. Marks may be awarded for correct working even if the answer is wrong.
8. Non-programmable silent electronic calculators and KNEC mathematical tables may be used except where stated otherwise.

FOR EXAMINER'S USE ONLY
SECTION 1

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	TOTAL

GRAND TOTAL

17	18	19	20	21	22	23	24	25	TOTAL

SECTION 1 (50 MARKS):

ANSWER ALL QUESTIONS IN THE SECTION.

1. Use logarithms to evaluate **(4 Marks)**

$$\sqrt[3]{\frac{45.3\ x\ 0.00697}{0.534}}$$

2. Form the quadratic equation whose roots are $x = -\frac{5}{3}$ and $x = 1$ **(2 Marks)**

3. W varies directly as the cube of x and inversely as y. Find W in terms of x and y given that W = 80 when x = 2 and y = 5. **(2 Marks)**

4. A cold water tap can fill a bath in 10 minutes while a hot water tap can fill it in 8 minutes. The drainage pipe can empty it in 5 minutes. The cold water and hot water taps are opened for 4 minutes. After four minutes all the three taps are opened. Find how long it takes to fill the bath. **(3 Marks)**

5. Object A of area $10cm^2$ is mapped onto its image B of area $60cm^2$ by a transformation. Whose matrix is given by p = $\begin{pmatrix} x & 4 \\ 3 & x+3 \end{pmatrix}$. Find the positive values of x **(3 Marks)**

6. Make P the subject of the formula in L = $\frac{2}{3}\sqrt{\frac{x^2 - PT}{y}}$ **(3 Marks)**

7.(a) Expand the expression $\left(1+\frac{1}{2}x\right)^5$ in ascending order powers of x, leaving the coefficients as fractions in their simplest form. **(2 Marks)**

(b) Use the first three terms of the expansion in (a) above to estimate the value of $(1.05)^5$ **(2 Marks)**

8.By rounding each number to the nearest tens, approximate the value of $\frac{2454\ x\ 396}{66}$
Hence, calculate the percentage error arising from this approximation to 4 significant figures. **(3 Marks)**

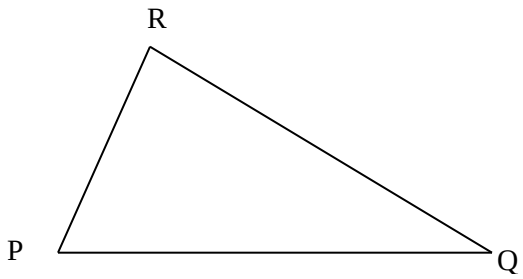
9.Without using a calculator or mathematical tables, express $\frac{\sqrt{3}}{1-Cos\ 30^0}$ in surd form and simplify **(3 Marks)**

10. Kasyoka and Kyalo working together can do a piece of work in 6 days. Kasyoka, working alone takes 5 days longer than Kyalo. How many days does it take Kyalo to do the work alone? **(3 Marks)**

11. The second and fifth terms of a geometric progression are 16 and 2 respectively. Determine the common ratio and the first term. **(3 Marks)**

12. A particle moves along a straight line AB. Its velocity V metres per second after t seconds is given by $v = t^2 - 3t + 5$
Its distance from A at the time t = 1 is 6 metres.
Determine its distance from A when t = 3 **(3 marks)**

13. On the triangle PQR, draw a circle touching PR, QP produced and QR produced. **(3 Marks)**



14. Two containers havebase area of $750cm^2$ and $120cm^2$ respectively. Calculate the volume of the larger container in litres given that the volume of the smaller container is $400cm^3$. **(3 Marks)**

15. Solve for x in the equation

$2\ Sin^2\ x - 1 = Cos^2x + Sin\ x$, where $0^0 \leq x \leq 360^0$. **(4 Marks)**

16. Find the radius and the coordinate of the centre of the circle whose equation is

$2x^2 + 2y^2 - 3x + 2y + \frac{1}{2} = 0$ **(4 marks)**

SECTION II (50 MARKS):

ANSWER FIVE QUESTIONS IN THIS SECTION.

17. A bag contains 5 red, 4 white and 3 blue beads. Two beads are selected at random.

(a) Draw a tree diagram and list the probability space. **(3 Marks)**

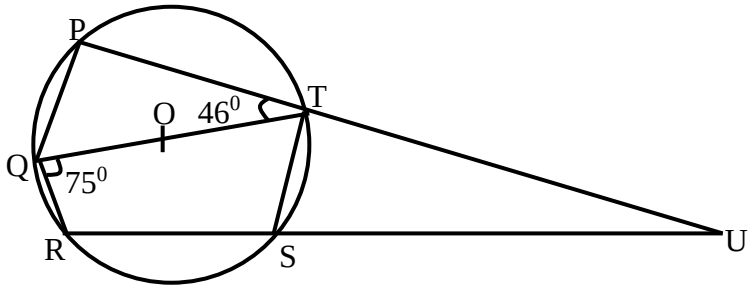
(b) Find the probability that

(i) The last bead selected is red. **(2 Marks)**

(ii) The beads selected were of the same colour **(2 Marks)**

(iii) At least one of the selected beads is blue **(3 Marks)**

18. The figure below shows a circle centre O in which line QOT is a diameter. Angle QTP = 46^0, angle TQR = 75^0 and angle SRT = 38^0, PTU and RSU are straight lines.



Determine the following, giving reasons in each case:
(a) angle RST **(2 Marks)**

(b) angle SUT **(2 Marks)**

(c) angle PST **(2 Marks)**

(d) obtuse angle ROT **(2 Marks)**

(e) angle SQT **(2 Marks)**

19. P, Q and R are three villages such that PQ = 10km, QR = 8km and PR = 4km where PQ, QR and PR are connecting roads.

(a) Using a scale of 1cm rep 1 km, locate the relative positions of the three villages **(2 Marks)**

(b) A water tank T is to be located at a point equidistant from the three villages. By construction locate the water tank T and measure its distance from R. **(3 Marks)**

(c) Determine the shortest distance from T to the road PQ by construction **(2 Marks)**

(d) Determine the area enclosed by the roads PQ, QR and PR by calculation **(3 Marks)**

20. For a sample of 100 bulbs, the time taken for each bulb to burn was recorded. The table below shows the result of the measurements.

Time (in hours)	**15-19**	**20-24**	**25-29**	**30-34**	**35-39**	**40-44**	**45-49**	**50-54**	**55-59**	**60-64**	**65-69**	**70-74**
Numberof bulbs	**6**	**10**	**9**	**5**	**7**	**11**	**15**	**13**	**8**	**7**	**5**	**4**

(a) Using an assumed mean of 42, calculate

(i) the actual mean of distribution **(4 Marks)**

(ii) the standard deviation of the distribution **(3 Marks)**

(b) Calculate the quartile deviation **(3 Marks)**

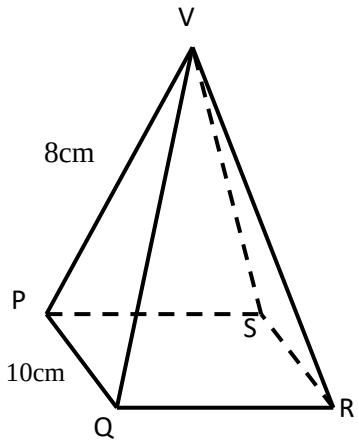
21. A plane leaves an airport P (10^0S, 62^0E) and flies due north at 800km/h.
(a) Find its position after 2 hours **(3 Marks)**

(b) The plane turns and flies at the same speed due west. It reaches longitude Q, 12^0W.
(i) Find the distance it has traveled in nautical miles. **(3 Marks)**

(ii) Find the time it has taken (Take $\pi = \frac{22}{7}$, the radius of the earth to be 6370km and 1 nautical mile to be 1.853km) **(2 Marks)**

(c) If the local time at P was 1300 hours when it reached Q, find the local time at Q when it landed at Q **(2 Marks)**

22. PQRSV is a right pyramid on a horizontal square base of side 10cm.The slant edges are all 8cm long. Calculate



(a) The height of the pyramid **(2 Marks)**

(b) The angle between

(i) Line VP and the base PQRS **(2 Marks)**

(ii) Line VP and line RS **(2 Marks)**

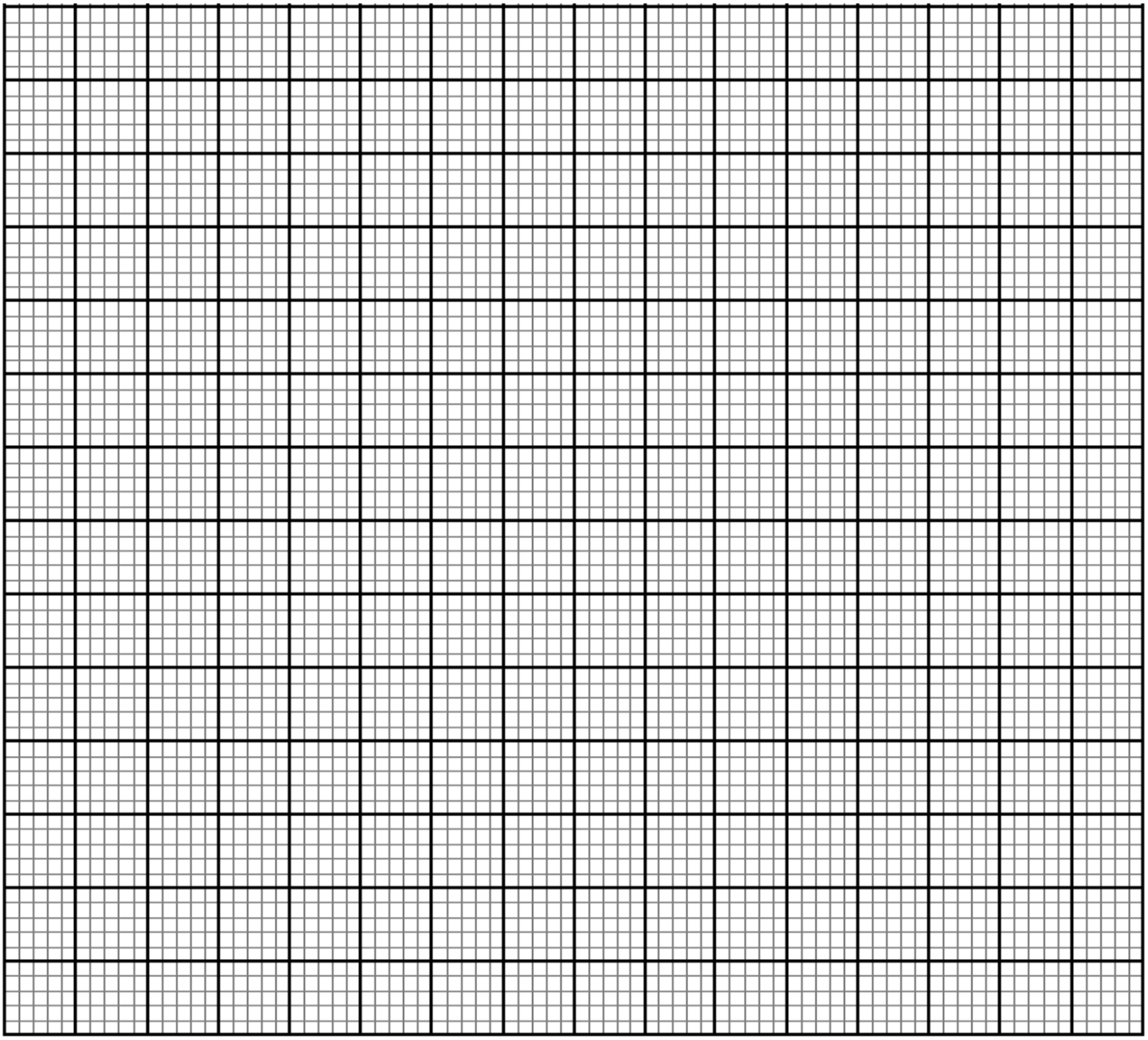
(iii) Planes VPQ and the base PQRS **(2 Marks)**

(c) Volume of the pyramid **(2 Marks)**

23. Complete the table below for the functions $y = \sin 3\theta$ and $y = 2\cos(\theta + 40^0)$ (2 Marks)

θ^0	0^0	10^0	20^0	30^0	40^0	50^0	60^0	70^0	80^0	90^0
$3\sin 3\theta$	0	1.50		3.00			0.00			-3.0
$2\cos(\theta + 40^0)$	1.53	1.29			0.35			-0.69		-1.29

(a) On the grid provided, draw the graphs of $Y = 3\sin 3\theta$ and $y = 2\cos(\theta + 40^0)$ on the same axis. Take 1 cm to represent 10^0 on the x-axis and 4 cm to represent 2 unit on the y – axis. **(5 marks)**



(b) From the graph find the roots of the equation.

(i) $\frac{3}{4}$ Sin $3\theta = \frac{1}{2}$ Cos $(\theta + 40^0)$ **(2 Marks)**

(ii) 2 Cos $(0 + 40^0) = 0$ in the range $0 \leq \theta \leq 90^0$ **(1 Mark)**

24. The gradient function of a curve is given by the expression $2x + 1$. If the curve passes through the point (-4, 6)

(a) Find:

(i) The equation of the curve **(3 Marks)**

(ii) The values of x, at which the curve cuts the x-axis **(3 Marks)**

(b) Determine the area enclosed by the curve and the x –axis **(4 Marks)**

BRILLIANT STUDENTS TOP EXAMINERS MOCK SERIES 3

NAME: ……..

SCHOOL: ……..……

ADM NO: …….. SIGN: ……. DATE: ……..

232/1
PHYSICS
PAPER 1
(THEORY)
TIME: 2 HOURS

INSTRUCTIONS TO CANDIDATES

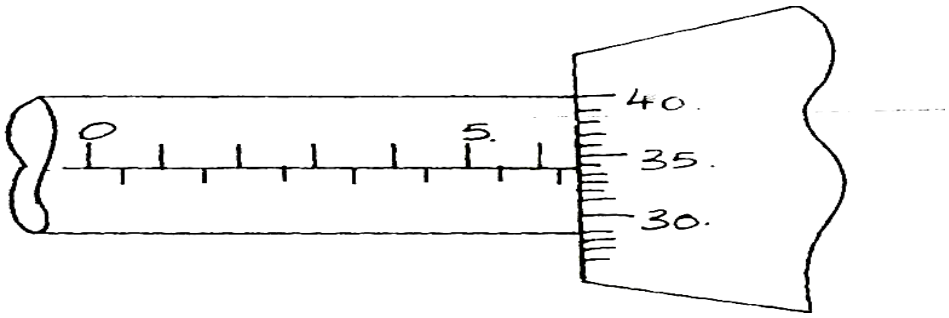
- ✓ The paper consists of TWO sections A and B.
- ✓ Answer all the questions in section A and B in the spaces provided
- ✓ All working MUST be clearly shown
- ✓ Non-programmable silent calculators and KNEC mathematical tables may be used.

FOR EXAMINER'S USE ONLY

SECTION	QUESTION	MAXIMUM SCORE	CANDIDATE'S SCORE
A	11-11	25	
B	12 13 14 15 16	11 10 10 13 11	
TOTAL SCORE		80	

SECTION A (25 MARKS)

1. The figure below shows a micrometer screw gauge being used to measure the diameter of a rod. The thimble scale has 50 divisions.



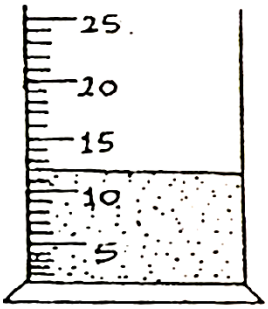
State the reading shown above. (2 marks)

……

……

……

2. The figure below shows water placed in a measuring cylinder calibrated in cm^3



An object of mass 50.1g and density 16.7 g/cm^3 is lowered gently in the water. Indicate on the diagram the new level. **(1 mark)**

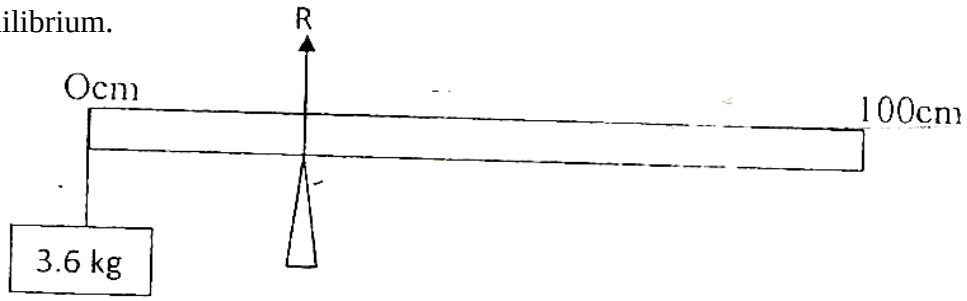
3. An object is attached to a spring balance and its weight determined in air. It is then gently lowered into a liquid in a beaker. State what will happen to the reading. **(1 mark)**

……

……

……

4. The figure below shows a uniform meter rule pivoted at the 23cm mark with a mass of 3.6kg hanging at 0cm mark the system is in equilibrium.



Determine,

i) The weight of the rule **(2 marks)**

ii) The normal reaction force R at the rule **(1 mark)**

5. When a mercury in a glass thermometer is used to measure the temperature of hot water, it is observed that the mercury level first drops before beginning to rise. Explain **(2 marks)**

……

……

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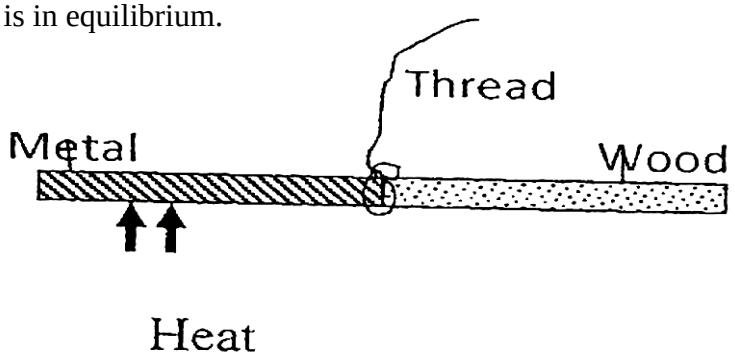
6. A trolley of mass 0.5kg moving with a velocity of 1.2m/s collides with a second trolley of mass 1.5kg moving in the direction with a velocity of 0.2m/s. If the Collins is inelastic, determine the velocity of the trolleys after collision. **(3 marks)**

7. A block of copper of mass 2kg and specific heat capacity 400 J/kg K initially at 81^0C is immersed in water at 20^0C. If the final temperature is 21^0C, determine the mass of water. **(3 marks)**

8. When a body of mass 0.25kg is acted on by a force, its velocity changes from 5m/s to 7.5m/s, determine the work done by the force. **(3 marks)**

9. The following figure shows a rod made of wood on one end and metal on the other end suspended freely with a piece of thread so that it is in equilibrium.



The side made of metal is now heated with a Bunsen flame. State with a reason, the side to which the rod is likely to tilt. **(2 marks)**

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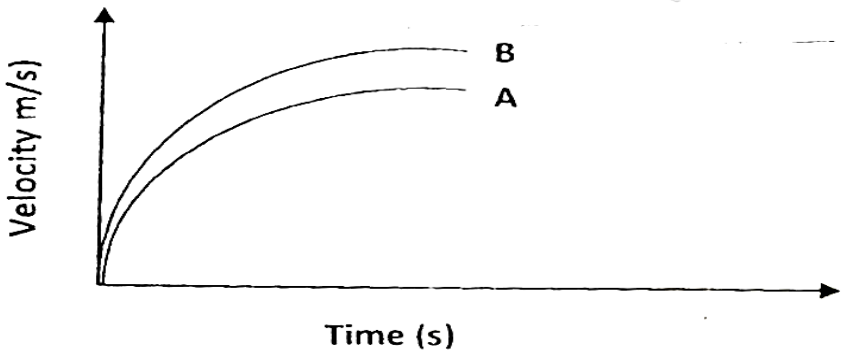
10. The figure shows the velocity time graph of two identical spheres released from the surfaces of two liquids A and B.



Give a reason why the terminal velocity of the sphere In B is higher than in A. **(1 mark)**

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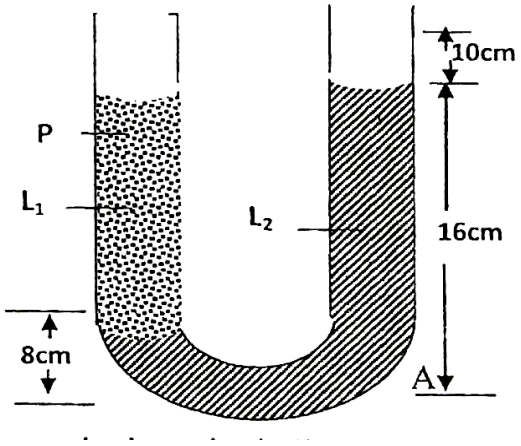
11. A u-tube vertically holds two liquids L_1 and L_2 as shown in the figure below.



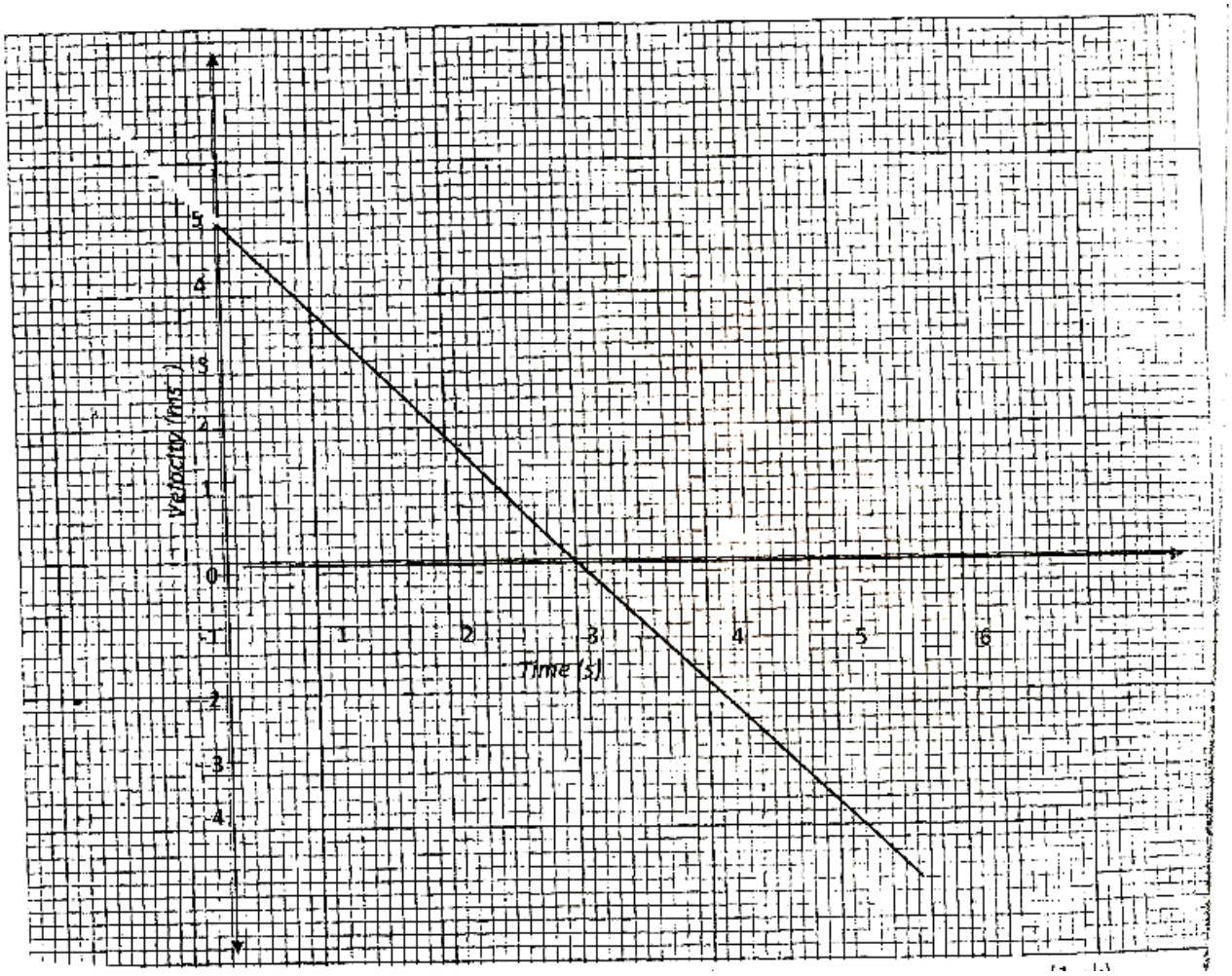
(a) Mark accurately the point in liquid L_2 that is at the same pressure as point P (1 mark)

(b) If the atmospheric pressure is 103000N/m^2 and the density of liquid L_2 is 103kg/m^3 determine the pressure acting at point A. **(3 marks)**

SECTION B (55 MARKS)

Answer all questions in this section

12. (a) The velocity-time graph in the figure below illustrates the motion of a ball which has been projected vertically upwards from the surface of the moon. The weight of the object on earth's surface is 20N, when the acceleration due to gravity is $10ms^{-2}$.



(i) State why the velocity becomes negative after 3 seconds. **(1 mark)**

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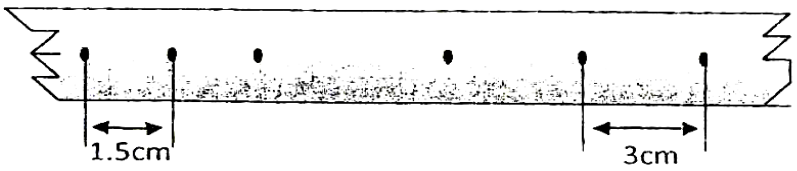
(ii) Determine the acceleration of free fall on the moon showing clearly your work **(1 mark)**

(iii) Determine the total distance traveled by the ball in 1.0 sec **(2 marks)**

(iv) Find the weight of the ball on the moon **(2 marks)**

(v) If the ball was projected vertically upwards on the earth with the same velocity. What difference would you expect to observe in the velocity-time graph above? Illustrate with a sketch on the same axis. **(1 mark)**

(b) The figure below represents part of a tape pulled through the ticker-timer of frequency 50Hz moving down an inclined plane.



If the trolley was allowed to move down the inclined plane for 4 seconds. Calculate the distance it covers.**(3 marks)**

13. a) State two differences between boiling and evaporation. **(2 marks)**

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(b) 200g of a solid was uniformly heated by a 0.2kw heater for sometime. The graph in the figure below shows how the temperature of the solid changed with time.

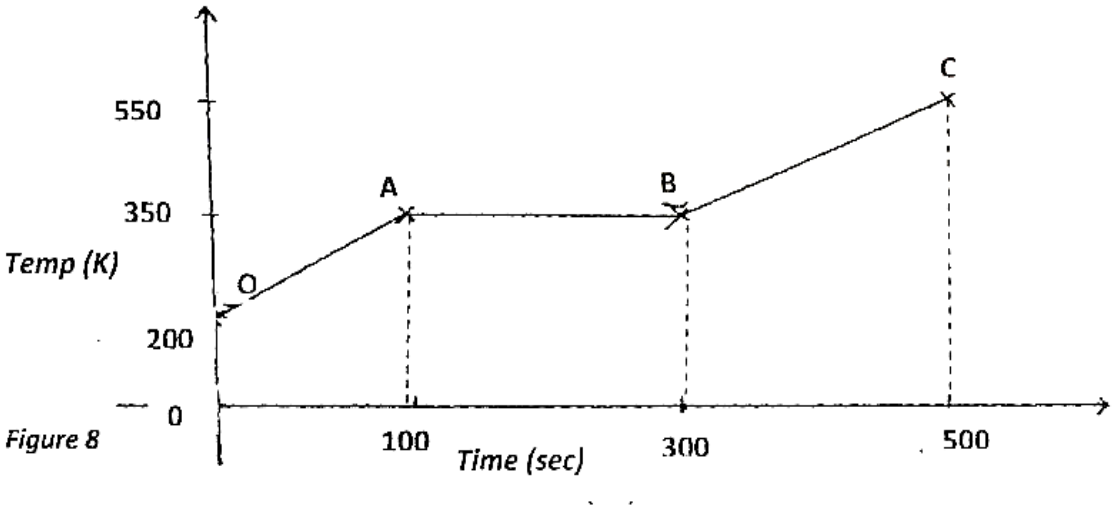

Figure 8

(i) Explain what is happening between OA and AB. **(2 marks)**

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(ii) Calculate the specific heat capacity of the solid. **(3 marks)**

(iii) Calculate the specific latent heat of fusion **k** of the solid. **(3 marks)**

14. (a) (i) Define the term velocity ratio (V.R) **(1 mark)**

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(ii) Name one machine that has a velocity ratio of less than one (V.R < 1) **(1 mark)**

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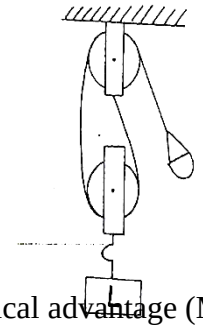
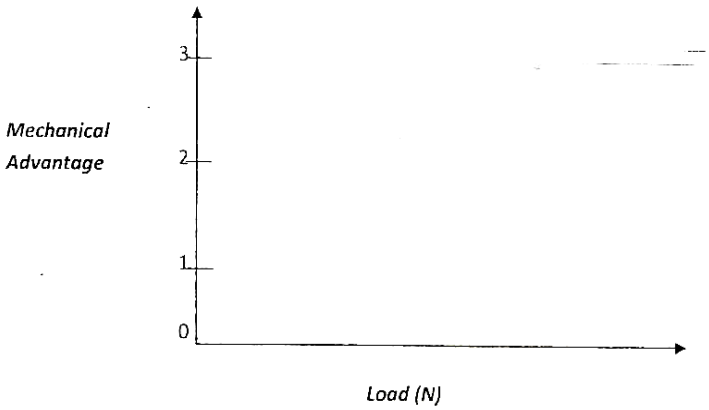
(b) The figure below shows a set-up used to find the mechanical advantage of a pulley system\



On the axes provided sketch a graph of mechanical advantage (M.A) against load (L) (2 marks)



(c) A hydraulic machine is used to raise a load of 100kg at a constant velocity through a light of 2.5m. The radius of the effort piston is 1.4cm while that of the load piston is 7.0cm. given that the machine is 80% efficient, calculate: -

(i) The effort needed **(3 marks)**

(ii) The energy wasted when using the machine **(3 marks)**

15. a) Define pressure and state its S.I Units. **(2 marks)**

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b) State Pascal's principal. **(1 mark)**

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c) In construction of a mercury barometer care is taken to make sure it has no gas in the space above mercury.

i) How would you test whether there is gas above? **(1 mark)**

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ii) State the problem caused by the presence of gas in the barometer. **(1 mark)**

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d) Find the total pressure experienced by a diver 8 meters below the sea surface.

Take; Atmospheric pressure = 103 360N/m^2. Density of sea water 1030kg/m^3 **(3 marks)**

e) i)The air pressure at the base of a mountain is 75.0cm of mercury while at the top it is 60.0cm of mercury. Given that the average density of air is 1.25kgm^{-3} and the density of mercury is 13600 km^{-3}, calculate the height of the mountain.

ii) State factors that affect pressure due to liquid column. **(2 marks)**

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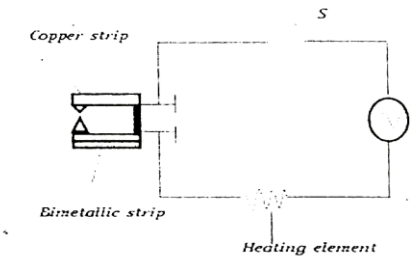
16. a) The figure below shows a circuit diagram for a device for controlling the temperature in a room.



i) Explain the purpose of the bimetallic strip. **(2 marks)**

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ii) Describe how the circuit controls the temperature when the switch is closed. **(2 marks)**

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b)(i) Explain why bodies in circular motion undergo acceleration even when their speed is constant. **(1 mark)**

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(ii) A particle moving along a circular path of radius 5cm describes an arc of length 2cm every second.
Determine:

a. Its angular velocity **(2 marks)**

b. Its periodic time. **(2 marks)**

(iii) A stone of mass 40g is tied to the end of a string 50cm long and whirled in a vertical circle at 2rev/s.
Calculate the maximum tension in the string. **(3 marks)**

BRILLIANT STUDENTS TOP EXAMINERS MOCK SERIES 3

NAME: ……..

SCHOOL: ……..……

ADM NO: …….. SIGN: ……. DATE: ……..

232/2
PHYSICS
Paper 2
2 Hours (Theory)

PHYSICS
Paper 2

Instructions to candidates

- *Write your **name** and **index number** in the spaces provided above.*
- *Sign and write the date of examination in the spaces provided above.*
- *This paper consists of **TWO** sections: **A** and **B**.*
- *Answer **ALL** the questions in sections **A** and **B** in the spaces provided.*
- ***ALL** working **MUST** be clearly shown.*
- *Non-programmable silent electronic calculators and KNEC mathematical tables may be used.*
- ***This paper consists of 13 printed pages.***
- ***Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing**.*

For Examiner's Use Only

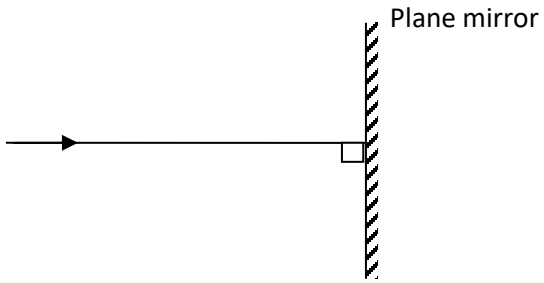
Section	Question	Maximum Score	Candidate's Score
A	1 - 12	25	
B	13	9	
	14	8	
	15	11	
	16	10	
	17	8	
	18	9	
	Total Score	80	

Section A (25 marks)

*Answer **ALL** the questions in the spaces provided.*

1.**Figure 1** show a ray of light incident on a plane mirror.

Figure1



(a) On the diagram, indicate the direction of the reflected ray. **(1mark)**

(b) Give reason for the path shown above. **(1mark)**

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2.State what happens to the image when one moves closer to the object when using a pinhole camera. **(1mark)**

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3.An object of height 2 cm is placed 25 cm in front of a concave mirror. A real image is formed 75 cm from the mirror. Calculate the height of the image. (2marks)

4.State the law of magnetism. (1mark)

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5.State and explain the functions of the keeper when storing magnets. **(2marks)**

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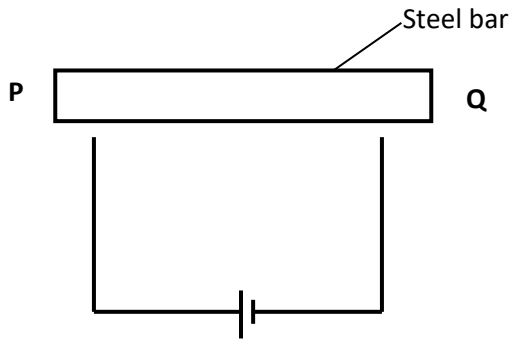
6.**Figure 2** shows a steel bar to be magnetized.

Figure 2



Complete the circuit such that both poles **P** and **Q** acquire opposite polarity (North- south respectively).(1mark)

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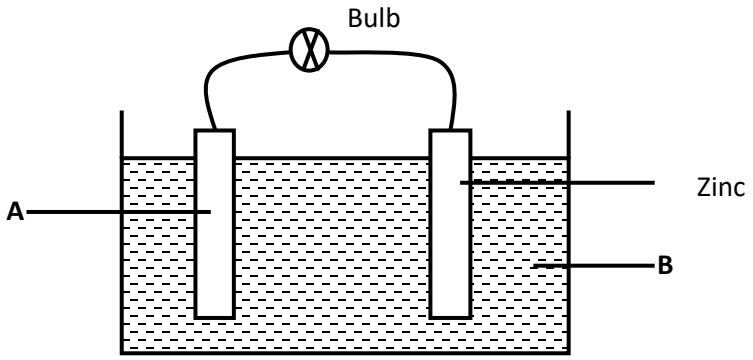
7.**Figure 3** shows a set up of a simple cell.

Figure 3



(a) Name the electrode **A** and electrolyte **B**. (2marks)

(b)

A: ……

B: ……

(c) State **two** reasons why the bulb goes off a short time. **(2marks)**

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(d) Give **one** method of minimizing the defect that occurs in plate **A**. **(1mark)**

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8.The chart below shows part of the electromagnetic spectrum.

A	**B**	Visible light	UV light	**C**

(a) Identify the radiation marked A and C. **(1mark)**

A: ……

C: ……

(b) Give **one** application of the radiation marked **B**. **(1mark)**

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9.The range of audible frequencies varies from 20 Hz to 20 kHz. If the speed of sound is 340 m/s, what is the corresponding range of wavelength? **(3marks)**

10. Distinguish between transverse waves and longitudinal waves. (1mark)

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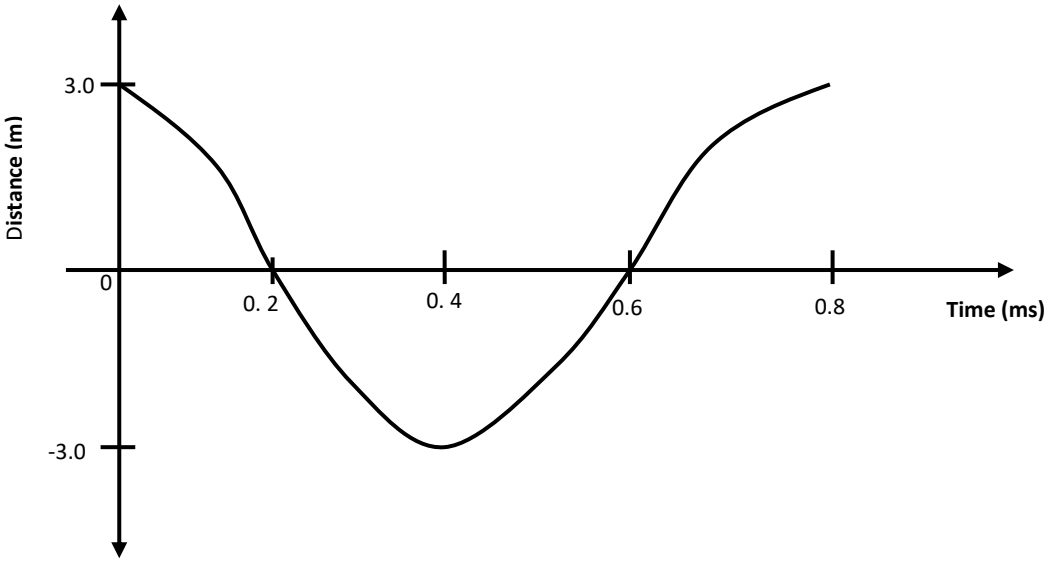
11. **Figure 4** shows a wave form

Figure 4



Determine the wavelength given that the speed of the wave is 400 m/s. **(2marks)**

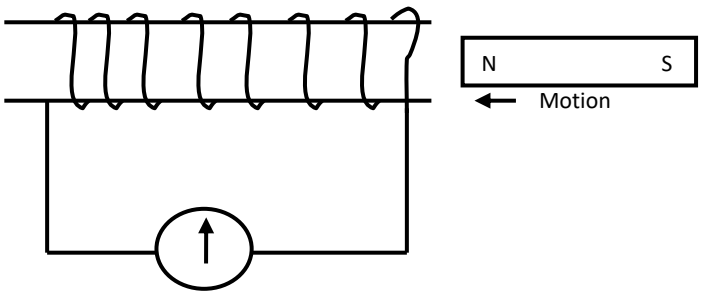
12. An electric kettle is rated at 1.8 kW, 240 V. Explain the choice of the safest fuse for the kettle. (the available fuses are 5 A, 10 A, and 20 A) **(3marks)**

Section B (55 marks)

Answer ALL the questions in the spaces provided.

13. (a) A bar magnet is pushed into a coil as shown in **Figure 5** below.

Figure 5



Explain what happens to the pointer of the galvanometer when the magnet is:

(i) Moved into the coil rapidly? **(1mark)**

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(ii) Remains stationary inside the coil? **(1mark)**

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(b) State **two** ways of increasing the magnitude of induced current in a generator. **(2marks)**

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(c) A transformer has 200 turns in the primary coil and 1000 turns in the secondary coil. The primary coil is connected to an a.c source producing 100 V and rated 500 W. The current delivered by the secondary circuit was found to be 0.95 A.

(i) Determine the efficiency of this transformer. **(3marks)**

(ii) Explain why the efficiency is less than 100%. **(2marks)**

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14. (a) A coin is placed at the bottom of a tall jar. The jar is filled with paraffin to a depth of 32.4 cm and the coin is apparently seen displaced 9.9 cm from the bottom. Determine the refractive index of air with respect to paraffin. **(3marks)**

(b) Define the term **critical angle**. **(1mark)**

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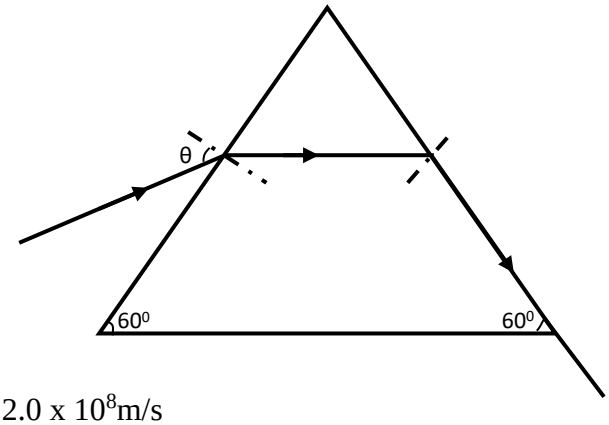
(c) **Figure 6** shows a ray of light passing through a glass prism.

Figure 6



If the speed of light in prism is 2.0×10^8m/s

(i) Determine the refractive index of the prism material given that the speed of light in air is 3.0×10^8m/s. **(2marks)**

(ii) Determine the value of the critical angle c and show it on **Figure 6**. **(2marks)**

15. (a) Differentiate between an Ohmic and non-ohmic conductor giving **one** example in each case **(2marks)**

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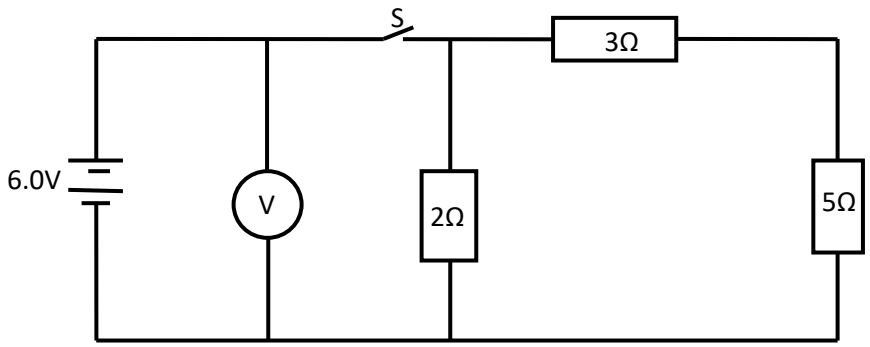
(b) **Figure 7** shows a circuit with resistors and voltmeter connected to a battery.

Figure 7



(i) If each cell has an internal resistance of 0.7Ω, determine the total resistance in the circuit. **(3marks)**

(ii) What amount of current flows through the 3Ω resistor when the switch is closed? **(3marks)**

(iii) What is the reading of the voltmeter when the switch S is

(I) Open **(1mark)**

……

……

(II) Closed **(1mark)**

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……

(iv) Account for the difference between the answers in (I) and (II) above. **(1mark)**

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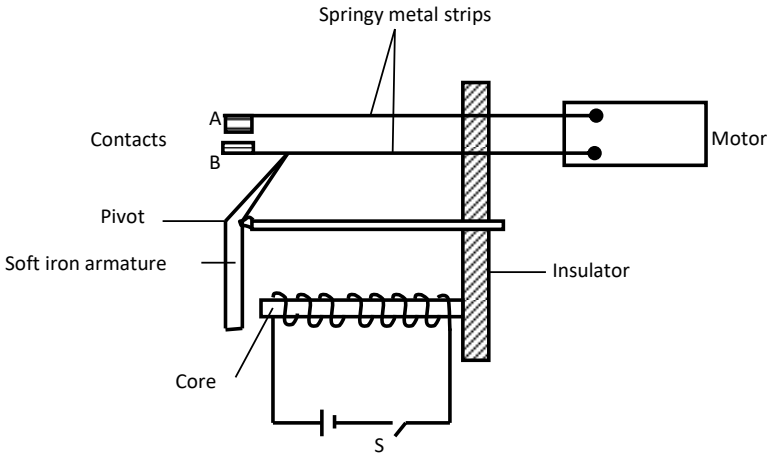
16. **Figure 8** shows an electromagnetic relay being used to switch an electric motor on and off. The electromagnet consists of a coil of wire wrapped around a core. The motor in figure is switched off.

Figure 8



(a) Suggest suitable material for the core. **(1mark)**

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(b) What happens to the core when switch S is closed? **(2marks)**

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(c) Why do the contacts A and B close when the switch S is closed. **(2marks)**

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(d) When the switch S is opened, what will happen to;

(i) The core **(1mark)**

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……

(ii) Soft iron armature. **(1mark)**

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(e) Give **one** other application of an electromagnet. **(1mark)**

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(f) State **two** ways in which an electromagnet could be made more powerful. **(2marks)**

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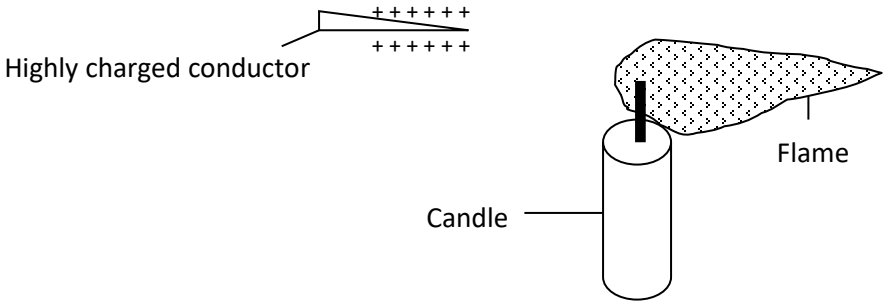
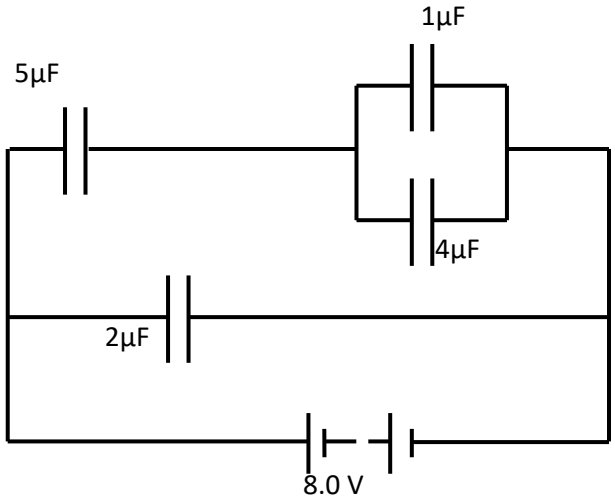
17. (a) Give a reason why a candle flame is blown when a highly charged conductor is brought close to it as shown in **Figure 9**. (2marks)

Figure 9



(b) **Figure10** shows 1μF, 2μF, 4μF and 5μF capacitors connected to a battery.

Figure 10



Determine:

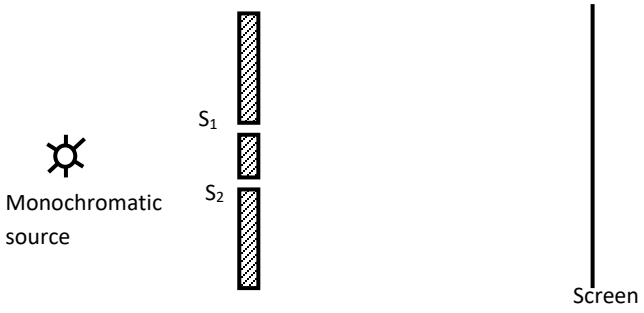
(i) The total capacitance. **(2marks)**

(ii) The total charge. **(2marks)**

(iii) Voltage across the 4μF capacitor. **(2marks)**

18. (a) In an experiment to observe interference of light a double slit experiment was placed close to the monochromatic source as shown in **Figure 11**.

Figure 11



(i) State the function of the double slit. (1mark)

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(ii) Describe what is observed on the screen. (2marks)

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(b) **Figure 12** shows an object O placed in front of a diverging lens whose principal focus is F.

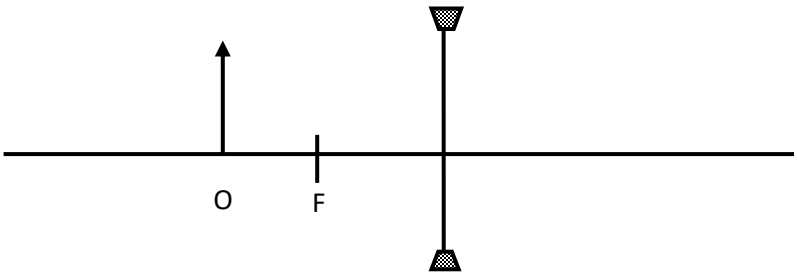
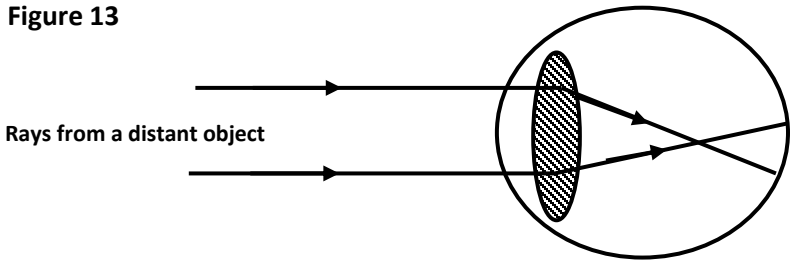


Figure 12

On the diagram, draw rays diagram to locate the image formed. **(3marks)**

(c) **Figure 13** shows a defective eye focusing a distant object.

Figure 13



(i) Name the defect. **(1mark)**

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……

(ii) On the same diagram, sketch the appropriate lens to correct the defect and sketch the rays to show the effect of the lens. (2marks)

BRILLIANT STUDENTS TOP EXAMINERS MOCK SERIES 3

NAME: ……..

SCHOOL: ……...……

ADM NO: …….. SIGN: ……. DATE: ……..

232/3
PHYSICS
PAPER 3(PRACTICAL)
TIME: 2 ½ HRS

INSTRUCTIONS TO CANDIDATES

Answer all the questions in the spaces provided in this question paper.
You are supposed to spend the first 15 minutes of the 2 ½ hrs allowed for this paper reading the whole paper carefully before commencing your work.
Marks will be given for clear record of the observations actually made, their suitability, accuracy and the use made of them.
Candidates are advised to record their observations as soon as they are made.
Non-programmable silent electronic calculators and KNEC mathematical tables may be used.

FOR EXAMINERS USE ONLY.

QUESTION 1

NO.	a, b	c	TOTAL
MAXIMUM SCORE	14	6	20
CANDIDATES SCORE			

QUESTION 2

	a	b	c	d	f	g	h	i
maxmum score	1	1	1	2	6	4	2	3
Candidate's scores								

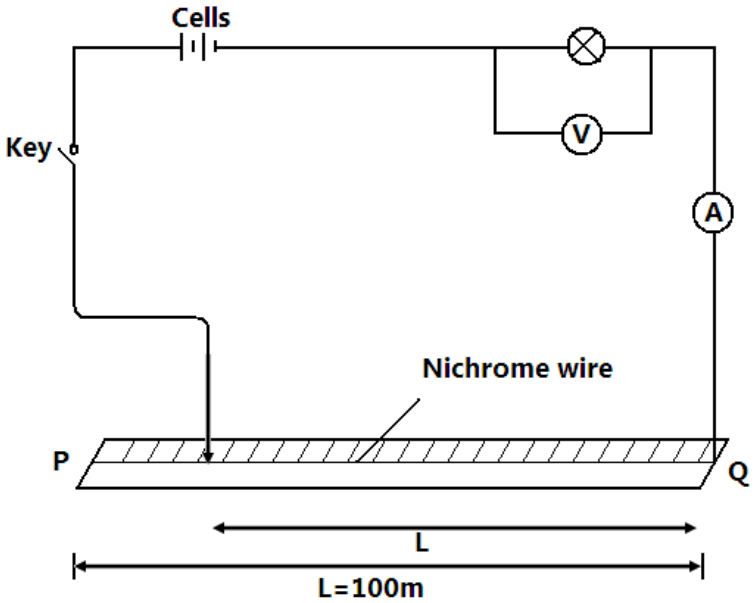
Question 1 (20 marks)

You are provided with the following

-Two dry cell
-One bulb
-Voltmeter (0 – 3V)
-Ammeter (0 – 1A)
-Amounted nicrome wire mounted on a millimeter scale
-Switch
-Seven connecting wire at least two with crocodile clips
-Micrometer screw gauge

Proceed as follows:

a) i). Set up the circuit as shown in the figure 1 below.



ii) With the crocodile clip at p, take the voltmeter reading and ammeter reading. Record v and 1 repeat the readings for L=80, 60, 40, 20 and 0cm respectively and complete the table below. **(5mks)**

Length, L(cm)	100	80	60	40	20	0
Voltage, V(V)						
Current, I (A)						

iii). What changes do you observe on the bulb as L decreases from p? **(1mrk)**

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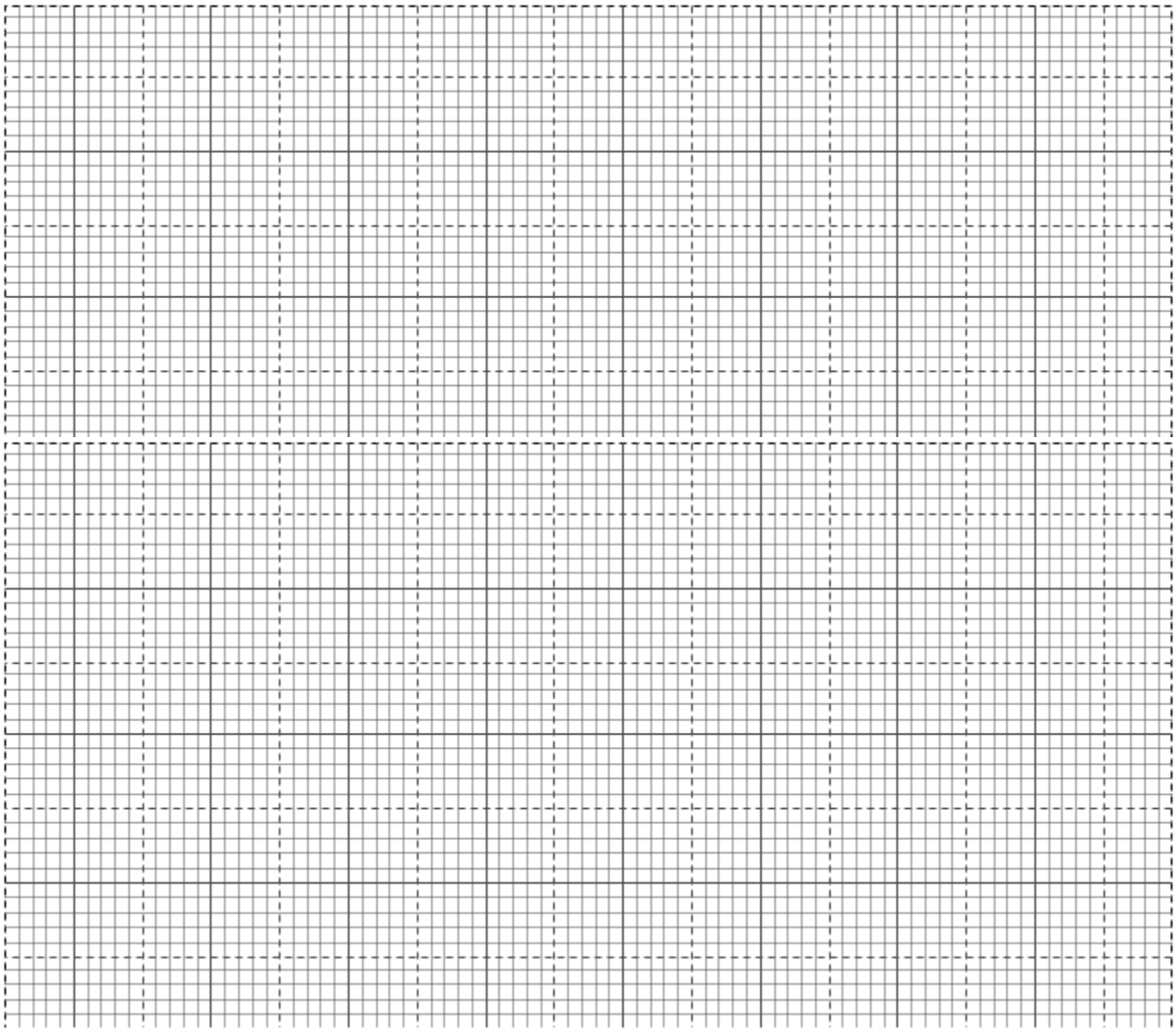
……

iv).Plot a graph of ammeter reading (y=axis) against voltmeter readings. **(5mrks)**

v). Determine the slope of the graph at V=1 volt. **(2mrks)**

vi). What physical quantity is represented by the slope of the graph at any given point? **(1mrk)**



b. (i) Given the apparatus in a (i) above, draw a diagram of the circuit you would use to determine the current through the resistant wire and the potential difference across. **(1mrk)**

ii).Set up the circuit you have drawn. Record the ammeter reading I and the wire reading V when L=100cm **(2mks)**

V=…… I=……..

iii). Using a micrometer screw gauge, measure the diameter of the wire. **(1mrk)**

d=……m

iv). Calculate the quantity:

p= $0.785 \frac{(\mathbf{V})}{\mathbf{I}} \frac{\mathbf{d^2}}{\boldsymbol{L}}$ and give its units, where L is one meter. **(2mrks)**

Question 2

You are provided with the following:-

- Vernier callipers
- Micrometer screw gauge
- Masses; 10g, 20g, 50g and 100g
- A helical spring
- Metre rule or half metre rule

Proceed as follows

(a) Determine the number of complete turns of the helical spring.

N = _____ **(1 Mark)**

(b) Measure the external diameter of the spring using the vernier callipers

D = _____ m **(1 Mark)**

(c) Use the micrometer screw gauge to determine the diameter of the wire of the spring.

d = _____ m **(1 Mark)**

(d) Determine the value of m **(2 Marks)**

N = $\frac{0.4D}{dm}$

(e) Suspend the helical spring vertically alongside the clamped half metre rule as shown in figure 1 below. Determine the length L_0, of the spring before loading it.

L_0 = _____ cm

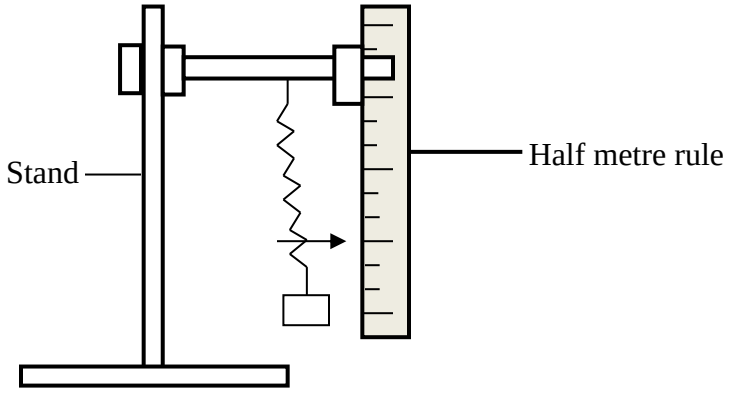


Figure 2

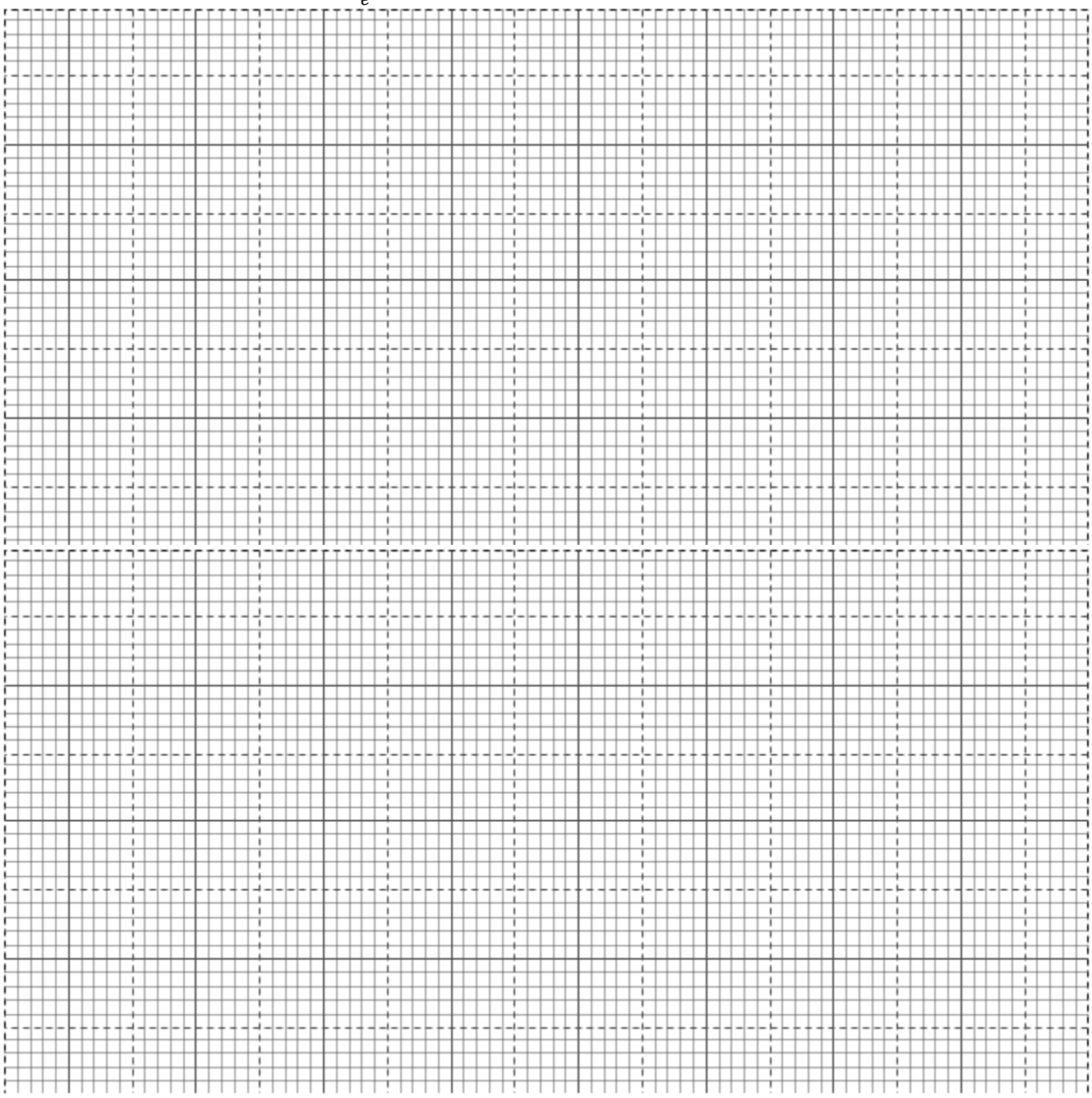
(f) Load the spring with a mass of 20g and determine the new reading on the metre rule. (L) Record this in the table below.

(g) Calculate the extension $e = L - L_0$ due to the mass of 20g and record the value in the table given below. Repeat step f for other masses and complete the table.

Mass (g)	0	10	20	30	40	50	60	70	80	90	100
Weight (N)											
Reading (L) (cm)											
Extension e (cm)											
$\frac{1}{e}$ (cm^{-1})											

(6 Marks)

(h) Plot a graph of weight (N) against $\frac{1}{e}$ (cm^{-1}) **(4 Marks)**



(i) Determine the slope (s) of the graph at a mass of 45g **(2 Marks)**

(j) Given that m = $\frac{-255T}{(S+60)^2}$

Determine the value of T where (S) is the slope at 45g **(3 Marks)**