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Geography

Paper 1

July - August 2023

2 hours 30 minutes



UGANDA MUSLIM TEACHERS' ASSOCIATION

UMTA JOINT MOCK EXAMINATIONS 2023

UGANDA CERTIFICATE OF EDUCATION

Geography

Paper 1

2 hours 30 minutes

INSTRUCTIONS TO CANDIDATES:

- This paper consists of part I and II.
- Part I and Section A of part II are compulsory.
- Answer only one question from Section B of part II.
- Answers to all questions Must be written in the answer booklet provided.
- Any additional question (s) answered will not be marked.

Turn over

PART 1:
OBJECTIVE TYPE QUESTIONS (30 MARKS)

There are 30 compulsory questions. Each question carries one mark.

Answers to this part must be written in the answer booklet provided.

1. Isobars are lines drawn on a map to join areas of the same
 - A. rainfall
 - B. humidity
 - C. Pressure
 - D. Temperature

2. The following are products of soft wood trees except
 - A. paper
 - B. soft boards
 - C. tannin
 - D. pulp

3. The position of an area in relation to the sun rays is known as
 - A. Solar radiation
 - B. aspect
 - C. altitude
 - D. latitude.

4. Combine harvesters in Kenya are mainly used in harvesting
 - A. pyrethrum
 - B. wheat
 - C. cotton
 - D. simsim

5. The following mountain ranges are part of Kigezi highlands except
 - A. Sabinio
 - B. Muhavura
 - C. Virunga
 - D. Kadam.

6. The soil formation process which involves the transfer of soluble minerals to the lower horizon is called
 - A. leaching
 - B. mineralization
 - C. eluviations
 - D. podosolization

7. Tsetse flies are responsible for the transmission of
A. bloating
B. trypanosomiasis
C. eastcost fever
D. anthrax
8. Mau scarps of Kenya were formed as a result of
A. faulting
B. volcanicity
C. down warping
D. folding
9. The Kongwa cattle ranch in Tanzania was established after the collapse of a
A. Sugarcane scheme
B. national park
C. groundnut scheme
D. sisal scheme
10. Which of the following cattle breeds is for beef production?
A. Friesian
B. boran
C. jersey
D. Zebu
11. The water body formed on the slopes of a glaciated highland is known as
A. tarn
B. hanging valley
C. erratic
D. crater
12. Intensive subsistence agriculture in East Africa is due to the following factors except
A. increase in population
B. Land scarcity
C. technological advancement
D. improved security.
13. The rejuvenation of a river may occur when
1. the river flows in arid regions
2. the river reverses its direction of flow
3. an uplift of the land over which it's flowing.
4. crossing a soft rock
A. 1 and 2
B. 2 and 3
C. 2 and 4
D. 3 and 4

Turn over

14. Which of the following coastal features is a result of wave erosion?
- A. an arch
 - B. a spit.
 - C. a tombolo.
 - D. a bay bar
15. The following rocks are resistant to chemical weathering process except
- A. schist.
 - B. granite
 - C. obsidian
 - D. coral limestone
16. The flat-topped hills of central Uganda are mainly used for
- A. quarrying.
 - B. animal grazing
 - C. bee keeping
 - D. tea growing
17. Sipi falls are located on mountain
- A. Elgon
 - B. Meru
 - C. Kenya
 - D. Kilimanjaro.
18. Kibimba irrigation scheme in Eastern Uganda is known for
- A. vegetable growing
 - B. cotton growing
 - C. rice growing
 - D. sugarcane growing
19. The range lands of East Africa have been extensively destroyed due to
- 1. Bush burning
 - 2. Over grazing
 - 3. Industrialization.
 - 4. Increased pollution.
- A. 1 and 4
 - B. 2 and 3
 - C. 1 and 2
 - D. 3 and 4
20. The following landforms are found in the senile stage of a river except
- A. flood plain.
 - B. alluvial fan
 - C. interlocking spur
 - D. delta.

21. The following are evidences of climate change in East Africa.

1. Increase in population
 2. Receding glaciers on highlands
 3. Floods and drought incidences.
 4. Decrease in water table
- A. 1,2 and 3
B. 2,3 and 4
C. 1,2 and 3
D. 1,2 and 4

22. At a weather station the following instruments are kept in the Stevenson screen except

1. Anemometer
 2. Maximum and minimum thermometer.
 3. Day and wet bulb thermometer.
 4. Wind rose
- A. 1 and 2
B. 3 and 4
C. 1 and 4
D. 2 and 3

23. Which of the following fishing villages is situated on Lake Kyoga?

- A. Lwampanga
B. Butiaba
C. Kigoma
D. Bukoba

24. Transport networks in East Africa are a reflection of

- A. climatic conditions.
B. economic productivity
C. administrative headquarters.
D. Urbanization

25. In East Africa, Coral reefs are found only along the Indian Ocean coastline because its water are;

- A. warm
B. shallow
C. saline
D. well oxygenated

26. Which of the following natural resource reserves is found in the southern highlands of Tanzania?
- A. gold
 - B. petroleum
 - C. copper
 - D. coal
27. Savana vegetation is characterized by the following except
- A. trees with long roots
 - B. deciduous trees
 - C. buttress roots
 - D. umbrella shaped trees
28. Some sisal estates in the coastal areas have been converted into
- A. dairy farms
 - B. urban centers
 - C. coffee estates
 - D. tourist resorts
29. Which of the following economic activities is a major source of employment opportunities in East Africa?
- A. agriculture
 - B. mining
 - C. transport
 - D. tourism
30. Which of the following rocks in East Africa is metamorphic?
- A. Limestone
 - B. Pumice
 - C. Marble
 - D. Granite

Turn over

PART II
SECTION A

1. COMPULSORY QUESTION: MAPWORK

(20 MARKS)

Study the EAST AFRICA 1:50,000 UGANDA: BULISA map extract part of sheet 2914 series 7732 edition 3-U.S.D and answer the questions that follow.

- (a) (i) State the grid reference of the borehole at Kibambura. (01 mark)
- (ii) Name the physical feature found at grid reference 195411. (01 mark)
- (b) Measure and state in Kilometres the distance of the all-weather loose surface road to Butiaba and Masindi from Wanseko grid reference 195412. (02 marks)
- (c) Draw a sketch map of the area north of northing 34 and on it, mark and name:
- (i) Lake Albert,
 - (ii) Victoria Nile delta,
 - (iii) river Sambiye,
 - (iv) all weather loose surface road,
 - (v) area occupied by Murchison falls national park. (05 marks)
- (d) (i) Identify any three settlement patterns in the area shown on the map extract. (03 marks)
- (ii) Describe the factors which have influenced settlement in the area on the map extract. (08 marks)

2. PHOTOGRAPH INTERPRETATION QUESTION (15 MARKS)

Answer all parts of this question

Study the photograph provided below and answer the questions that follow;



(a) Draw a landscape sketch of the area shown on the photograph and on it mark and name.

- (i) Lowland area
- (ii) Any one vegetation type
- (iii) Water channel
- (iv) Settlement (04 marks)

(b) With evidence, identify any three sources of energy that can be used in the area shown on the photograph. (03 marks)

(c) (i) Describe the physical conditions which have enabled the land use activity shown in the foreground of the photograph (04 marks)

(ii) Outline the benefits of land use activity in c(i) above to the people living in the surrounding areas. (03 marks)

Turn over

(d) Giving reason for your answer, suggest an area in East Africa where this photograph could have been taken. (01 mark)

3. COMPULSORY FIELD WORK QUESTION.

(15 Marks)

For any one field work study you have conducted either as an individual or a group on a small scale mine/Quarry,

(a) State the;

(i) topic and

(ii) objectives of the study

(03 marks)

(b) Draw a sketch map of the area you studied and on it, mark and name:

(i) land use types

(ii) relief features.

(05 marks)

(c) Explain how you used any two of the following methods to collect the information.

(i) Recording

(ii) Observation

(iii) Measurement

(04 marks)

(d) Describe the influence of the small scale mine Quarry on the environment of the surround areas.

(03 marks)

SECTION B: EAST AFRICA. (20 MARKS)

4. (a) Draw an outline sketch map of East Africa on it mark and name:

(i) Lakes: Victoria and Turkana

(ii) Rivers: Rufiji, Tana and Albert Nile

(iii) Cities: Kampala and Nairobi

(07 marks)

(b) Describe the processes responsible for the formation of either Lake Victoria or Lake Turkana. (04 marks)

(c) Explain value of lakes to East Africa (06 marks)

(d) What are the problems affecting effective use of Lakes in East Africa? (03 marks)

Turn over

5. Study the table below showing export of goods and services by value from Uganda and Tanzania and answer questions that follow.

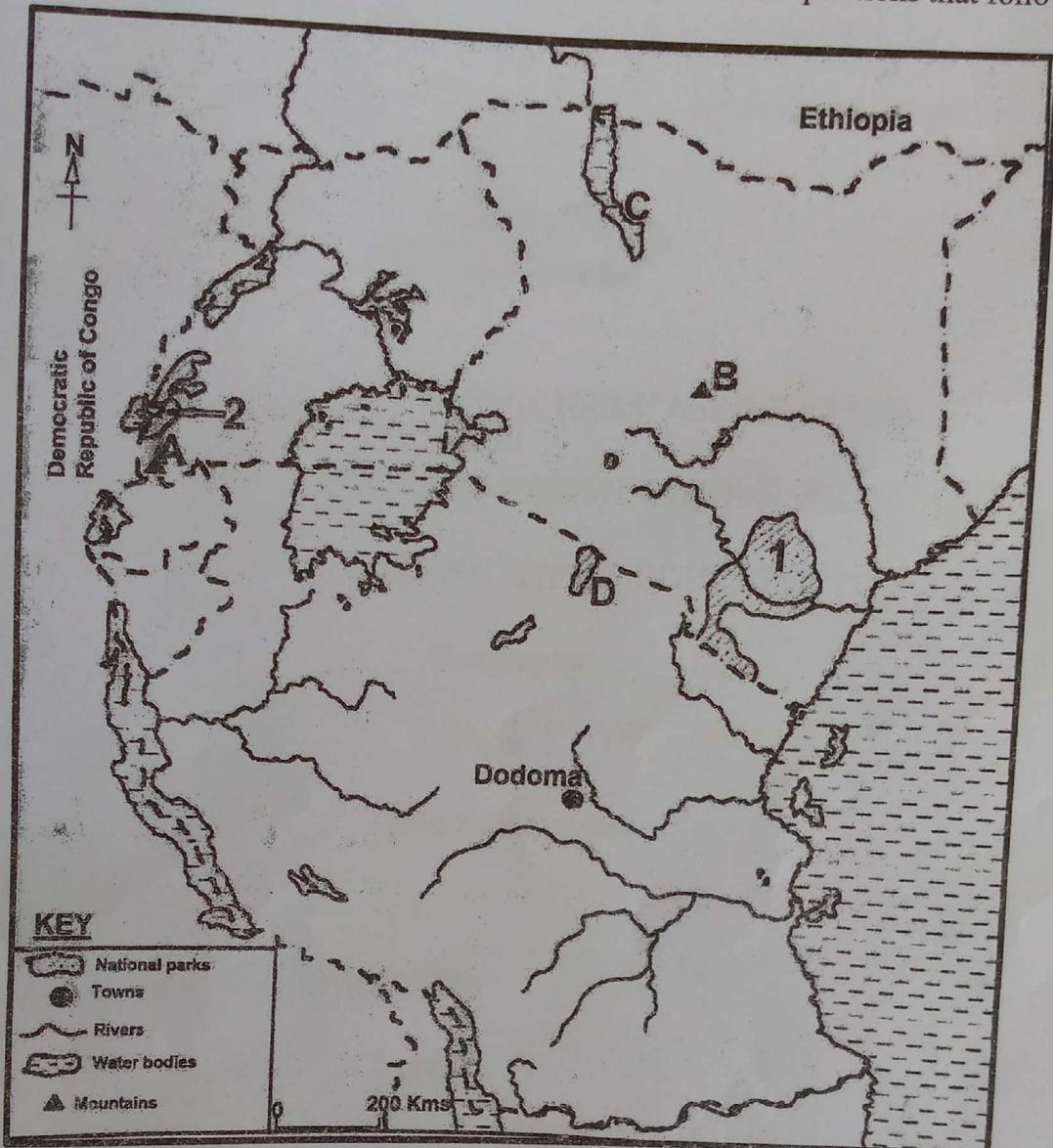
Table 1 Export value in Million US dollars for Uganda and Tanzania (2006-2010)

| Country: | 2006 | 2007 | 2008 | 2009 | 2010 |
|------------------|------|------|------|------|------|
| Uganda: | 1524 | 1993 | 3506 | 3753 | 4087 |
| Tanzania: | 3233 | 4079 | 5208 | 4963 | 5975 |

Source: African Development Indicators 2012/13

- (a) Draw a line graph to show the value of export for Uganda and Tanzania between 2006 and 2010. (06 marks)
- (b) Describe the trend of export between 2006 and 2010 for;
- (i) Uganda (02 mark)
 - (ii) Tanzania (02 marks)
- (c) Explain the factors which have influenced export trade in any one country given in the table. (06 marks)
- (d) Describe the contribution of international trade to the development of East Africa. (06 marks)
6. (a) Describe how the following methods of fishing are used.
- (i) Gill netting (03 marks)
 - (ii) Purse seining (03 marks)
- (b) Describe conditions favouring the development of Marine fishing in East Africa. (04 marks)
- (c) Explain the contribution of the fishing sector to the development of East Africa. (06marks)
- (d) Outline the problem facing the fishing sector in East Africa. (04 marks)

7. Study the map of East Africa provided below and answer the questions that follow



(a) Name the:

- (i) mountains marked A and B.
- (ii) lakes marked C and D.
- (iii) national parks marked 1 and 2.

(06 marks)

(b) Mention any two:

- (i) tourist attractions found in East Africa. (02 marks)
- (ii) countries where tourists come from. (02 marks)
- (c) Explain the benefits of the tourist industry to the people of East Africa. (06 marks)
- (d) Outline the problems faced by the tourist industry in East Africa. (04 marks)

END

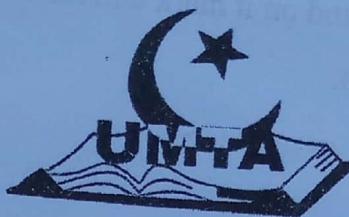
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GEOGRAPHY

Paper 2

July - August 2023

2 hours 30 minutes



UGANDA MUSLIM TEACHERS' ASSOCIATION

UMTA JOINT MOCK EXAMINATIONS 2023

UGANDA CERTIFICATE OF EDUCATION

GEOGRAPHY

Paper 2

2 hours 30 minutes

INSTRUCTIONS TO CANDIDATES

- *Answer four questions in all.*
- *Choose two questions from part I and two from part II.*
- *In part II, choose one question from any one region.*
- *Any additional question(s) attempted will NOT be marked.*

PART 1: THE REST OF AFRICA

Answer two questions from this part.

1. Draw a sketch map of Africa and on it mark and name:
 - a) (i) rivers; Zambezi, and Congo.
 - (ii) lakes; Volta and Nasser,
 - (iii) Dams; Inga and Kariba.

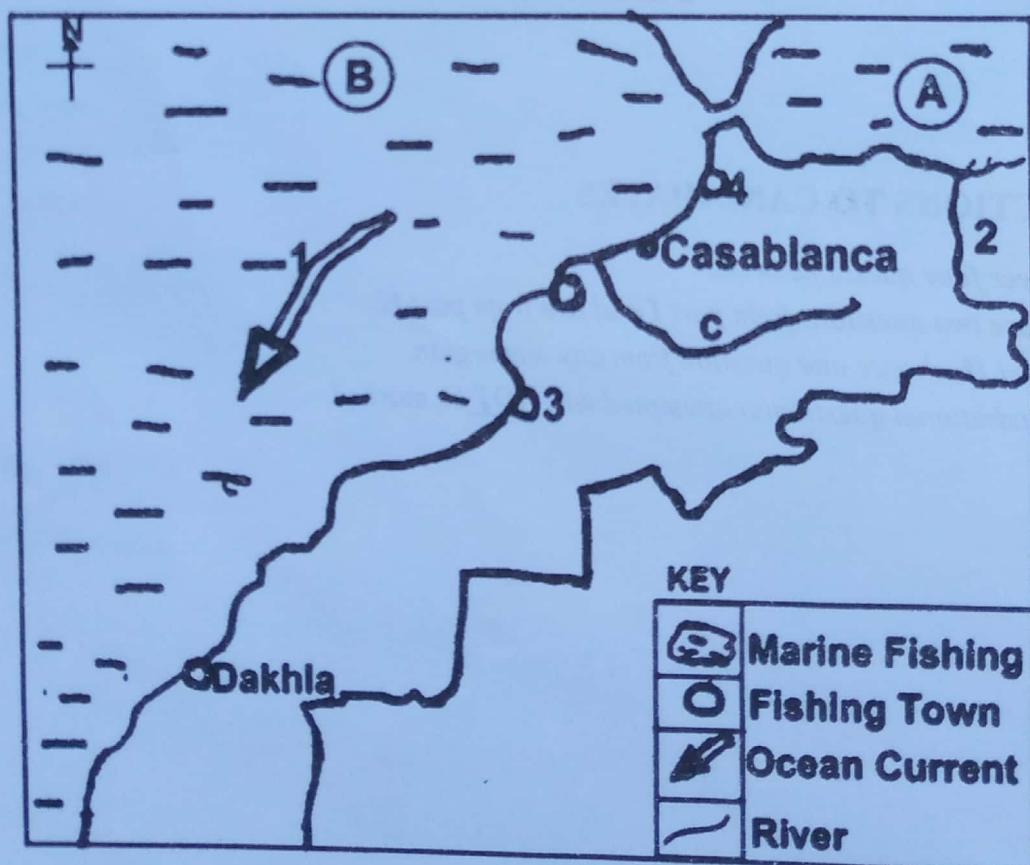
(7 marks)

 - b) Describe the physical conditions which favoured the establishment of the Volta River project.

(8 marks)
 - c) Explain the benefits of the Volta river project to the people living in the area. (6 marks)
 - d) Outline the effects of the establishment of the Volta river project on the environment.

(4marks)
2. Study figure 1, map of Moroccan fishing ground and use it to answer the questions that follow;

FIG 1



- a) Name the:
- waterbodies marked A and B,
 - ocean current marked 1,
 - country marked 2,
 - fishing Towns marked 3 and 4,
 - river marked C.
- (7 marks)
- (b) Describe the factors which have favoured marine fishing in Morocco. (8 marks)
- (c) Explain the problems faced by the fishing industry in Morocco. (6 marks)
- (d) Outline the steps that are being taken to improve the fishing sector in Morocco. (4 marks)

3. Study table 1 below showing crop production from Republic of South Africa (2010-2015) and answer the questions that follow.

Table 1

| Year | '000 metric tonnes | | '000 Metric tonnes | |
|------|--------------------|-----------|--------------------|-----------|
| | Vines | Sugarcane | Vines | Sugarcane |
| 2010 | 15,600 | | 33,680 | |
| 2011 | 15,680 | | 38,650 | |
| 2012 | 15,770 | | 43,030 | |
| 2013 | 16,130 | | 46,330 | |
| 2014 | 16,100 | | 47,790 | |
| 2015 | 16,000 | | 49,730 | |

Adapted: 2018 world development indicator. The World Bank, Washington D.C.Pp

- a) Draw a bar graph to show the trend of **sugarcane** production in Republic of South Africa from the table given above. (8 marks)
- b) Calculate the percentage change in;
- vines and (2 marks)
 - sugarcane, production shown in the table between 2013 and 2015. (2 marks)
- c) Describe the factors which have favoured sugarcane growing in the Republic of South Africa. (8 marks)
- d) Outline:
- any two uses of sugarcane in the Republic of South Africa. (2 marks)
 - the measures taken to improve sugarcane production in south Africa. (3 marks)

4. (a) Draw a sketch map showing part of Nigeria and on it, mark and name the;
- towns; Lagos, Abuja and Port Harcourt,
 - river Niger delta,
 - Atlantic Ocean,
 - Areas where petroleum and Tin are obtained.
- (b) Explain the factors that have promoted oil and petroleum mining in Nigeria. (8 marks)
- (c) Outline the economic contribution of oil and petroleum mining in Nigeria. (6 marks)
- (d) State any three uses of oil and petroleum. (3 marks)

PART II: STUDIES IN DEVELOPMENT

Answer two questions from this part.

REGION I: NORTH AMERICA

5. Study table II below showing the climate of Calgary on the Canadian Prairies and answer the questions that follow:

Table II. Calgary; Canada-Altitude 441m.

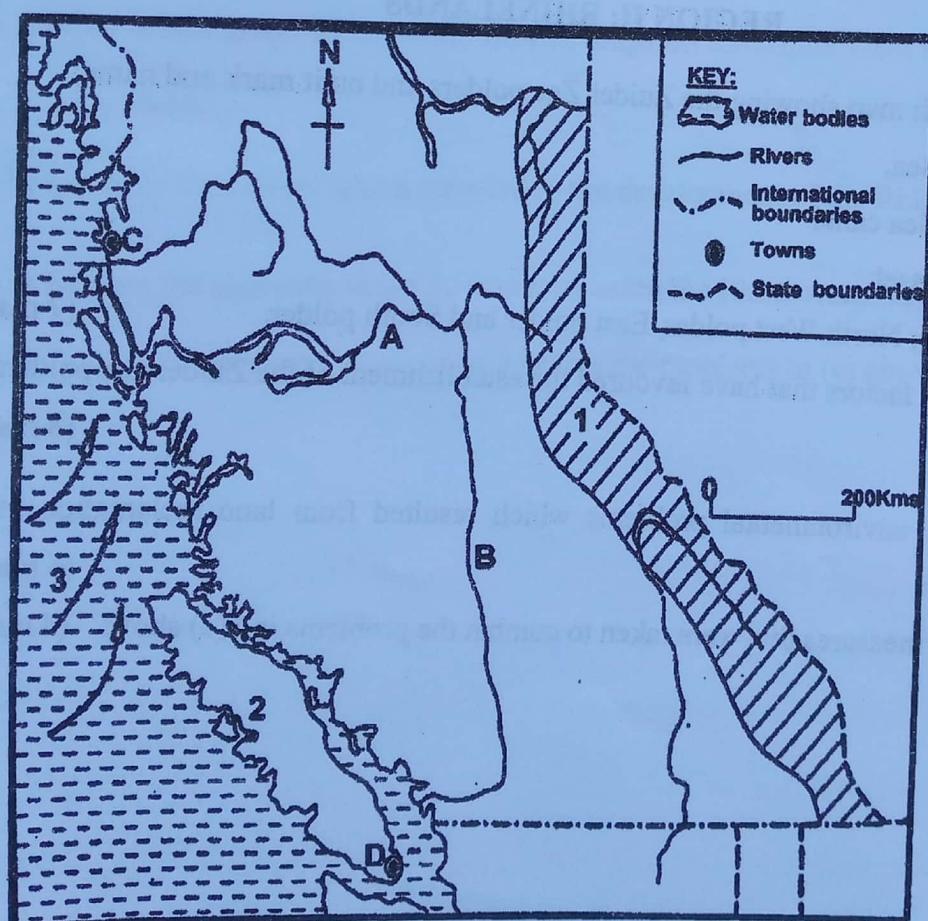
| Month | J | F | M | A | M | J | J | A | S | O | N | D |
|----------|-----|-----|----|----|----|----|----|----|----|----|----|-----|
| Temp(°C) | -20 | -17 | -9 | 2 | 11 | 16 | 19 | 18 | 11 | 5 | -6 | -14 |
| RF(mm) | 23 | 23 | 28 | 34 | 56 | 79 | 77 | 64 | 56 | 39 | 26 | 23 |

Adapted from young, E.W and Lorry, J.H (1984), A Course in World Geography -North America, P.31.

- Draw a suitable graph to show the climate of Calgary. (9 marks)
- (i) Using the table, identify the:
 - Winter season, (1 mark)
 - Wet Season, (1 mark)
 at Calgary, on the Canadian Prairies.
- (ii) Calculate the:
 - annual temperature range, (1 mark)
 - mean annual rainfall, (2 marks)
 for Calgary station.

- c) Explain the climate related problems faced by farmers on the Canadian Prairies. (8 marks)
- d) How have the problems explained in (c) above been solved? (3 marks)
6. a) Draw the sketch map of California and on it mark and name:
 (i) the rivers; Sacramento and Colorado
 (ii) tourism centers; Los Angeles and San Francisco
 (iii) Mountains; Coastal ranges and Sierra Nevada. (7 marks)
- a) Giving specific examples, describe the factors which have led to the development of the tourism industry in California. (8 marks)
- b) Explain the importance of the tourism industry in the development of California. (6 marks)
- c) Suggest measures that should be taken to promote the tourism industry in California. (3 marks)
7. Study Fig.2, map of British Columbia provided below and answer the questions that follow.

FIG 2



- a) Name:
- (i) rivers marked **A** and **B**,
 - (ii) towns marked **C** and **D**,
 - (iii) mountains marked **1**,
 - (iv) island marked **2**,
 - (v) ocean current marked **3**.
- (7 marks)
- b) (i) State any two minerals obtained from British Columbia other than phosphate. (2 marks)
- (ii) Describe the conditions which have favoured the exploitation of minerals in British Columbia. (8 marks)
- c) Explain the effects of the mining activities on the physical environment in British Columbia. (6 marks)
- (d) Outline the measures being taken to solve the negative effects in (c) above. (2 marks)

REGION II: RHINELANDS

8. (a) Draw a sketch map showing the Zuider Zee polders and on it mark and name;
- (i) North Sea,
 - (ii) North Sea canal
 - (iii) Lake Yssel
 - (iv) Polders; North West polder, East polder and South polder.
- (7 marks)
- (b) Describe the factors that have favoured the establishment of the Zuider Zee polders. (8 marks)
- (c) Explain the environmental problems which resulted from land reclamation in the Netherlands. (6 marks)
- (d) Outline the measures that were taken to combat the problems in 8(c) above. (4 marks)

9. Study Table II below showing the movement of ships on the Rhine water way between Basel and Rotterdam (2013-2018) and answer the questions that follow.

Table II

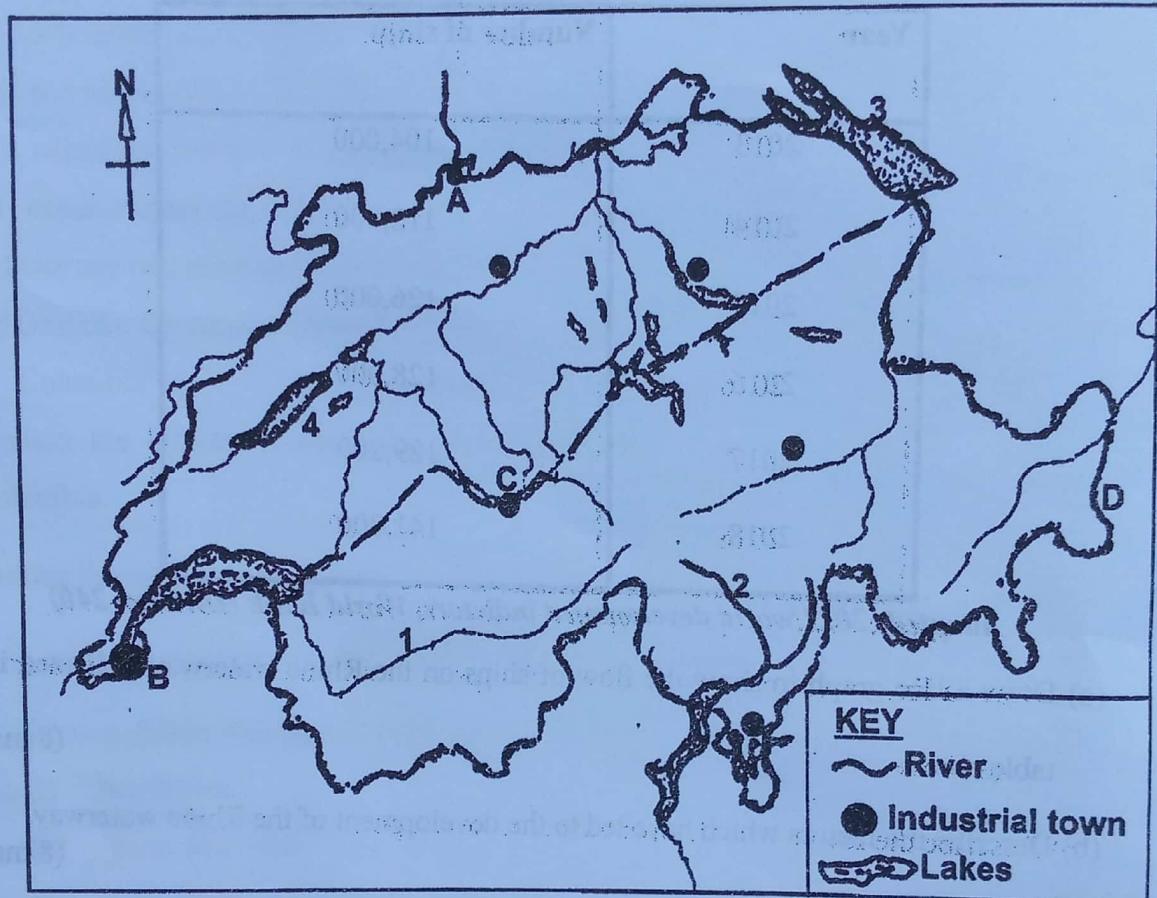
| Year | Number of ships |
|------|-----------------|
| 2013 | 104,000 |
| 2014 | 112,000 |
| 2015 | 126,000 |
| 2016 | 128,000 |
| 2017 | 129,200 |
| 2018 | 141,000 |

Adapted; 2021 world development indicators, World Bank (Division 240)

- (a) Draw a line graph to show the flow of ships on the Rhine waterway indicated in the table above. (8 marks)
- (b) Describe the factors which have led to the development of the Rhine waterway. (8 marks)
- (c) Explain the problems faced by countries using the Rhine waterway. (6 marks)
- (d) Outline the measures being taken to solve the problems in (c) above. (3 marks)

10. Study **Figure 3** below showing the map of Switzerland and answer questions that follow.

Figure 3



(a) Name the;

- (i) Industrial towns marked A, B and C,
- (ii) rivers marked 1 and 2
- (iii) lakes marked 3 and 4
- (iv) Country marked D.

(8 marks)

(b) Describe the factors that led to development of Basel as an Urban centre.

(8 marks)

(c) Outline the functions of Basel as an Urban centre.

(3 marks)

(d) Explain the problems facing Basel as an Urban centre

(6 marks)

REGION III: CHINA

11. (a) Draw a sketch map of China and on it mark and name;
- (i) rivers; Hwang He and Yangtze,
 - (ii) the Himalayas Mountain ranges
 - (iii) one densely populated region
 - (iv) one sparsely populated region
 - (v) East China Sea
 - (vi) Beijing town
- (8 marks)
- (b) Describe the factors responsible for a high population concentration in the region shown in (a) (iii) above
- (8 marks)
- (c) Explain the problems faced by a large population density in China.
- (6 marks)
- (d) Outline the measures being taken to address the problems identified in (c) above
- (3 marks)

12. Study Table III below showing Bauxite production in selected areas of China in 2014
And answer the questions that follow;

Table III

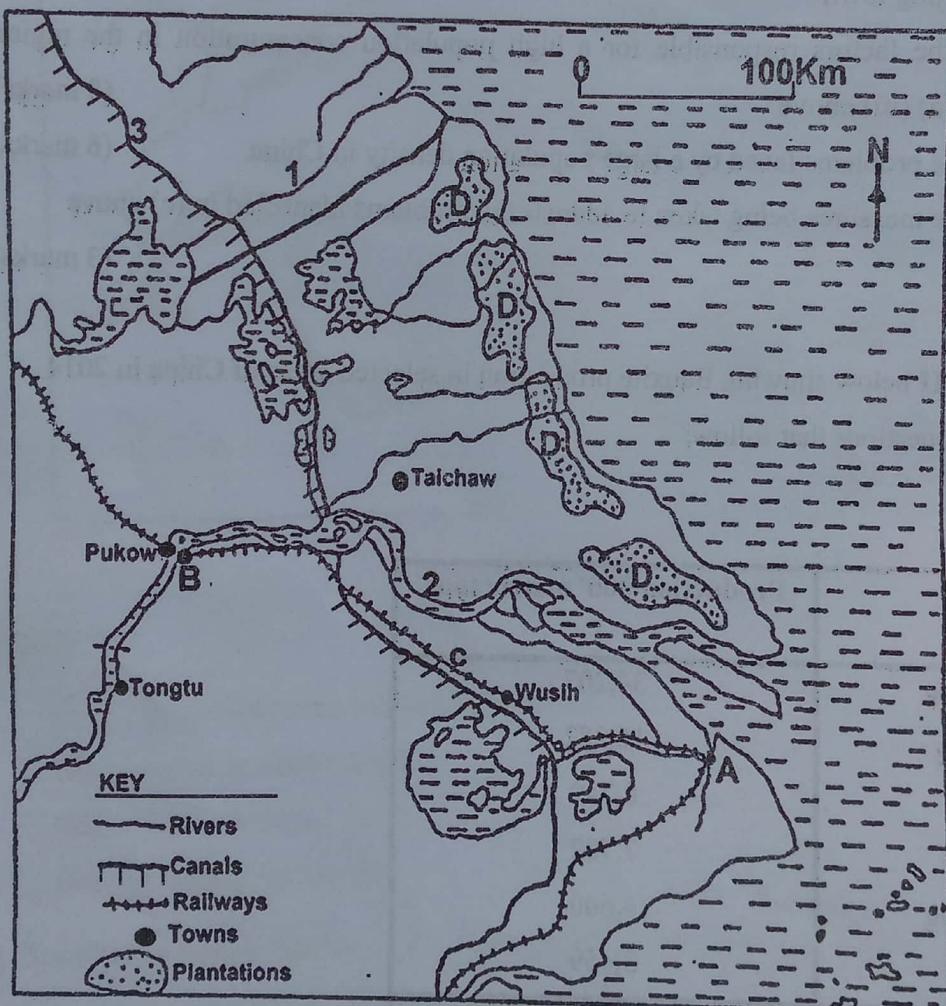
| Area | Production 000' metric tons |
|--------------|-----------------------------|
| Shandong | 34,207 |
| Dantong | 16,282 |
| Shanxi | 8,750 |
| Fushun | 7,702 |
| Shenyang | 4,600 |
| Henan | 3,459 |
| Total | 75,000 |

Adapted: World resources: A guide to the global environment-Environmental change and human health 2016, Pp.

- (a) Draw a pie-chart to show Bauxite production in China. (8 marks)
- (b) Describe the conditions that have favoured Bauxite mining sector in China. (8 marks)
- (c) Outline the effects of mining of minerals on the physical environment in China. (5 marks)
- (d) State;
- any other two minerals exploited in China. (2 marks)
 - relative importance of Bauxite production in Shanxi area (2 marks)

13. Study Figure 4: Map of the Yangtse delta region and answer the questions which follow.

Fig 4



- (a) Name the;
- (i) rivers marked 1 and 2.
 - (ii) canal marked 3.
 - (iii) town marked A and B
 - (iv) railway line marked C.
- (v) plantation crop grown in areas marked D. (7 marks)
- (b) Describe the factors which have favoured agriculture in the Yangtse delta region. (8 marks)
- (c) Explain the contribution of agriculture to the development of the Yangtse delta region. (6 marks)
- (d) Outline the problems faced by farmers in the Yangtse delta region. (4 marks)

END

112/1

English Language

Composition

Paper 1

July – August 2023

2 Hours

KISAKYE SHADRACK



UGANDA MUSLIM TEACHERS' ASSOCIATION

UMTA JOINT MOCK EXAMINATIONS 2023

UGANDA CERTIFICATE OF EDUCATION

ENGLISH LANGUAGE

COMPOSITION

Paper 1

2 Hours

INSTRUCTIONS TO CANDIDATES

- This paper has two sections: A and B.
- Answer two questions in all.
- Answer two questions in all. Answer question one (1) in section A (compulsory) and one other question in section B.

Section A: You are advised to spend about 10 minutes prepare 30 minutes writing and about 5 minutes checking and correcting your work.

Section B: You are advised to select only one question from this section and spend 10 minutes preparing, 1 hour writing and 5 minutes checking and correcting your work.

NB

- If you answer two questions from section B, one will not be marked.
- You should endeavour to be original and relevant.

Turn over

SECTION A

This question is compulsory. (Use 250-300 words) (20 marks)

1. Write an article for a school magazine describing a Sports Day in your School.

SECTION B

Choose one of the following and write a composition of 500 to 600 words. (20 marks)

2. Write a story beginning: "When I saw everybody running to the dormitory, I knew something was wrong....."
3. Write a story entitled: A Strange Encounter.
4. Discuss the importance of co-curricular activities in schools.
5. What qualities would you insist on if you were to elect a District Youth Chairperson and why?
6. Write a story ending...it was only then that I realised how important it is to have a well – trained counsellor in school.
7. What changes have taken place in the way young people dress today?

END

112/2
English Language
Paper 2
July - August 2023
2 Hours



UGANDA MUSLIM TEACHERS' ASSOCIATION
UMTA JOINT MOCK EXAMINATIONS 2023

Name.....

Index No. Signature

UGANDA CERTIFICATE OF EDUCATION
ENGLISH LANGUAGE
PAPER 2

INSTRUCTIONS TO CANDIDATES

- All questions are compulsory and are to be filled in the spaces provided.
- Be neat.

| Qn1. | 2A | 3B | 3A | 3B |
|------|----|----|----|----|
| | | | | |

Turn over

1. Read the following passage and answer the question that follows:

The growing importance of providing Early Childhood Development (ECD) education to pre-school children from global, national and community perspectives continues to attract attention. Recently, the education ministry called for a framework that would see nursery schools teaching in local languages. Educationally, ECD is of a remarkable brain development that lays the foundation for the later learning. Economically, it is more cost effective to institute preventive measures and support for children early on to compensate for disadvantages as they grow older.

It is therefore, gratifying to see that government is taking positive steps towards ensuring that pre-school children in Uganda get access to ECD services. One of the most important issues that are yet to be addressed is the language of instruction. The existing ECD provision by private sector prefers English as the medium of instruction, which is in conflict with the local language policy as the medium in the thematic curriculum for early primary classes; one to three. Apart from disjuncture between the current ECD provision and the local language policy in early primary, there are a number of reasons why local languages need to be incorporated in the UNESCO'S 2016 policy paper number 24, published recently and titled "If you don't understand, how can you learn?"

It is strongly argued that using the local language as a medium of instruction has a positive impact on learning. Children taught in their local languages speak with more confidence to their teachers or among themselves. This increases interaction and learning becomes more enjoyable to learners especially those in pre-primary. Since learning is more enjoyable and fuller of fun, children will not look at school as an alien place which they should escape from at any given opportunity.

The use of learners' home language in the classroom means that they get more involved in the learning process and speed up the development of literacy skills. It also enables more flexibility, innovation and creativity in teaching preparation. Using the learners' local language is also more likely to get the support of the general community in the teaching-learning process and creates an emotional stability, which translates to cognitive stability, hence better education outcome.

Teaching ECD in local language requires developing instructional materials and learning aids in children's local languages, but this is hindered by lack of resources for training of prospective teachers to carry out proper implementation of this program.

In addition to the above, there is a scarcity of learning materials in local languages chiefly because there is no effective demand for them or simply put, no users. Unless local languages are given market value through educational provisions in ECD and early primary, no amount of policy change at school level can guarantee their use in high status functions.

Finally, children taught in languages other than their own tend to disassociate themselves from their languages. These days as a result of learning in English, few children in primary or secondary school can tell folk stories in their languages or sing any traditional song. This amounts to a journey of cultural death.

- Therefore, government efforts in ECD provision need to be supported by providing practical ways of implementing this, particularly in marginalised communities.

(Adapted from: *The Observer*, Monday March 14, 2016)

QUESTION:

In not more than 130 words, summarise the importance and challenges of teaching children in their local language.

Rough Copy

Turn over

Fair Copy

2A. Read the passage below and answer the questions that follow:

Kairu stood at the door of the house, a long baton in his hand. The baggy uniform, apparently too heavy for the hot weather, made him look shorter than he actually was. The boots wore the man, not the other way round. They looked a burden in every sense. However, of everything he wore, it was the helmet which looked most comical. It was one size bigger than the head. It hung on the head loosely, almost covering his eyes.

As he stood in the blazing sun, peering at the world from under the rim of the helmet, one got the impression that he was a comedian playing the part of a bored guard.

Kairu was not dabbling in comedy; guarding Jamara's clothing store was his work. He came to this door every morning and left when it closed in the evening. It was all very boring, standing there all day long, watching customers as they came and left, often his legs felt weak. At such times he felt like throwing his baton and sleeping right there on the floor.

He stayed on the farm for a few months after the examination result. Those were months of inner confusion, pain and discouragement.

He had survived the rolling ridges and noted their beauty, but he did not belong there. These same ridges had sapped his father of every bit of energy, leaving him frail and shaking.

Kairu did not want to suffer the same fate. His father's words had haunted him for a long time. May be new horizons would afford a better life for him. He had set off for Nairobi, his mind heavy with thoughts.

After walking many miles on the hot tarmac, he had been accepted for training by Paka guards. The training had been hard and Kairu always shuddered whenever he thought of it. The recruits had been beaten, starved and abused. Sometimes they had been required to spend whole nights without sleep. In their mock fights against robbers, the trainers had injured some of them. All these however were nothing compared to Kivumbi Hill. This small hill, standing on the training grounds, had been covered with murram. Sometimes, the recruits would be forced to run up and down its slopes at midday. The murram would be extremely hot and the sides of their feet would be left swollen. The worst punishment was to climb the hill on one's knees at midday. It was torture beyond words.

Kairu had stood it all with the courage that comes from living in a world where so many things are threatening to break one's spirit. He knew all along that if he lost the opportunity, there were many people waiting at the gate to replace him. He would not be missed.

Now it was all over, but Kairu would not shake off the terror of those two months spent in the training camp. It had left him weak and scared. He had always loved arguments. In the camp he had learnt how to obey. It was here, too, that he realised how needs can force one to put up with what one does not like. Whenever he stood on murram, he remembered Kivumbi hill.

Kairu could not help reflecting on his life. He had imagined that with a better education and salary, he could improve on the living standard of his family, but he had not even saved for himself. Here, he stood, in the hot sun of Ngorongo town **summoning every effort** to keep him on his feet. He knew what he actually was. He did not like his job. The pay was low and there was job insecurity. One could be confronted by robbers any moment. He often wondered what he would do if such a moment ever came. He was certain he would not run away.

(Adapted from: The Siege by Munira Waweri)

QUESTIONS:

- 2.1 Why did Kairu reject the ridges? (02 marks)

.....
.....
.....

- 2.2 Give at least two reasons that made Kairu shudder at the thought of his training at Paka guards. (02marks)

.....
.....
.....

Turn over

2.3. If the training was such a punishment, why wouldn't Kairu leave? (02 marks)

.....
.....
.....

2.4. Did Kairu like his job? Give reasons for your answer. (02 marks)

.....
.....
.....

2.5. Explain the meaning of the following words and expressions as used in the passage.

(02 marks)

a) Dabbling

.....
.....

b) Sapped

.....
.....

c) Fate

.....
.....

d) Summoning every effort

.....
.....

2B. Read the following passage carefully and answer the questions that follow:

All plants have characteristic shapes, which have been determined throughout the course of evolution to best fit them for survival in the particular environmental niche, which they occupy. There are many environmental factors which contribute towards the shape that a plant takes e.g. desert cacti have evolved their peculiar and characteristic shapes in response to the need to conserve water and yet to be able to photosynthesize. Thus, their leaves have been reduced in the course of time to no more than needles or spines, while the main body of the plant, where all the photosynthesis now takes place, has become swollen for purposes of water shortage.

In a mixed deciduous forest, the pressure of space considerably modifies the shapes of the trees. Close packed trees tend to be tall with few lateral branches in the effort to obtain as much of the sunlight as is available by outgrowing all their neighbors, whereas well-spaced out trees assume a more symmetrical and well proportional shaped being able to spread their lateral branches out to a greater extent.

The problem of obtaining sufficient light for photosynthesis is a very important factor in determining plant shape and leaf arrangements play important roles in determining the photosynthetic efficiency. For example, the mode of growth of a cereal crop enables a good photosynthetic efficiency to be obtained. In cereals, the leaves grow from the base of the plant assuming a nearly vertical angle of growth. In this way all of the leaves receive some light and are able to make a direct contribution to photosynthetic efficiency, although the effective light intensity is reduced because the leaves are not orientated at right angles to the sunlight.

Many plants, which have horizontally placed leaves, have evolved a shape, which places the leaves in a spiral pattern. This gives the maximum chance of intercepting light with a minimum of shaping. In addition, other plants are able to either move their stems or their leaves so that a maximum leaf area is presented to the incident light.

Light is not the only environmental factor which influences shape. Temperature, wind, soil conditions, salt spray and even grazing animals all play their part. For example, an oak tree growing in a sheltered forest appears very different from the stunted and tortured structures which are assumed on windswept and colder moorland areas, and many trees

Turn over

growing in coastal areas are bent and forced to grow in a direction away from the prevailing winds.

However, whatever variety of external shape and form is forced upon a growing plant by the environmental conditions it experiences, it is always recognizable as a particular species because the fundamental aspects of its structure are still determined by its inherited genes in a way not properly understood and which forms one of the great mysteries of plant science today.

(Adapted from: *The illustrated encyclopedia of the plant kingdom*)

Choose the best alternatives given by putting a ring round it.

2.6. The leaves of desert cacti have been reduced to no more than needles or spines because

- A. their shapes have been determined throughout the course of evolution.
- B. of the need to conserve water and be able to photosynthesize.
- C. the main body of the plant is swollen.
- D. of environmental factors.

2.7. What modifies the shape of trees in a deciduous forest?

- A. pressure for space.
- B. closely packed trees.
- C. trees outgrow all their neighbors.
- D. the need for the trees to spread their lateral branches.

2.8. Photosynthetic efficiency is determined by

- A. plant shape.
- B. leaf arrangements.
- C. sufficiency of light.
- D. sufficiency of light and leaf arrangement.

2.9. Shapes of plants are determined by

- A. light
- B. temperature
- C. a combination of a number of factors.
- D. environmental conditions.

- 2.10. One of the mysteries of plant science today is that
- A. the external shape and form of the plant is forced by environmental conditions.
 - B. despite the many factors attributed to plant shapes and form, the fundamental aspects of a given plant is determined by its intended genes in a way that is not properly understood.
 - C. different plants have different shapes.
 - D. many trees growing along coastal areas are bent and grow in a direction away from the prevailing winds.

3A. **Re-write items 3.1-3.10 as instructed in brackets. Do not change the meaning of the original sentence.**

3.1 The policeman was carrying an umbrella. We thought one of the prisoners would try to escape. (Rewrite as on sentence usingin case.....)

.....
.....

3.2 Mumpe worked hard but he failed to make it to the next class. (Begin: For all.....)

.....
.....

3.3 Neither Jean nor Joan made it to the next round. (Rewrite to end.....either)

.....
.....

3.4 Has the Lawyer been in touch with you about the murder?

.....
.....

3.5 If you had not assisted me, I would have failed the interview. (Begin: But for.....)

.....
.....

Turn over

3.6 "Since it is not possible to meet the Headmaster today, we should postpone our meeting to tomorrow." said the teacher.

.....

3.7 We are eager to learn how to play computer games. (Use: looking forward)

.....

3.8 When I came to this school, I wanted to become the head boy. (Use: with a view)

.....

3.9 We completed the work the teacher had given us. The books were handed in.
(Begin: Having.....)

.....

3.10 The door of the shop opened and at once a crowd of eager buyers burst in. (Begin:
Scarcely.....)

.....

3B. Complete sentences 3.11 to 3.20 with the most suitable answer among the alternatives. Put a ring around your best choice.

3.11 All the students who were ignorant of the meaning of "Fools Day" called Paul a.....

- A. layer B. liar C. lier D. lair

3.12 They do speak French, and.....their sister.

- A. even does B. neither do C. so does D. so do

3.13 Stella was charged.....careless driving.
A. of B. for C. with D. against

- 3.14 Jacinta had no sooner entered the bank..... the closing hour struck.
- A. when B. and C. then D. than
- 3.15 Before I started teaching, I to a big house.
- A. have moved B. was moving C. would be moving D. had moved
- 3.16 how hard I worked, I never seem to get any praise.
- A. No matter B. Regardless C. Not counting D. However
- 3.17 "I am begging you kindly to take this bag to my home." said Aunt Stella. This may mean;
- A. She advised me to take the bag to her home.
B. She wondered if I would take the bag to her home.
C. She requested me to take the bag to her home.
D. She ordered me to take the bag to her home.
- 3.18 Of the two girls Sheila and Shanita the.....is my best friend.
- A. latter B. second C. last D. later
- 3.19 The party has been due to insufficient funds.
- A. crossed off B. called off C. turned out D. called for
- 3.20 Mr. Mukasa ordered the students to.....for the headmaster's communication.
- A. go to the assemble
B. go to the assembly
C. parade
D. go in for parading

END

456/1
Mathematics
Paper 1
July - August, 2023
2 ½ hours



UGANDA MUSLIM TEACHERS' ASSOCIATION

UMTA JOINT MOCK EXAMINATIONS 2023

UGANDA CERTIFICATE OF EDUCATION

Mathematics

Paper 1

2 hours 30 minutes

Instructions to candidates:

- Answer all questions in section A and not more than FIVE questions from section B.
- All questions in section B carry equal marks.
- All necessary calculations must be done on the same answer sheets provided.
- Graph papers will be provided.
- Scientific, non-programmable calculators and mathematical tables may be used.

Turn over

SECTION A (40 MARKS)

Attempt all questions in this section

1. Solve the inequality. (04 marks)

$$\frac{x+1}{2} - \frac{x-3}{4} > \frac{x+2}{3}$$

2. A transformation $M = \begin{pmatrix} -4 & b \\ a & 2 \end{pmatrix}$ maps point P (1, 3) on to point R (5, 8). Find the value of a and b. (04 marks)

3. The mean of three numbers is 18. The largest number is four times the smallest number. The difference between the largest and the smallest number is 21. Find the middle number.

(04 marks)

4. Given that $R = \begin{pmatrix} 2 & x \\ 4 & 1 \end{pmatrix}$ and $T = \begin{pmatrix} 0 & 2 \\ 3 & 5 \end{pmatrix}$, and that RT is singular, find the value of x. (04 marks)

5. A sector whose area is 13.2cm^2 subtends an angle of 70° at the centre of the circle. Using $\pi = \frac{22}{7}$, find the radius of the circle, correct to one decimal place. (04 marks)

6. Make r the subject of the formula.

$$y = \sqrt{\frac{2r-1}{r+4}} \quad (04 \text{ marks})$$

7. By matrix methods, solve the equations:

$$\begin{aligned} 2x + 3y - 7 &= 0 \\ 2y - 3 + x &= 0 \end{aligned} \quad (04 \text{ marks})$$

8. The probability that Juma will pass a test is 0.4 and the probability that Tom will pass the same test is 0.2. Find the probability that both Juma and Tom will fail the test. (04 marks)

9. Given that $p*q = \frac{p^2 + q^2 - 2pq}{p-q}$. Find the value of $8*(4*3)$. (04 marks)

10. The perimeter of a rectangle is 38cm. The length is 4cm more than twice the width of the rectangle.

Find the

- i. Width
- ii. Length

(04 marks)

SECTION B (60MARKS)

Answer any five questions from this section.

11. The table below shows the marks obtained by 50 students in a test.

| Marks | Number of students |
|---------|--------------------|
| 10 – 14 | 2 |
| 15 – 19 | 9 |
| 20 – 24 | 6 |
| 25 – 29 | 12 |
| 30 – 34 | 10 |
| 35 – 39 | 8 |
| 40 – 44 | 3 |

(a) Draw the cumulative frequency curve and use it to estimate the median mark. (06 marks)

(b) Calculate the mean mark using 27 as the working mean. (06 marks)

12. Triangle PQR with vertices P(2,1), Q(5,6) and R(3,7) is reflected in the line X=0 to form triangle $P^1Q^1R^1$ which is rotated through a positive quarter turn centre (0,0) forming triangle $P^{II}Q^{II}R^{II}$.

(a) Write down the matrix for

- i. reflection
- ii. rotation.

(04 marks)

(b) Find the coordinates of the vertices of triangle.

(i) $P^I Q^I R^I$

(ii) $P^{II} Q^{II} R^{II}$ (06 marks)

(c) Find a single matrix of transformation that would map PQR on to $P^{II} Q^{II} R^{II}$. (02 marks)

13. (a). Mary bought 2 pencils and 5 pens for shs.3900 from a shop. Sarah bought 3 pencils

and 6 pens for shs.4800 from the same shop. Find the cost of a pen and a pencil.

(06 marks)

(b). A poultry farm has three units X , Y and Z . Unit X produces 30 trays of eggs and 25

broilers every month. Unit Y produces 40 trays of eggs and 20 broilers and unit Z

produces 35 trays of eggs and 15 broilers during the same period. If a tray of eggs

costs shs.14000 and a broiler costs shs.15, 000.

$$\begin{array}{r} \\ 3900 \\ + 4800 \\ \hline 8700 \end{array}$$

Write down a

(i) 2×3 matrix for the products

(ii) cost matrix of order 2×1 .

(iii) by matrix multiplication, find the sales of the farm if all the eggs and broilers were sold.

(06marks)

14.

(a) Solve the equation

$$\frac{2}{3x+4} + \frac{3}{2x-1} = 1 \quad (06 \text{ marks})$$

(b) Find the coordinates of the points of intersection of the line $y=5x=2$ and the curve

(06 marks)

$$y=2x^2 + 5.$$

Turn over

15. On a farm, there are three posts **A**, **B** and **C**. **A** is 5km on a bearing of 120° from **B**, the bearing of **C** from **B** is 040° and the bearing of **A** from **C** is 160° . Find the

(a) distance **AC**; correct to one decimal place. (07 marks)

(b) Angle **BAC**, hence the distance \overline{BC} correct to one decimal place. (05 marks)

16. (a). Copy and complete the table below for $y = (3x + 1)(5 - 2x)$ in the range $-2 \leq x \leq 4$.

| x | -2.0 | -1.5 | -1.0 | -0.5 | 0.0 | 0.5 | 1.0 | 1.5 | 2.0 | 2.5 | 3.0 | 3.5 | 4.0 |
|----------|------|------|------|------|-----|-----|-----|-----|-----|-----|-----|------|-----|
| $3x + 1$ | -5 | -3.5 | -2 | -2.5 | 1 | 2.5 | 4 | 5.5 | 7 | 8.5 | 10 | 11.5 | 13 |
| $5 - 2x$ | 9 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | -1 | -2 | -3 | -4 |
| y | -45 | | | | | 10 | | | | | | | -39 |

(05 marks)

(b) Draw the graph of $y = (3x + 1)(5 - 2x)$ for $-2 \leq x \leq 4$, Using scales 2cm to 1 unit on the x-axis and 2cm to 5 units on the y-axis. (04 marks)

(c) Use your graph to solve the equation.

$$-6x^2 + 13x + 5 = 0 \quad (03 \text{ marks})$$

17. A school has organized a study tour for 90 students. Two types of vehicles are to be hired. Taxis and coaster buses. The maximum capacity of a Coaster is 30 passengers while maximum capacity of the taxi is 15 passengers. The number of taxis will be greater than the number of coaster buses. The number of taxis will be less than five. The cost of hiring a taxi is shs. 60,000 and the cost of hiring a coaster bus shs. 100,000. There is only shs. 600,000 available.

If **X** represents the number of taxis and **y** is the number of coaster buses to be hired,

(a) Write down the six inequalities from the above information. (05 marks)

(b) Determine the possible sets of vehicles to be hired. (05 marks)

(c) Find the set of vehicles that will transport the exact number of students. (02 marks)

END

456/2
Mathematics
Paper 2
July - August, 2023
2 ½ hours



UGANDA MUSLIM TEACHERS' ASSOCIATION

UMTA JOINT MOCK EXAMINATIONS 2023

UGANDA CERTIFICATE OF EDUCATION

Mathematics

Paper 2

2 hours 30 minutes

INSTRUCTIONS TO CANDIDATES

- Answer *all* questions in section A and not more than five from section B.
- All necessary calculations must be done in the same answer sheets provided.
Therefore, no extra papers will be given for rough work.
- Mathematical tables and graph papers will be provided.
- Silent, non-programmable scientific calculators may be used.

Turn over

SECTION A (40 marks)

Attempt all questions in this section

1. Work out $\frac{1\frac{5}{8} \div 3\frac{1}{4}}{2\frac{3}{4} - 1\frac{7}{8}}$ (04 marks)
2. Given that $P = \{all \text{ multiples of } 3 \text{ less than } 15\}$.
 $Q = \{\text{the first five triangle numbers}\}$
Find $n(P \cap Q)$ (04 marks)
3. A line passing through the points A (2, -4) and B (8, h) is perpendicular to the line whose gradient is $\frac{-2}{3}$, find the value of h. (04 marks)
4. Express $\frac{4\sqrt{3}}{2\sqrt{3}-\sqrt{6}}$ in the form $a + b\sqrt{c}$. Where a, b and c are real numbers. (04 marks)
5. Opio deposited shs.2.42 million on his savings account at a compound interest rate of 8.5% per annum. Determine the number of years his money will take to accumulate to shs.2.85million. (04 marks)
6. Without using tables or a calculator, evaluate $1 - \frac{1}{3} \log_{10} 64 + 2 \log_{10} 20$. (04 marks)
7. A cone of base radius 5cm has a vertical height of 12cm. Find the curved surface area of the cone, Use $\pi = 3.142$ (04 marks)
8. Given a point A(2,8) and a vector $AB = \begin{pmatrix} 7 \\ -4 \end{pmatrix}$. Draw the vector AB and hence state the coordinates of B. (04 marks)
9. Two similar cylinders have volumes 250cm^3 and 54cm^3 . The height of the bigger cylinder is 10cm. Find the height of the smaller one. (04 marks)
10. A cyclist travels a distance of 102km in $1\frac{2}{3}$ hours. He cycles at an average speed of 54km/hr for a further $2\frac{1}{3}$ hours. Calculate the average speed for the whole journey. (04 marks)

SECTION B (60 MARKS)

Answer any five questions from this section.

11. (a) The function f is defined as

$$f(x) = \frac{5x+1}{4}, \text{ find}$$

(i) $f(-5)$

(ii) $f^{-1}(4)$

(06 marks)

- (b) Given that $g(x) = \frac{4x+3}{3}$ and $h(x) = \frac{1+2x}{8}$. Determine the values of x for which

$$gh(x) = \frac{6-x^2}{4}.$$

(06 marks)

12. In a certain school, there are 42 students in senior five science class. Of these, 25 offer physics (P), 20 offer chemistry (C) and 18 offer Biology (B). 10 students offer physics and chemistry, 8 offer Biology and chemistry and 7 offer Physics and Biology but not chemistry.

The number of students who do not offer any of the three subjects is twice the number of those offering all the three subjects.

- (a) Represent the above information on a Venn diagram.

(07 marks)

- (b) Find the number of student offering;

(i) all the three subjects.

(ii) at least two of these subjects.

(04 marks)

- (c) Find the probability that a student selected at random from this class offers only one subject.

(01 marks)

13. A mini-bus sets off at 7:00am from station A to station B, 360km apart at a constant speed of 50km/hr. After 2 hours non-stop drive, the fuel got finished and it parked for 60minutes. After refueling; it proceeded with the remaining journey at a steady speed for 4 hours to station B.

A taxi left station B at 8:00am for station A and moved non-stop for $4\frac{1}{2}$ hours.

Turn over

- (a) Using scales, $2\text{cm to } 40\text{km and } 2\text{cm to 1 hour}$, draw the distance time graphs for the two vehicles, using the same axes. (06 marks)
- (b) Use your graphs to find the
- time of arrival for each vehicle.
 - time the two vehicles met and how far it was from station B. (04 marks)
- (c) Find the average speed of the mini bus in the last leg of the journey. (02 marks)

14. The table below shows the tax structure on taxable income of a certain company for its employees.

| Taxable Income (shs) | Rate of tax(%) |
|----------------------|----------------|
| 01 – 100,000 | 5 |
| 100,001–300,000 | 7 |
| 300,001– 450,000 | 10 |
| 450,001–600,000 | 14 |
| 600,001– 750,000 | 25 |
| Above 750,000 | 30 |

The following are the entitled allowances.

Housing Shs 840,000 per annum

Electricity Shs 60,000 per month

Medical Shs 100,000 per month

Child care, for only two children.

Shs.15, 000 for a child below 10 years,

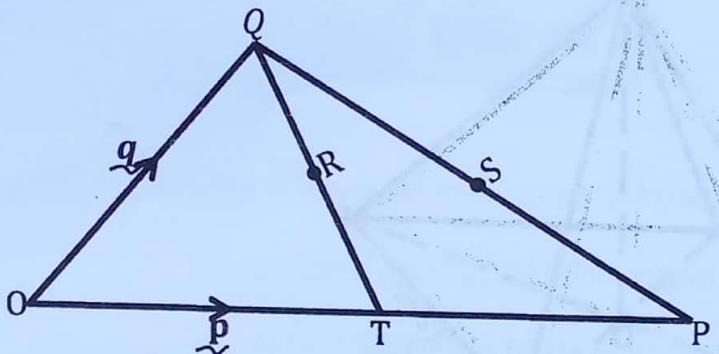
Shs. 9000 for a child from 10 – 15 years and shs. 6,000 for a child above 15years.

An employee earns Shs.950, 000 a month, he has three children of age 8, 12 and 17 years.

Calculate his

- monthly taxable income (05marks)
- monthly income tax (05marks)
- monthly net income (02marks)

15. In the figure below, $OP = \mathbf{p}$ and $OQ = \mathbf{q}$.
T and S are the mid-points of OP and QP respectively. R is a point on QT such that $QR = \frac{2}{3}QT$.



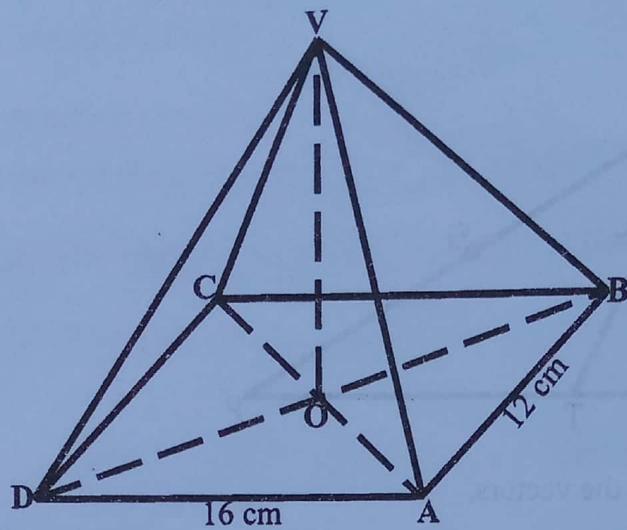
- (a) Express in terms of \mathbf{p} and \mathbf{q} the vectors,
- (i) QR
 - (ii) OR
 - (iii) QS
 - (iv) TS
- (08 marks)
- (b) Show that O, R and S lie on a straight line. (04 marks)

16. The cost (C) of printing a school year planner is partly a constant and partly varies inversely as the number of copies (N) to be printed.
When 200 copies are printed, the cost per copy shs.850. When 400 copies are printed the cost per copy is shs.500.

- (a) Form an equation relating C and N (08 marks)
- (b) (i) Calculate the cost per copy when 560 copies are printed. (02 marks)
- (ii) If the cost per copy is shs.950, how many copies will be printed? (02 marks)

Turn over

17. The figure below is a pyramid $VABCD$ with O as its center of its rectangular base of sides 12cm and 16cm . The height of the pyramid is 24cm .

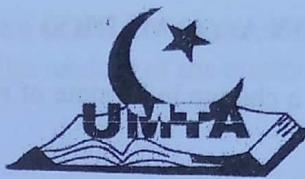


Find;

- (i) VA (04 marks)
- (ii) the angle between VA and $ABCD$. (03 marks)
- (iii) the angle between VAB and $ABCD$. (03 marks)
- (iv) the volume of the pyramid. (02 marks)

END

535/1
Physics
Paper 1
July -August 2023
2 1/4 Hours



UGANDA MUSLIM TEACHERS' ASSOCIATION

UMTA JOINT MOCK EXAMINATIONS - 2023

NAME.....

INDEX NO..... SIGNATURE.....

UGANDA CERTIFICATE OF EDUCATION

PHYSICS

Paper 1

2 hours 15 minutes

INSTRUCTIONS TO CANDIDATES

- Write your name, signature, centre and index number clearly in the spaces provided above.
- Section A contains 40 objectives type questions.
- You are required to write the correct answers A, B, C and D against each question in the box on the right hand side of each page.
- Section B contains 10 structured questions. Answers are to be written in the spaces provided on the question paper.
- Mathematical tables, slide rules and silent non-programmable calculators may be used

Assume where necessary:

- Acceleration due to gravity $g = 10\text{ms}^{-2}$
- Specific heat capacity of water = $4200\text{JKg}^{-1}\text{K}^{-1}$
- Specific latent heat of fusion of ice = $336,000\text{JKg}^{-1}$
- Speed of sound in air = 330ms^{-1}
- Speed of light = $3.0 \times 10^8\text{ms}^{-1}$
- Specific latent heat of vaporization of water = $2.26 \times 10^6\text{ JKg}^{-1}$

FOR EXAMINER'S USE ONLY

| Q41 | Q42 | Q43 | Q44 | Q45 | Q46 | Q47 | Q48 | Q49 | Q50 | MCQ | TOTAL |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-------|
| | | | | | | | | | | | |

SECTION A: (40 MARKS)

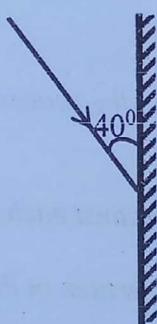
1. The property of a body which resists a change in its state of rest or of uniform motion is

- A. acceleration
- B. density
- C. inertia
- D. velocity

2. The motion of the molecules of two gases causes them to mix. What is this mixing called?

- A. Conduction
- B. Convection
- C. diffusion
- D. evaporation

3. The diagram shows a single ray of light being directed at a plane mirror. What are the angles of incidence i , and reflection, r ?



- | i | r |
|-----------------|--------------|
| A. 40° | 40° |
| B. 40° | 50° |
| C. 50° | 40° |
| D. 50° | 50° |

4. Which pair of emissions travel with same speed in air?

- A. α -particles and γ -rays
- B. γ -rays and infra-red waves
- C. infra-red waves and sound waves
- D. Sound waves and α - particles

5. Why are γ -rays (gamma rays) not deflected by a magnetic field?

- A. They are strongly penetrating
- B. They are weakly ionizing
- C. They have no charge
- D. They have no mass.

6. The length of a mercury column of a thermometer at the ice point and steam point are 4cm and 44cm respectively. The reading of the thermometer when the mercury column is 18cm long is
- A. 35.0°C
- B. 40.9°C
- C. 45.0°C
- D. 100.0°C
7. Electrical equipment should not be used in damp conditions. What is the main hazard?
- A. The equipment becomes too hot
- B. The fuse keeps "blowing"
- C. The insulation becomes damaged
- D. The risk of electric shock.
8. In which device is a permanent magnet used?
- A. an electric bell
- B. an electromagnet
- C. a plotting compass
- D. a relay
9. When a plastic rod is charged positively by friction, it
- A. gains electrons
- B. gains neutrons
- C. gains protons
- D. loses electrons
10. The splitting of white light into its component colours is called
- A. deflection
- B. dispersion of light
- C. reflection of light
- D. refraction of light
11. A charge of mass $7.1 \times 10^{-29} \text{ kg}$. experiences a force of $7.1 \times 10^{-26} \text{ N}$ in an electric field. What is the acceleration of the charge?
- A. $5.0 \times 10^{-5} \text{ ms}^{-2}$
- B. $1.0 \times 10^{-3} \text{ ms}^{-2}$
- C. $5.0 \times 10^{-3} \text{ ms}^{-2}$
- D. $1.0 \times 10^3 \text{ ms}^{-2}$

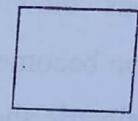
12. When a force of $60N$ is applied to a stationary trolley, it takes 40 seconds to move through a distance of $20m$ in the direction of force. The average power developed by the trolley is

- A. $13.3W$
- B. $15.0W$
- C. $30.0W$
- D. $120.0W$

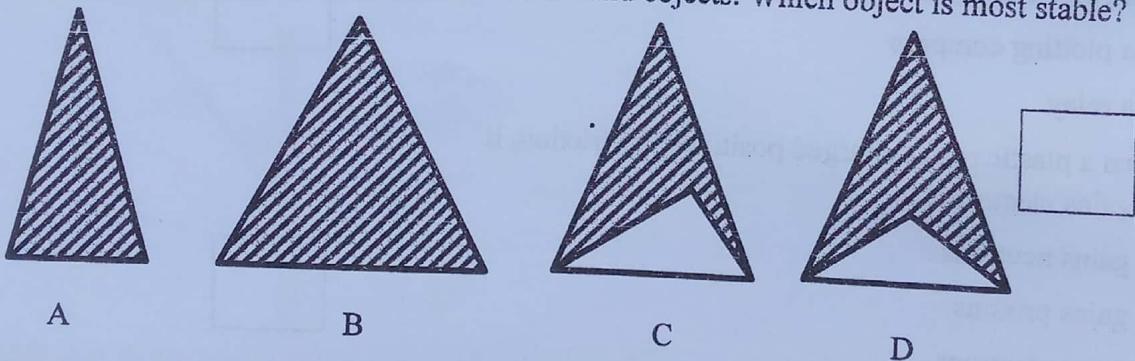


13. A student was asked to calculate the volume of a piece of wire which is about 85cm long and 0.6cm in diameter. Which measuring instruments did the students use?

| Length | Diameter |
|----------------------|-------------------|
| A. metre rule | micrometer |
| B. metre rule | vernier callipers |
| C. micrometer | vernier callipers |
| D. Vernier callipers | micrometer |

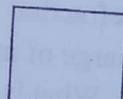


14. The diagrams show cross sections of four solid objects. Which object is most stable?



15. The rate at which heat energy is conducted through a substance depends on its state. What is the order of conduction?

| Best | → | Worst |
|-----------|--------|--------|
| A. gas | liquid | solid |
| B. liquid | gas | solid |
| C. Solid | gas | liquid |
| D. Solid | liquid | gas |



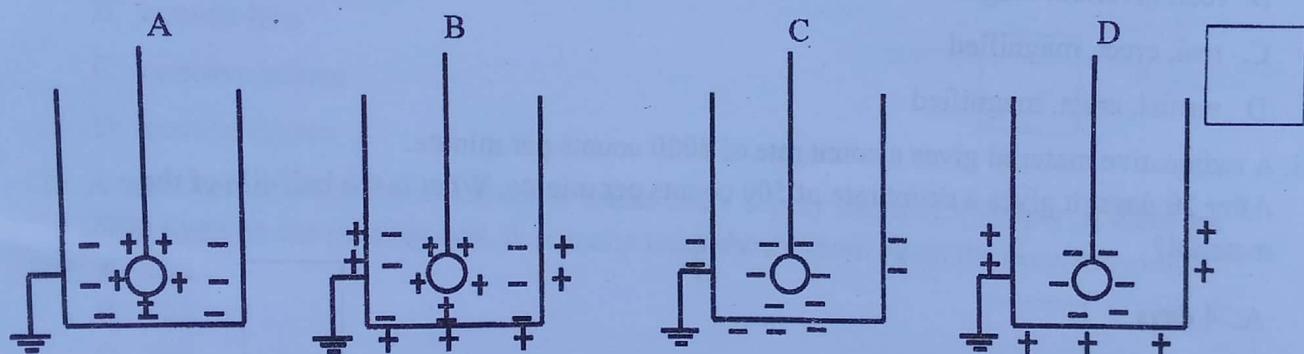
16. A dry-battery can deliver 3000J of energy to a small 2W electric motor before the battery is exhausted. How long, in minutes, does the motor run?

- A. 25 minutes
- B. 50 minutes
- C. 100 minutes
- D. 1500 minutes

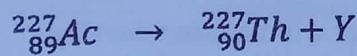
17. Which range of audible frequencies is a healthy teenager likely to be able to hear?

- A. 2Hz to 20Hz
- B. 2Hz to 200Hz
- C. 20Hz to 20KHz
- D. 20Hz to 200KHz

18. A charged sphere is suspended by an insulating thread inside a metal can. The outside of the can is earthed. Which diagram shows the resulting charges on the sphere and on the can?



19. The equation represents actinium decaying to thorium



Which particle does Y represent?

- A. a helium nucleus
- B. an atom
- C. an electron
- D. a neutron

20. The difference of pitch between two musical sounds is due to the difference in
- A. amplitude
 - B. frequency
 - C. loudness
 - D. timbre
21. A body X of mass 100kg moving with a velocity of 2ms^{-1} collides with a stationary body Y of mass 60kg. If both bodies X and Y move together after impact, What is their common velocity?
- A. 0.33ms^{-1}
 - B. 1.25ms^{-1}
 - C. 2.00ms^{-1}
 - D. 3.33ms^{-1}
22. An object is placed between the pole and the principal focus of a concave mirror. The image formed is
- A. real, erect, diminished
 - B. real, inverted, magnified
 - C. real, erect, magnified
 - D. virtual, erect, magnified
23. A radioactive material gives a count rate of 8000 counts per minute. After 20 days, it gives a count rate of 500 counts per minute. What is the half-life of the material?
- A. 4 days
 - B. 5 days
 - C. 20 days
 - D. 80 days
24. A dipper moving up and down makes waves in a ripple tank. What will happen when the dipper frequency is increased?
- A. The waves will be closer together.
 - B. The wave peaks will be higher and the troughs lower
 - C. The waves will move more quickly across the tank
 - D. The waves will move more slowly across the tank

25. At what temperature and where in a liquid, does evaporation occur?

Temperature

- A. any
- B. any
- C. boiling point only
- D. boiling point only

where in a liquid.

- points of heating only
- surface only.
- points of heating only
- surface only

26. The total electric energy used to drive unit charge round the complete circuit is the

- A. emf
- B. joule
- C. ohm
- D. watt

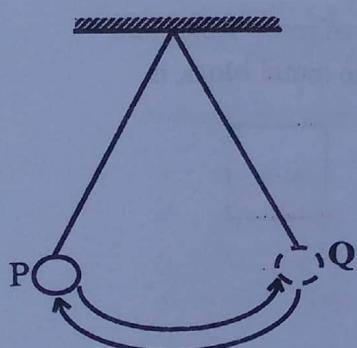
27. Short sightedness can be corrected by a

- A. concave lens
- B. convex lens
- C. concave mirror
- D. convex mirror

28. A transformer is needed to convert a mains 240V supply into a 12V supply. If there are 2000 turns on the primary coil, how many turns should there be on the secondary coil?

- A. 100
- B. 120
- C. 200
- D. 40000

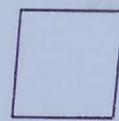
29. It takes 13.8s for a pendulum to swing from P to Q and back again twenty times. What is the period of the pendulum?



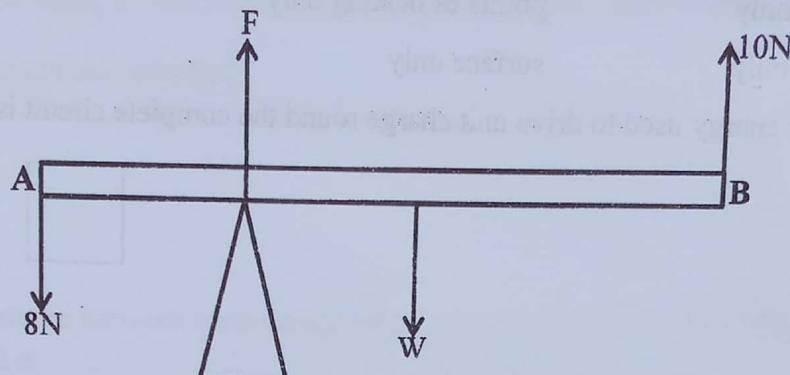
- A. 0.35s
- B. 0.69s
- C. 1.38s
- D. 4.60s

30. Which of the following list of physical quantities consist only of vectors?

- A. acceleration, force, volume
- B. mass, velocity, acceleration
- C. time, mass, force
- D. velocity, acceleration, force

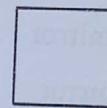


31.



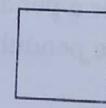
A uniform beam of weight w is pivoted at a distance $\frac{1}{5}$ of its length from the end A and kept in equilibrium by applying forces of 8N and 10N as shown in the diagram. The force exerted by the pivot on the beam is

- A. 16N
- B. 20N
- C. 30N
- D. 32N



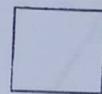
32. The efficiency of a machine which raises a load of 400N through a distance 3m when an effort of 200N moves a distance of 12m is

- A. 5%
- B. 12.5%
- C. 50%
- D. 60%

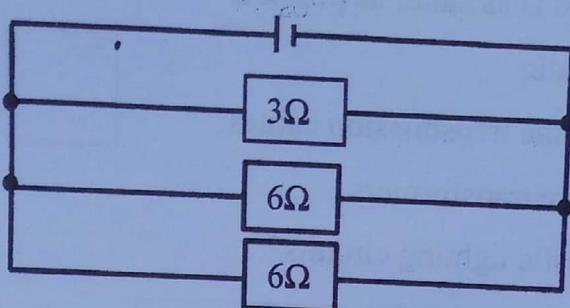


33. A 150W heating coil is used for 6 minutes to heat a metal block of mass 1.5kg and specific heat capacity of $3000 \text{ J kg}^{-1} \text{ K}^{-1}$. The temperature of the metal block is

- A. 6°C
- B. 12°C
- C. 15°C
- D. 24°C



34. The diagram shows a circuit.



What is the effective resistance of the three resistors.

- A. 0.6Ω
- B. 1.5Ω
- C. 6.7Ω
- D. 15Ω

35. During a thunder storm, an observer sees a lightning flash. 6 seconds later the observer hears the thunder.

How far away is the observer from the lightning?

- A. 50m
- B. 333M
- C. 500m
- D. 1980m

36. The law of electrostatic induction states that

- A. Like charges attract and unlike charges repel
- B. Like charges repel and unlike charges attract
- C. Like poles attract and unlike poles repel.
- D. Like poles repel and unlike poles attract.

37. A gas occupies volume of $2m^3$ in a cylinder at a pressure of 240 mm Hg. A piston compresses the gas until the volume is $0.5m^3$ at constant temperature.

What is the new pressure of the gas?

- A. 60mmHg
- B. 240mmHg
- C. 480 mmHg
- D. 960 mmHg

38. Why is electrical energy usually transmitted at high voltage.

- A. The resistance of the transmission cables is as small as possible
- B. The transmission cables are safer to handle
- C. As little energy as possible is wasted in the transmission cables.
- D. The transmission system does not require transformers.

39. Which of the following is correct for domestic lighting circuits?

| | Circuit connection | Fuse position | Switch position |
|---|--------------------|---------------|-----------------|
| A | Parallel | Live lead | Live lead |
| B | Parallel | Neutral lead | Neutral lead |
| C | Series | Live lead | Live lead |
| D | Series | Neutral lead | Neutral lead |

40. When a particular body or system is set in oscillation at its own natural frequency due to impulses received from some other nearby body or system which is vibrating with same frequency,

- A. music is produced
- B. nodes occur
- C. resonance occurs
- D. sound is produced

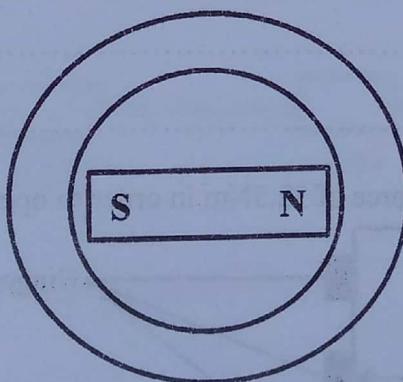
SECTION B: (40 MARKS)

41. (a) State the four factors which affect terminal velocity (2 marks)

(b) Explain briefly how a person is able to drink using a straw. (2 marks)

42. (a) What is a magnetic pole? (1 mark)

(b)(i) The magnet is placed at the centre of a soft iron ring of internal diameter 5cm and external diameter 7cm as shown in the diagram.



Draw the magnetic field pattern on the diagram. (2 marks)

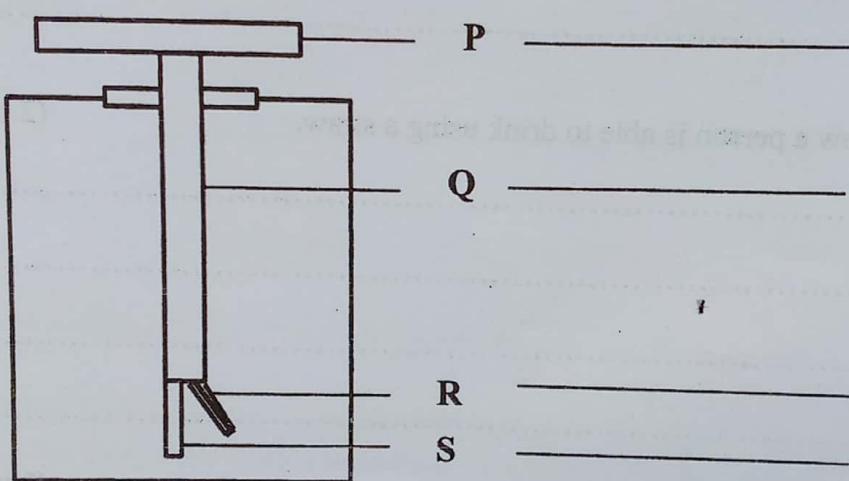
(ii) State an application of the effect shown in your answer to (b)(i) (1 mark)

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43. (a) The diagram below shows the main parts of the gold-leaf electroscope. Name them. (2 marks)



(b) State two uses of the gold leaf electroscope.

(2 marks)

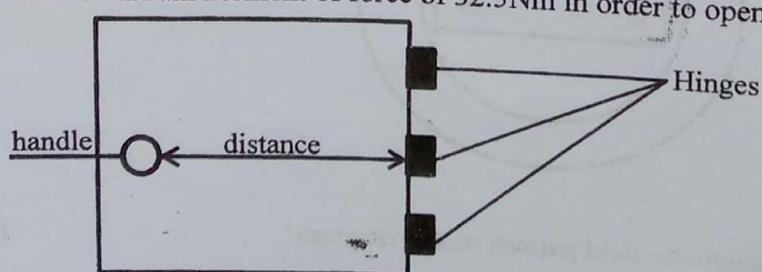
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44. (a) (i) State the principle of moments. (1 mark)

(ii) A door requires a minimum moment of force of 32.5 Nm in order to open it.



What is the minimum distance of the handle from the hinges, if the door is to be pulled open with a force at the handle not greater than 50N? (2 marks)

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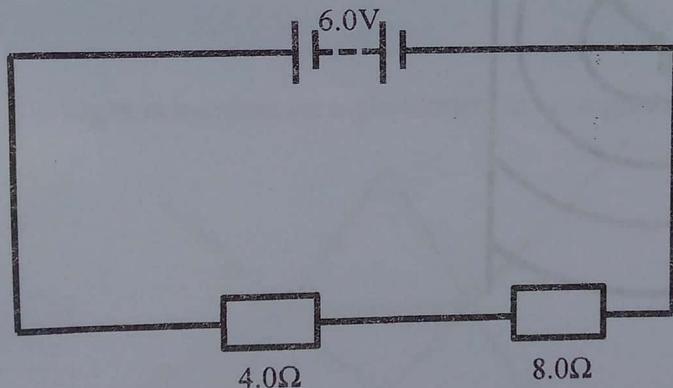
(b) State two conditions necessary for the body to be in equilibrium. (1 mark)

.....

45. (a) What is a coulomb? (1 mark)

.....

(b) The diagram shows a battery of emf 6.0V in series with resistors of resistances 4.0Ω and 8.0Ω .



Determine

(i) the current through the battery. (1½ mark).

(ii) the power developed in the battery. (1½ mark).

46. (a). Define the term wavelength. (1 mark)

(b) The diagram shows a circular wave incident on a plane surface.



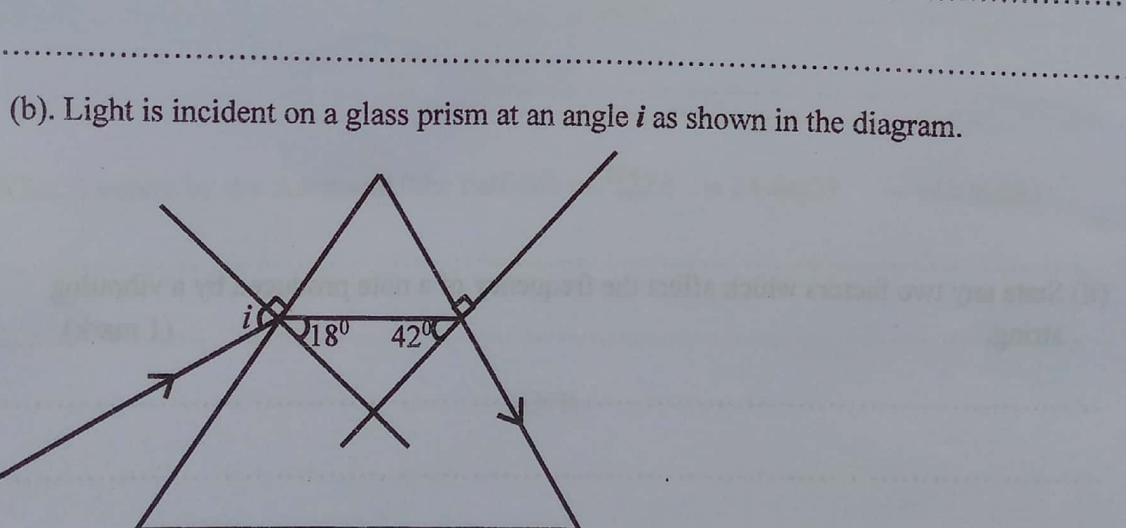
On the diagram,

- (i) mark with a dot the position of the image of the source S and label it Q (1 marks).
(ii) show as accurately as possible, the reflected circular wave. (2 marks)

47. (a) What is meant by specific latent heat of fusion of a solid? (1 mark)

(b) Heat energy is supplied to a melting solid at a constant rate of 2000W. Calculate the mass of the solid changed to liquid in 2 minutes given that the specific latent heat of fusion of the solid is 95000 J kg^{-1} . (3 marks)

48. (a) State Snell's law.



Calculate;

(i) the refractive index of the glass prism. (1 ½ marks)

(ii) the angle of incidence, i

(1 ½ marks)

49. (a) What is an echo?

(1 mark)

(b) (i) An echo sounder of a ship transmits a pulse of sound through water and receives the reflected sound after 0.5 seconds. The speed of sound in sea water is 1200ms^{-1} . Calculate the depth of the sea.

(2 marks).

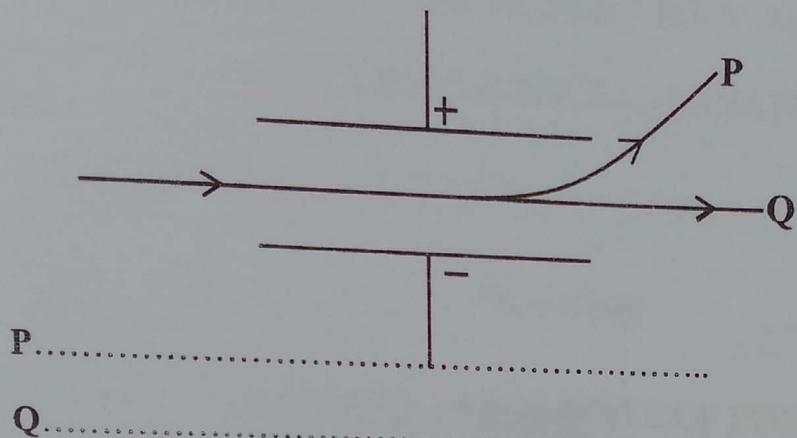
(ii) State any two factors which affect the frequency of a note produced by a vibrating string.

(1 mark)

50. (a) What are isotopes?

(1 mark)

(b) The diagram shows two types of radiations passing through an electric field. Name the radiations P and Q.



(1 mark)

(c)(i) How many neutrons does the nucleus of one of $^{234}_{90}Th$ atoms contain?

(1 mark)

(ii) What is meant by the statement "the half-life of $^{234}_{90}Th$ is 24 days?"

(1 mark)

END

545/2
Chemistry
Paper 2
July - August 2023
2 Hours



UGANDA MUSLIM TEACHERS' ASSOCIATION

UMTA JOINT MOCK EXAMINATIONS-2023

NAME.....

INDEX NO..... SIGN.....

UGANDA CERTIFICATE OF EDUCATION

Chemistry paper 2

Time 2hours

INSTRUCTIONS TO CANDIDATES:

- Section A consists of 10 structured questions. Answer all questions in this Section.
- Answers to these questions must be written in the spaces provided only.
- Section B consists of 4 semi-structured questions. Attempt any two questions from this Section.
- Answers to these questions must be written in the answer sheets provided only.
- In both sections all working must be clearly shown.
Where necessary use;

(H = 1; C = 12; O = 16; N = 14 Na = 23 S = 32; Pb = 207)

1 mole of gas occupies 24L at room temperature

1 mole of a gas occupies 22.4dm³ at s.t.p

For Examiner's use only

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | Total |
|---|---|---|---|---|---|---|---|---|----|----|----|----|----|-------|
| | | | | | | | | | | | | | | |

SECTION A. (50 MARKS)

Answer all questions in this section.

1. When pieces of calcium metal were added into water in a beaker, bubbles of a colourless gas, X and cloudy solution formed.

(a) Identify

(i) gas X (½ Mark)

(ii) Cloudy solution (½ mark)

(b) Write the equation for the reaction leading to formation of gas X and cloudy solution. (1½ marks)

(c) The cloudy solution was filtered to obtain a colourless solution, of what use is the colourless solution in the laboratory (1 mark)

(d) State what is observed if gas X is passed over heated lead(II) oxide. (1½ marks)

2. When a mixture of sodium chloride and liquid L was heated, hydrogen chloride gas was evolved.

(a) Write the name of Liquid L, (½ Mark)

(b) Write an equation of the reaction leading to the formation of hydrogen chloride.

(1½ marks)

(c) Hydrogen chloride dissolves in both water and carbon tetrachloride, state what is observed when sodium carbonate is added to;

(i) a solution of hydrogen chloride in water. (1 mark)

(ii) a solution of hydrogen chloride in carbon tetrachloride. (½ mark)

(d) Give a reason for your answer in C(i) and (ii) above. (1 ½ marks)

3. The number of protons, neutrons and electrons of different particles R, S, T, U, V and W are given in the table below.

| Particle | Protons | Neutrons | Electrons |
|----------|---------|----------|-----------|
| R | 20 | 20 | 18 |
| S | 17 | 18 | 17 |
| T | 6 | 6 | 6 |
| U | 7 | 7 | 10 |
| V | 17 | 19 | 17 |
| Z | 19 | 20 | 19 |

(a) Identify which of the particles in the table is:

(i) an anion (½ mark)

(ii) a cation (½ mark)

(b) Write the

(i) electronic structure of the anion in (a)

(½ mark)

(ii) formula of the cation in (a)

(½ mark)

(c) Particle S separately reacts with particles Z and T forming compounds M and N respectively.

(i) State the type of bond that exists in compound N

(½ mark)

(ii) Using outer most electrons, show how compound M is formed from its particles.

(1 ½ mark)

(iii) State whether compound M has low or high boiling point. Give a reason for your answer.

(1 mark)

4. In an experiment to determine the molar heat of neutralization of hydrochloric acid with sodium hydroxide, students reacted 100cm^3 of 1M hydrochloric acid with 50cm^3 of 2M sodium hydroxide solution.

They obtained the following results.

Initial temperature of acid = 24.8°C

Initial temperature of base = 25.2°C

Highest temperature of acid - alkali mixture obtained = 34.0°C

223/1

Christian Religious Education

Paper 1

July - August, 2023

2 ½ hours



UGANDA MUSLIM TEACHERS' ASSOCIATION

UMTA JOINT MOCK EXAMINATIONS - 2023

UGANDA CERTIFICATE OF EDUCATION

Christian Religious Education

Christian living today

Paper 1

2 Hours 30 Minutes

INSTRUCTIONS TO CANDIDATES

- Attempt any five questions taking one from each of the section A, B, C, D and E.
- All questions carry equal marks.
- Any additional questions answered will not be marked.

SECTION A
MAN IN A CHANGING SOCIETY

1. (a) Explain the changes that science and technology have brought in your society today.
(10 marks)
- (b) In what ways can Christian's teachings help a Christian cope with the changes?
(10 marks)
2. (a) What was the purpose of work in the African Traditional Society? (10 marks)
(b) How has work lost meaning in Uganda today? (10 marks)
3. (a) State the ways in which some Christians of the Middle Ages spent leisure in a wrong way?
(10 marks)
(b) What criteria (principles) would you follow to choose good leisure activities?
(10 marks)

SECTION B
ORDER AND REEDOM

4. (a) Explain the reasons why it's hard for people in Uganda to live justly? (10 marks)
(b) With examples show the different forms of injustice that were condemned by prophets.
(10 marks)
5. (a) In what ways have modern church leaders failed to offer true services to their people.
(10 marks)
(b) What can today's leaders learn from the way missionaries provided the services?
(10 marks)
6. (a) In what ways did Jesus show the loyalty to the community he lived in? (10 marks)
(b) How did loyalty bring about peace and harmony in Traditional African Society?
(10 marks)

SECTION C

7. (a) What were the causes of unhappiness in African traditional society? (10 marks)
- (b) Explain moments in Old Testament that brought happiness to people. (10 marks)
8. (a) How are the traditional African beliefs in life after death different from those of the Christians? (10 marks)
- (b) What are the Old Testament ideas about unending life? (10 marks)
9. (a) Explain the causes of failure in people's lives today. (10 marks)
- (b) Explain the success Jesus won on those who believe in him. (10 marks)

SECTION D

MAN AND WOMAN

10. (a) What is the traditional African concept of a family? (10 marks)
- (b) What should be the features of an ideal Christian family? (10 marks)
11. (a) What does the New Testament teach about Christian Involvement in the World? (10 marks)
- (b) Give obstacles Christian's face while trying to follow the above teachings. (10 marks)
12. (a) Many people today are living together as husbands and wives without going to church to bless their marriage. Give reasons why this is so? (10 marks)
- (b) What should the church do to help such people have their marriage blessed in church? (10 marks)

SECTION E

MAN'S RESPONSE TO GOD THROUGH FAITH AND ACTION

13. (a) Why do people continue searching for God today? (10 marks)

(b) Explain the attributes of God in African traditional society. (10 marks)

14. (a) What effects did the practice of witchcraft have on the lives of people in African Traditional Society? (10 marks)

(b) Explain the major factors that hinder Christians from living a true Christian life today. (10 marks)

15. (a) How did God involve Himself in the affairs of his people in the Old Testament? (10 marks)

(b) How did early Christians show concern for other people? (10 marks)

END

553/2

Biology Practical
Paper 2

July - August, 2023



UGANDA MUSLIM TEACHERS' ASSOCIATION

UMTA JOINT MOCK EXAMINATIONS – 2023

NAME.....

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UGANDA CERTIFICATE OF EDUCATION
BIOLOGY PRACTICAL
Paper 2

2 HOURS

Instructions to Candidates

- Attempt all questions.
- Drawings should be made in the spaces provided.
- Use a sharp pencil for your drawings.
- Coloured pencils or crayons should NOT be used.
- No additional sheets of writing paper are to be inserted in the booklet.
- Work on additional sheets will not be marked.

FOR EXAMINERS USE

| No. | Marks | Initials |
|--------------|-------|----------|
| 1 | | |
| 2 | | |
| 3 | | |
| Total | | |

Turn over

1. You are provided with specimen A which was obtained from animal tissue and solution B which is unknown. Carry out tests and fill in a results table below.

Cut out 5 equal pieces of specimen A and boil one piece in water strongly.

Allow it to cool. Label five test tubes 1, 2, 3, 4 and 5. Measure 3cm^3 of solution B and add to each of test tubes 1, 2, 3 and 4.

To test tube 5 add 3cm^3 of distilled water. After setting up the experiments allow them to stand for 10minutes.

TABLE 1

(a)

| TEST | OBSERVATION | DEDUCTION |
|---|-------------|-----------|
| 1. To test tube 1, add on unboiled piece of specimen A | | |
| 2. To test tube 2 add 1cm^3 of dilute Hydrochloric acid followed by one unboiled piece of Specimen A | | |
| 3. To test tube 3 Add 1cm^3 of dilute Sodium hydroxide Solution followed by one unboiled piece of specimen A | | |
| 4. To test tube 4 add the boiled piece of specimen A | | |
| 5. To test tube 5, Add one unboiled piece of specimen A | | |

(b) Name the active ingredient in A and the unknown solution B (01 mark)

Active ingredient.....

Solution B.....

(c) Explain your results in experiment 2, 4 and 5 (06 marks)

2.....

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4.....

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5.....

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(d) State the properties of the active ingredient that have been investigated. (03 marks)

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2. You are provided with specimens K and M which were obtained from the same animal.

Examine the specimens and answer the questions that follow.

(a) Identify the specimens giving a reason in each case. (04 marks)

K.....

Turn over

Reason.....

.....

.....

M.....

Reason.....

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- (b) Describe 3 structural differences between specimens K and M. (04½ marks)

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- (c) State 4 adaptations of specimen M to its functions. (06 marks)

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(d) Make a large labelled drawing of the lateral view of specimen **K**. State your magnification.
(05 ½ marks)

3. You are provided with specimens **L1**, **L2**, **L3**, **L4** and **L5** which are plant parts. Examine the specimens and answer the questions that follow.
- (a) State which plant part the specimens are and give 2 reasons for your answer.

(03 marks)

Plant part.....

Reason.....

Turn over

- (b) Pluck off one complete leaf from each of the specimens **L1**, **L2**, **L3** and **L4** and label them **1**, **2**, **3**, **4** respectively. Examine each leaf and answer the questions that follow.
- (i) Describe the petioles of each leaf and fill in a table below.

Table 2

| Leaf | Description |
|-------------|--------------------|
| 1 | |
| 2 | |
| 3 | |
| 4 | |

- (ii) Using the characteristics in the table above construct a dichotomous key to identify the leaves. (03 marks)
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- (c) Describe 3 survival adaptations of specimen **L5** to the environment where it grows. (03 marks)
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(d) Make a large labelled drawing of specimen L5 and state your magnification. (05 marks)

END

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Principles and Practices
of Agriculture (Practical)

Paper 2

July- August 2023



UGANDA MUSLIM TEACHERS' ASSOCIATION

UMTA JOINT MOCK EXAMINATIONS-2023

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UGANDA CERTIFICATE OF EDUCATION

PRACTICAL PAPER

2 Hours

INSTRUCTIONS TO CANDIDATES:

This paper consists of five questions.

Answer all questions.

The answers are to be written in Black or Blue ink in the spaces provided.

FOR EXAMINERS' USE ONLY

| Questions | Marks | Examiners sign. |
|--------------|-------|-----------------|
| 1 | | |
| 2 | | |
| 3 | | |
| 4 | | |
| 5 | | |
| TOTAL | | |

527/2

Principles and Practices of
Agriculture (Practical)
Paper 2
July- August 2023
2 Hours



UGANDA MUSLIM TEACHERS' ASSOCIATION
UMTA JOINT MOCK EXAMINATIONS-2023
UGANDA CERTIFICATE OF EDUCATION

CONFIDENTIAL FOR AGRICULTURE
PAPER 2

- Care should be taken that the information given below does not reach the candidate.
- Each candidate is to be provided with the following specimens.
- If the specimen is to be shared, it should be placed in the central place.

X₁ - Dry subsoil well aggregated.

X₂ - Dry top soil, top soil with organic matter.

X₃ - Dry top soil pulvalised with organic

X₄ - Lake Sand.

Z - Ox plough

Z₁ - Mould board

Z₂ - Land side

Z₃ - Frog

Z₄ - Depth wheel.

Z₅ - Share

C - Reticulum

D - Omasum

E - Rumen

F - Ileum (small intestines)

Turn over

G – Abomasum

P₁ – Amaranthus seeds

J P₂ – Peas seeds

J P₃ – Sorghum Seeds

P₄ – Banana sucker

P₅ – Sugarcane stem

I – Liver fluke

J – Pig lice

K – Tick

L – Round worm

END

1. You are provided with soil sample X_1 , X_2 and X_3 .
- a) Observe them and state their structural appearance.

| Specimen | Structural appearance |
|----------|-----------------------|
| X_1 | |
| X_2 | |
| X_3 | |

(3 Marks)

- (b) For specimen X_2 and X_3 state their suitability to crop growth.

- (i) Specimen X_2 suitability to crop growth.

.....
.....

Reason

.....
.....

(2 Marks)

- (ii) Specimen X_3 suitability to crop growth

.....
.....

Reason

.....
.....

(2 Marks)

- (c) State ways in which conditions observed in soil sample X_3 be solved.

- (i).....
(ii).....
(iii).....
(iv).....

(2 Marks)

2. (a) Specimen Z is an agricultural implement. Observe and give the use of parts labeled.

Z₁.....

Z₂.....

Z₃.....

Z₄.....

Z₅.....

(5 Marks)

- (b) Explain what will happen if the following parts were worn out.

Z₂.....

Z₃.....

Z₅.....

(2 Marks)

- (c) Suggest four ways of maintaining specimen Z in a good working condition.

(i)

(ii)

(iii)

(iv)

(2 Marks)

3. Specimens C, D, E, F and G are part of the digestive system of a ruminant animal.

(a) Observe and arrange the specimens in order the food passes through them during digestion

.....
.....
.....
.....

(2 ½ Marks)

(b) Describe the structural appearance of each of the specimen.

C.....

.....
.....

D.....

.....
.....

E.....

.....
.....

F.....

.....
.....

G.....

.....
.....

(2 ½ Marks)

(c) Explain how the structure of each specimen described in (b) enables it to perform its functions

C.....

.....
.....
.....
.....

D.....

.....
.....
.....
.....

E.....

.....
.....
.....
.....

F.....

.....
.....
.....
.....

(5Marks)

4) Specimens **P₁**, **P₂**, **P₃** and **P₄** are crop planting materials.

(a) Observe and give the depth at which these seed should be planted.

| Specimen | Depth of planting in (cm) | |
|----------------------|---------------------------|--------|
| P₁ | | 1 Mark |
| P₂ | | 1 Mark |
| P₃ | | 1 Mark |
| P₄ | | 1 Mark |

(b) Describe how you would prepare materials **P₂** and **P₄** for planting and give reasons for those preparations.

(i) Material **P₂**

.....
.....
.....

Reasons

.....
.....
.....
.....

(2 Marks)

(ii) Material **P₄**

.....
.....
.....
.....

(2Marks)

Reasons

(c) Give the benefits of propagating crops using specimen P4.

(i)

(ii)

(iii)

(iv)

(2 Marks)

5. Specimen I, J, K and L are livestock parasites.

(a) Observe and classify them according to their habitant.

I.....

J.....

K.....

L.....

(2 marks)

(b) For specimen I and K give two observable adaptations to their environment.

L.....

.....

.....