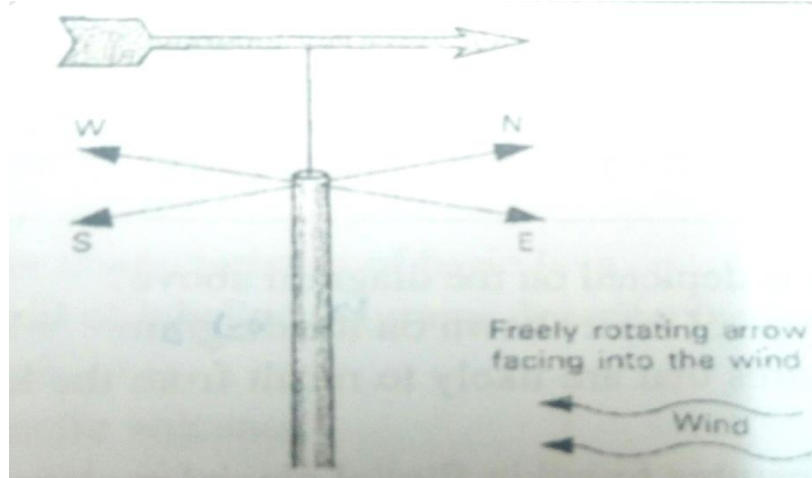


POST MOCK TERM 3 2019
Kenya Certificate of Secondary Education (KCSE)

312/1
GEOGRAPHY
PAPER 1
MARKING SCHEME

- 1.(a) What is Geography? (2 Mks)
- Geography is the study of the distribution and interrelationships of natural and human phenomena in relation to the earth's surface/It is the study of the earth as a home of human kind.
- (b) Name the **two** types of environment. (2 Mks)
- Physical environment
 - Human environment
- 2.a) Give **three** proofs that the earth is almost spherical in shape. (3 Mks)
- Circumnavigation of the earth. When one sails or flies along a straight path without changing direction, he or she comes back to the starting point.
 - The earth's horizon appears spherical when observed from a high point.
 - Rising and setting of the sun, since people living in the east see the sun earlier than those in the west.
 - When a ship is approaching the land from the sea, an observer standing on a high cliff first sees the smoke, then the mast and finally the rest of the ship's body.
 - During the eclipse of the moon, (lunar eclipse), a spherical shadow of the earth is cast on the moon.
 - All other planets are spherical, hence the Earth being a planet, is not an exception.
 - Photographs of the earth taken from the space by satellites show that the earth has a spherical shape.
3. Use the diagram below to answer questions (a) below



- a(i) Name the weather measuring instrument shown in the diagram. (2 Mks)
- Wind vane.

(ii) State the element of weather measured by the instrument named in a (i) above (2 Mks)

- Wind direction/Wind.

(iii) From the diagram, from which direction is the wind blowing? (2 Mks)

- North-East direction.

(b) Differentiate between absolute humidity and relative humidity. (2 Mks)

- Absolute humidity is the actual amount of water vapour in a given volume of air, whereas Relative humidity is the ratio of the actual amount of water vapour present in a given volume of air to the amount that would be present if the air were saturated with moisture at the same temperature.

4. The diagram below shows a coastal landform.



(a) Name the features marked **P** and **K**. (2Mks)

- P – Bay
- K – Tombolo

(b) List down **three** types of ocean tides. (3Mks)

- Perigean tides.
- Apogean tides.
- Spring tides.
- Neap tides.

5 (a) Name the types of earth movements that occur within the earth's crust. (2Mks)

- Horizontal earth movement
- Vertical earth movement

(b) Describe the origin of continents according to the theory of continental drift. (3Mks)

- There was initially one super continent/Landmass known as Pangaea.
- It was surrounded by large water mass known as panthalassa.
- Later Pangaea broke into two continents namely Laurasia (Northern continent) and Gondwanaland (Southern continent).
- The two were separated by a narrow ocean called Tethys.

- Laurasia split into the current Northern continents: North America, Europe and Asia, while Gondwanaland split to the current Southern continents: Africa, South America, India, Australia, New Zealand and Antarctica.

SECTION B

Answer question 6 and any other two from this section.

6. Study the map of **Taita Hills (1:50,000 (189/4))** provided and answer the questions that follow

a (i) Identify the Province and the District shown on the map.

(2Mks)

- Coast province
- Taita district

(ii) Which **two** methods of showing relief have been used in the map?

(3 Mks)

- Trigonometrical station
- Spot height
- Contours

b. (i) Calculate the area covered by Ronge forest.

(2Mks)

- complete square = 0
- incomplete square 10 = 5km²

(ii) Give **two** natural features/gentle slopes found in the grid square 3419.

(2Mks)

-Steep slope

-Scrub

-River

- Scattered trees

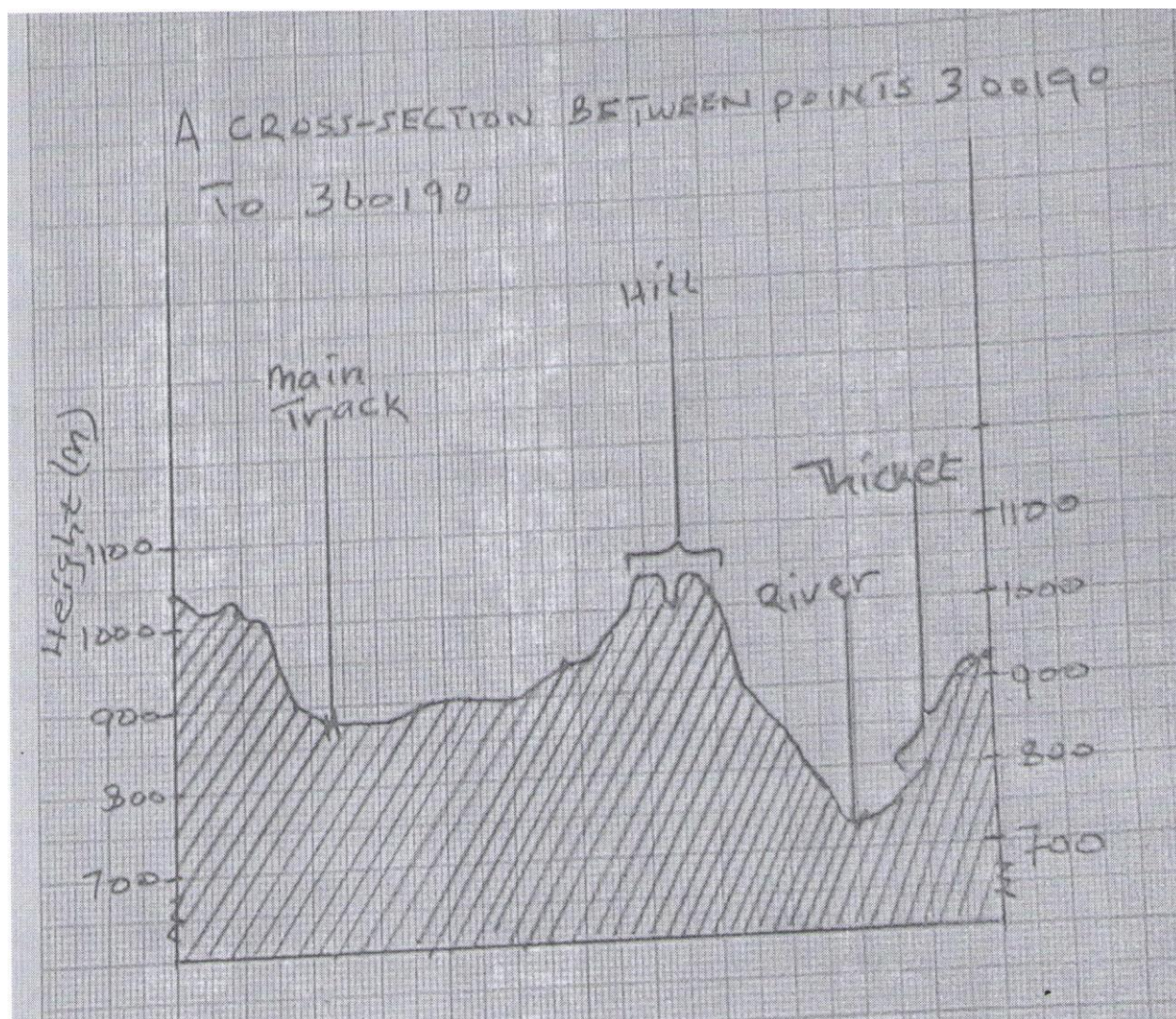
(iii) Calculate the bearing of the church in grid square **3218** from the school in the grid square 3522.

$211^0 \pm 1^0$ (210⁰, 211⁰, 212⁰)

(2Mks)

c. (i) Using a vertical scale of **1cm** to represent **100m**, draw cross section between grid reference 300190 and grid reference 360190.

(4Mks)



Marks distribution

| | | | |
|-----------------------|------|-----------------|------|
| Title | 1 mk | Hill | 1mk |
| Starting point (1040) | ½ mk | motorable track | 1mk |
| End point (920m) | ½ mk | River | 1 mk |
| Labelled Y axis | 1 mk | Thicket | 1mk |
| Trend | 1 mk | | |

(iii) Calculate the vertical exaggeration of the cross section, (2 Mks)

V.E = $\frac{\text{Vertical scale (V.S)}}{\text{Horizontal scale (H.S)}}$

$$= \frac{1}{10000} \div \frac{1 \times 50000}{10,000} = \frac{1}{50000}$$

V.E = 5 times

(d) Citing evidence from the map, explain two factors influencing the distribution of settlement in the area covered by the map. (4 Mks)

- Steep slopes as shown by closely packed contours are sparsely settled, since it is difficult to construct houses.

- There are few settlements along river valleys, since they are prone to flooding and waterborne diseases.
- Few settlements in the forests because they are government reserved areas.
- Dense settlements along main roads for movement of goods and people.
- Dense settlements in the urban centres due to availability of goods/services/social amenities.

7. a. (i) Name **three** types of faults.

(3Mks)

- Normal fault
- Reverse fault
- Tear/shear fault/slip/transform/wrench/strike slip
- Thrust fault
- Anticlinal fault

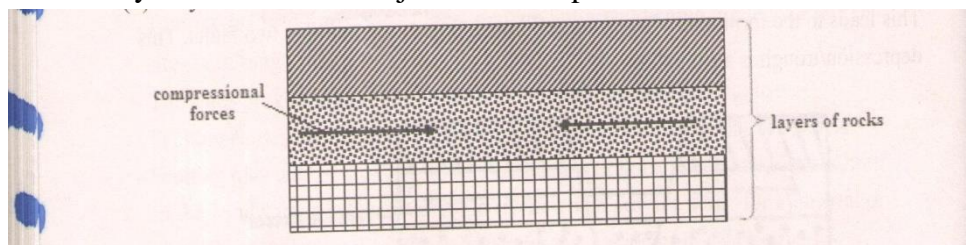
(ii) Apart from compression forces, describe **two** other processes that may cause faulting.

(4 Mks)

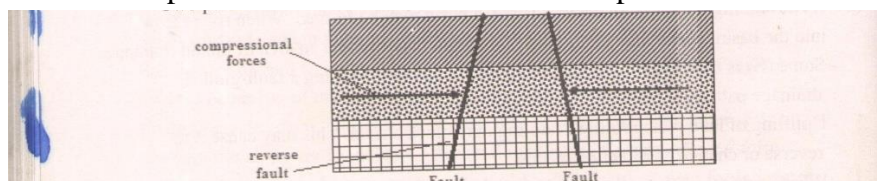
- Faulting may be caused by force acting horizontally away from each other which cause tension in the crystal rocks. Due to **tensional forces** the rocks stretch and fracture causing faults.
- Faulting may occur where horizontal forces act parallel to each other in the opposite/same direction resulting in **shearing**.
- Faulting may occur due to **vertical movements** which may exert a strain in the rocks making them to fracture.

b. With the aid of diagrams, describe how compression forces may have led to the formation of the Great Rift Valley. (8Mks)

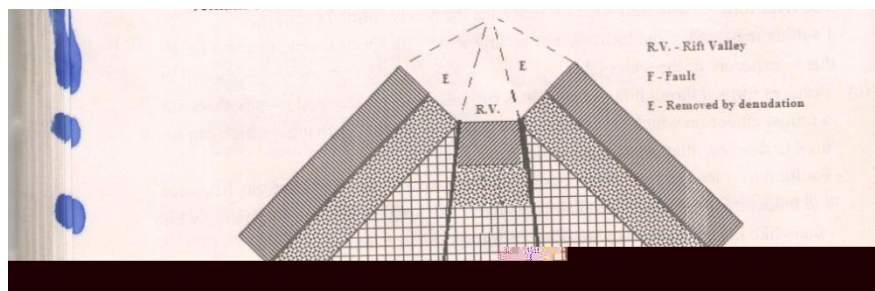
- Layers of rocks are subjected to compression forces



- Two parallel lines of weaknesses develop/reverse faults



- Compression forces may take the outer blocks towards each other. The outer blocks ride over the middle block and the middle block sinks or subsides or may remain stable. The sunken middle part forms a depression called a rift valley.



- Compression forces may push the outer blocks towards each other (the outer blocks ride over the middle block) the middle block sinks/subside/may remain stable.
- The overhanging edges undergo denudation/are eroded.
- This widens the depression.
- The sunken middle part forms a depression called a rift valley.
- Diagrams (3 mks) (forces, reverse faults, Rift valley)
- Description (5 mks)

c. Explain **five** effects of faulting on human activities. (10 Mks)

- Fault blocks form beautiful scenery which attracts tourists, hence foreign exchange.
- Fault block causes displacement of rocks which exposes valuable minerals.
- Block mountains formed through faulting experience rainfall on the windward side give rise to rivers which provide water for industrial/domestic/agricultural use/Industrial use for production of H.E.P.
- Block mountains formed through faulting lead to formation of relief rainfall on the windward side which favours agriculture/and settlement/forestry.
- Rivers flowing over faults blocks from waterfalls which are sites for H.E.P production.
- Faulting creates deep faults which are passages of steam jets which may be utilized for geothermal power production.
- Rivers flowing over fault scarps may form waterfalls which can be harnessed to produce H.E.P for industries.
- Springs occurring at the foot of fault scarps attract settlements.

8.a. (i) Define the term aridity. (2Mks)

- It is the state of land being deficient in moisture, leading to scanty vegetation/lack of it.

(ii) State **three** factors that make wind an effective agent of erosion and deposition in the hot deserts. (3 Mks)

- Materials are unconsolidated/loose sand.
- Absence of vegetation/scanty vegetation.
- Winds are strong/storms.
- Low moisture content in the soil.

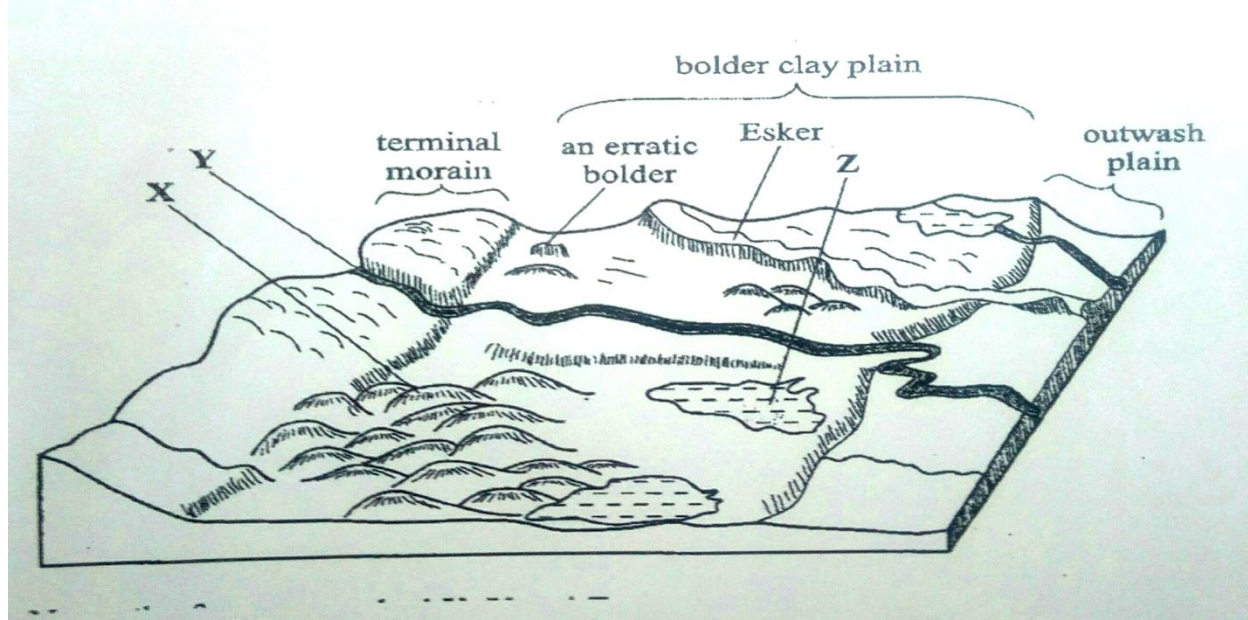
(b) Describe how a rock pedestal is formed. (5 Mks)

- A rock outcrop exists in the desert.
 - It's made of alternating hard and soft rock layers.
- Abrasion attacks soft rock wearing away it. The hard layers protrudes out horizontally.
- Wind is more active at the base hence undercutting the rock outcrop.

- This, queer shaped feature is known as a rock pedestal.
- (c) Explain **four** significance of desert feature to human activities. (8 Mks)
- Water from oasis is used for irrigation and domestic purposes.
 - Desert land forms are ideal for military training/testing weapons.
 - Loess forms fertile soils for agricultural purposes.
 - Some desert features like rock pedestal, zeugens and yadangs are fascinating and attract tourists, earning foreign exchange.
 - Desert features like badlands hinder transport lines construction.
 - Hot sun in the deserts provides potential for solar energy.
 - Sand dunes migration may destroy rich agricultural farms/and interfere with transport lines.
- (d) A group of form **four** students went out for a field study on action of water in an arid area.
- (i) Give **three** methods of data collection they may have used. (3 Mks)
- Observation
 - Photographing/taking photographs
 - Taking samples
 - Content analysis/Reading from secondary sources.
- (ii) State **four** problems they may have encountered during the field study. (4Mks)
- Attack by snakes/insect bites
 - High temperatures/Hot weather
 - Poor visibility due to dust.
 - Difficulty in movement due to gulleys
 - Shortage of water/thirst.
9. (a) Describe plucking as a process of glacial erosion. (4 Mks)
- Pressure from the overlying mass of ice causes freeze thaw action.
 - Melting water fills the cracks/joints in the bed rock.
 - As water freezes it exerts pressure on the cracks enlarging them.
 - The enlarged cracks lead to disintegration of the rock.
 - The rock debris are scoured or pulled off the mother rock by the moving ice.
 - The disintegrated rocks eventually get embedded within the mass of ice.
 - As the ice moves, it pulls out or gorges out the embedded rock from the mother rock.
 - This process is called plucking.
- (b) Explain three conditions that lead to glacial deposition. (6 Mks)
- Rising temperature lead to melting of ice thereby causing the ice to deposit its load.
 - Change of gradient to relatively flat surface will reduce the velocity of the glacial movement which will subsequently lead to deposition of glacial materials.
 - Alternating warm and cold periods lead to seasonal melting of ice which allows materials embedded in the ice to be released and deposited.
 - Stagnation/accumulation of glaciers leads to pressure at the base of the glacier which in turn leads to melting of ice at the base. The melt water then carries and deposits materials underneath which loosens the heavy materials beneath the mass ice and is subsequently deposited.

- Friction at the base and sides of a glacier and a rough surface leads to melting of ice, causing the ice to deposit its load.

(c) The diagram below shows features resulting from glacial deposition on a lowland area.



(i) Name the features marked X, Y and Z.

(3 Mks)

- X - Drumlins
- Y – A river/melt water
- Z – kettle lake/lake

(ii) Describe how terminal moraine is formed.

(4 Mks)

- Moving ice carries solid materials
- Moving ice stagnates and ice at the snout melts.
- Melting ice releases its load
- Gradually the load piles into a ridge
- Over time the ridge forms a horse shoe shape/block of solid materials called terminal moraine

(d) Explain four positive effects of glaciations in lowland areas.

(8 Mks)

- Glacial till provides fertile soils which are suitable for arable farming.
- Ice sheets in their scouring effect may expose the minerals making them easy to extract.
- Out wash plains comprise of sand and gravel which are used as building/construction materials.
- Glacial lakes found in lowland areas can be exploited for various economic uses such as fishing and transportation.
- Glaciation forms features such as drumlins, eskers which are tourists attraction hence foreign exchange earnings.
- Glaciated lowlands are generally flat and ideal for establishment of settlements/development of transportation network.

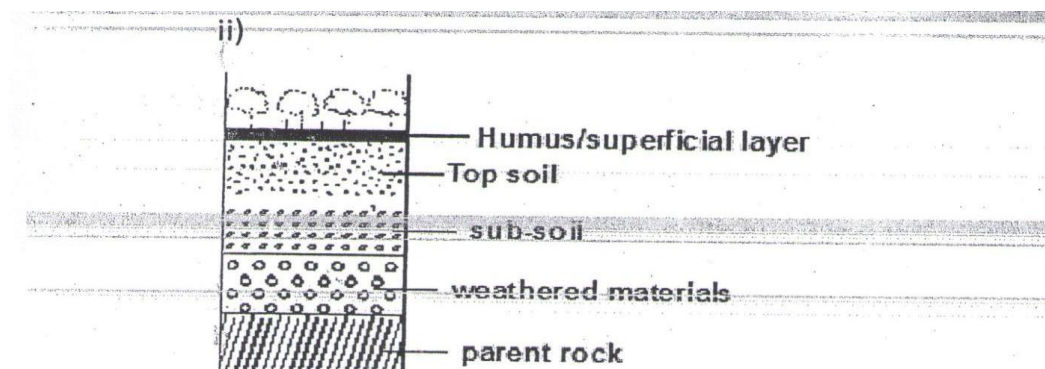
10. a) i) What is soil catena?

(2 Mks)

- It is the arrangement of soil along a slope from top to bottom.

ii) Draw a well labelled diagram to show the structure of a well-developed soil profile.

(5 Mks)



b) Differentiate between mineralization and humification in soil formation. (2 Mks)

- **Mineralization** is the biological and chemical breakdown of dead plant tissues by soil micro organisms to produce simple organic substances while **Humification** is the process through which organic matter is changed into humus.

c) State **three** factors that determine the colour of soil. (3 Mks)

- Humus content/ content of organic matter present in the soil: black/dark brown colour indicates a soil rich in humus
- Drainage of the area in which the soil is found: grey colour denotes a poorly drained and water logged soil
- Acidity/salinity/soil PH/ chemical composition of the soil: White colour denotes a soil with high salts concentration
- Type of parent material from which a soil has developed.

d) (i) Outline **four** factors that influence soil formation. (4 Mks)

- Nature of the parent rock material
- Climate
- Influence of living organisms
- Topography/Relief
- Time factor

(ii) Explain how the following farming practices that cause soil degradation:

- **Burning.** (2 Mks)
 - Kills soil micro-organisms and robs the soil of organic matter/humus
 - Kills nitrogen fixing bacteria resulting to lack of nitrogen in the soil
- **Continuous application of fertilizer on farm land.** (2 Mks)
 - Leads to increase acidity in the soil which interferes with soil formation micro-organisms like bacteria and fungi thus lowering the level of humus content.
- **Monoculture.** (2 Mks)
 - Results in the crops using all the minerals that it requires, which increases a deficiency of the mineral in the soil

iii) State **three** uses of soil.

(3 Mks)

- Give physical support for the rooting system of plants and protects root system from damage.
- Habitat for borrowing animals and bacteria necessary for breakdown of organic matter into humus.
- Medium through which nutrients and air are made available to plants.
- Provides mineral elements to plants e.g. nitrogen, calcium, phosphates, etc.
- Is used in building and construction e.g. clay for making bricks and tiles.
- Clay soils are used for decorative purpose e.g. ache used among Maasai.
- Sources of minerals especially to expectant mothers.
- Soil contains valuable minerals such as alluvial gold.
- Soils supports plant life which is source of food for people and animals especially herbivores.
- Soils are used for medicinal purposes e.g. clay is mixed with some herbs for medical purpose in some communities.

(Any 3×1=3 marks)