Term 2 – 2023

312

GEOGRAPHY PAPER

MARKING SCHEME.

SECTION A. (25 MKS)

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

- Geography applies Chemistry concepts in studying the chemical composition of rocks and soils.
- Chemistry concepts are used in Geography to explain chemical changes that occur in rocks/soils.

2x1=2mks

(b) The diagram below shows the internal structure of the earth.

(i) Name the parts marked G and H. (2 marks)

G -Continental crust/sial

H -Inner core

2x1=2mks

(ii) Name the dominant mineral in the mantle. (1 mark)

Olivine/ ferromagnesian silicate 1x1=1mk

2. (a)Differentiate between absolut d relative humidity. (2 marks)

Absolute humidity is the actual amount of wat apour or moisture in a given mass of air at a particular temperature while relative humidity is the ratio of the absolute humidity of a given mass of air to the maximum amount of moisture that this mass of air could hold at the same temperature.

1x2=2mks

(b)State the significance of humidity in the atmosphere. (3 marks)

- The amount of water vapour in a given volume of air indicates the atmospheres potential capacity to hold moisture: It determines the amount of precipitation that a given area is likely to receive.
- Water vapour is important in absorbing radiation hence regulates the heat loss from the earth.
- The amount of water vapour determines the amount of energy stored in the atmosphere for the development of storms.

3x1=3mks

3

a) A mineral is a naturally, occurring, crystalline, inorganic substance with a definite chemical composition and physical properties while a rock is any naturally occurring agglomeration of mineral particles forming part of the earth crust. 1x2=2mks

b) Three methods of placer / alluvial mining

- panning
- dredging
- hydraulic *(each 1 mk x 3=3 Marks)*

4.

a)(i). Forest – Is a continuous extensive track of land covered with trees

-It can be natural or planted, hardwood or softwood trees or both *(1 Mark)*

ii. Forestry – Is the science and art of developing or cultivation of forests. *(1 Mark)*

b) Three main types of forests

– Tropic hardwood forests
– Temperate hardwood forest
– Coniferous forest 3x1=(3 marks)

5. (a)Identify two scales used to measure the intensity of an earthquake.(2 marks)

– Rossi forell scale
– Mercalli scale

2x1=2mks

(b) Give three major earthquake zones of the world. (3 marks)

– The mid-Atlantic
– The Great Rift Valley region
– The Mediterranean region/Tethyan
– The circum Pacific region
– West coast of South America/ the Andes region
– West coast of N. America/Rockies region
– Himalayas belt

3x1=3mks

Question 6

a) Name the type of photograph shown above. (2mks)

Aerial oblique

1x2=2mks

b) Name the drainage feature represented by the photograph above. (1mk)

A river

1x1=1mk

c) **Name two erosional features that can be seen from the drainage system shown in the photograph above.**

(2mks)

a waterfall

a river gorge

2x1=2mks

d) **Name two indicators seen on the photograph that show the drainage feature above might be in its old stage.** (2mks)

Presence of meanders

Presence of braided channel

Presence of a flood plain

Any 2x1=2mks

e) Describe the relief of the area covered by the photograph. (2mks)

The area covered by the photograph is a plain because as vast landscape is seen to be relatively flat.

There are no hills in the vicinity.

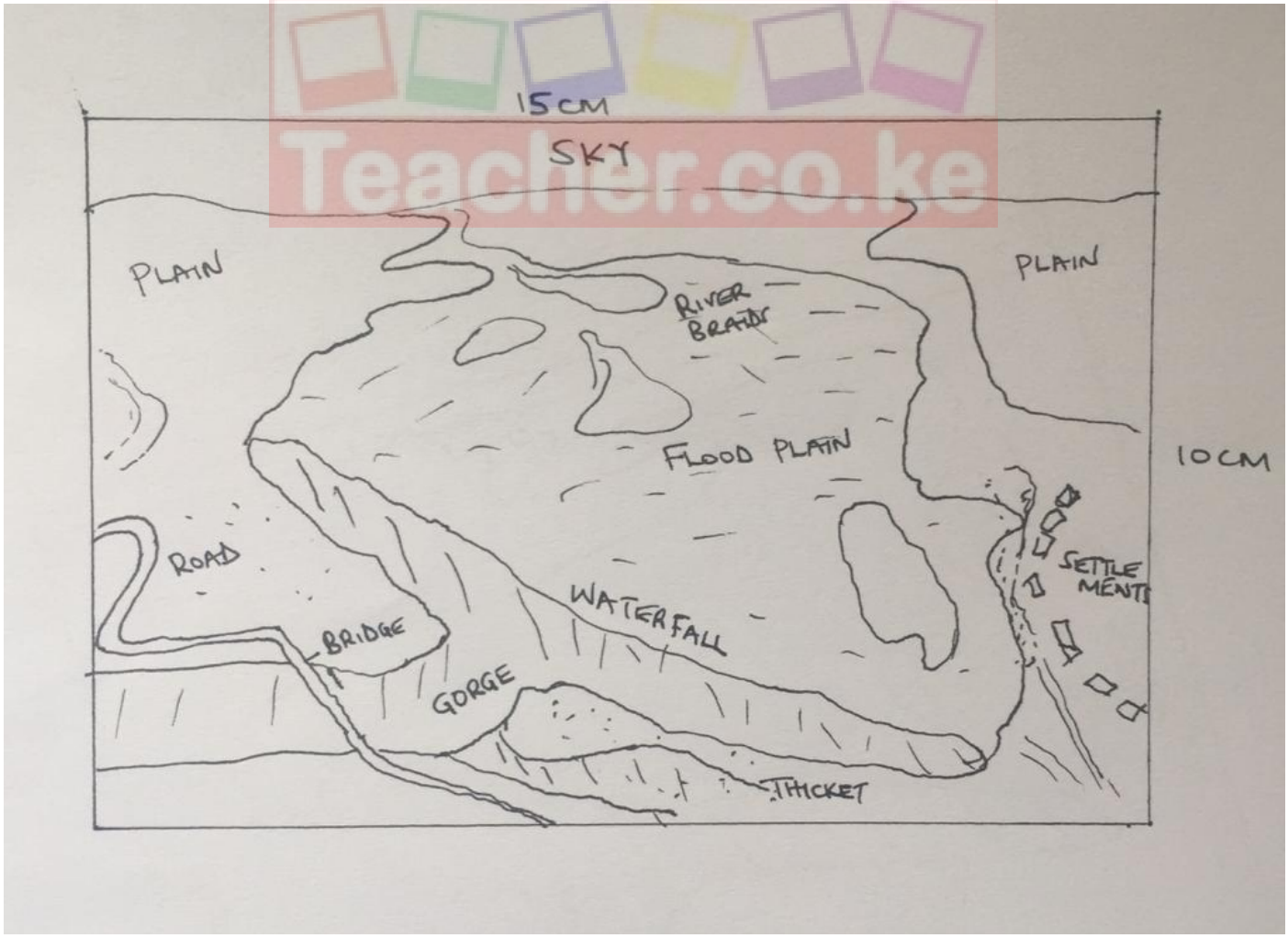
1x2=2mks

f) **Citing evidences from the photograph, give two economic activities that likely takes place in the area in the area shown by the photograph**. **(4mks)**

Transport-due to the presence of the road

Tourism-presence of the waterfall and the tourist hotels

g) **Draw a rectangle measuring 15cm by 10cm to represent the photograph above and on it show the main features.** (6mks)



5 features x1=5mks, rectangle 1mk

h) Students in a school near the feature conducted a field study in this region.

i. Name two tools they would need. (2mks)

A camera

A binoculars

A bag

A hammer

Any 2x1=2mks

ii. State one objective for their study (1mk)

To find out the economic significance of the drainage feature.

Any appropriate answer 1x1=1mk

iii. Name thee methods they would use to collect data. (3mks)

Observation

Conducting interviews

Taking photographs

Any 3x1=3mks

7. a) i)Name three types of faults. (3mks)

- Normal Faults
- Reverse Fault
- Thrust Fault
- Tear. Shear/Slip Fault.
- Anticlinal Fault.

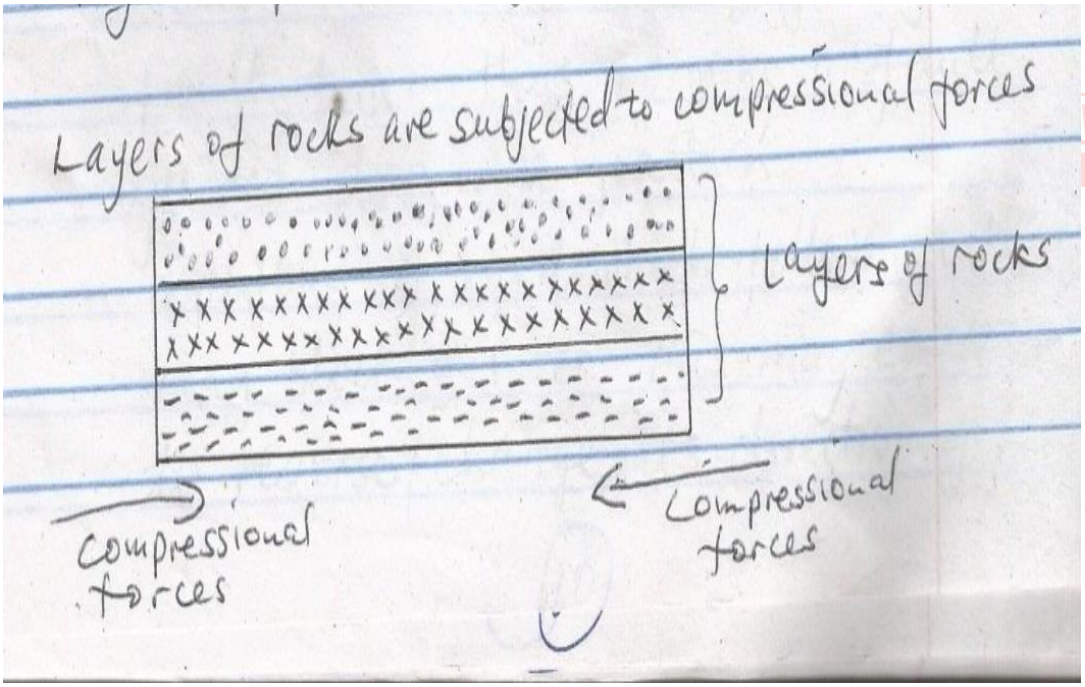
Any 3x1=3mks

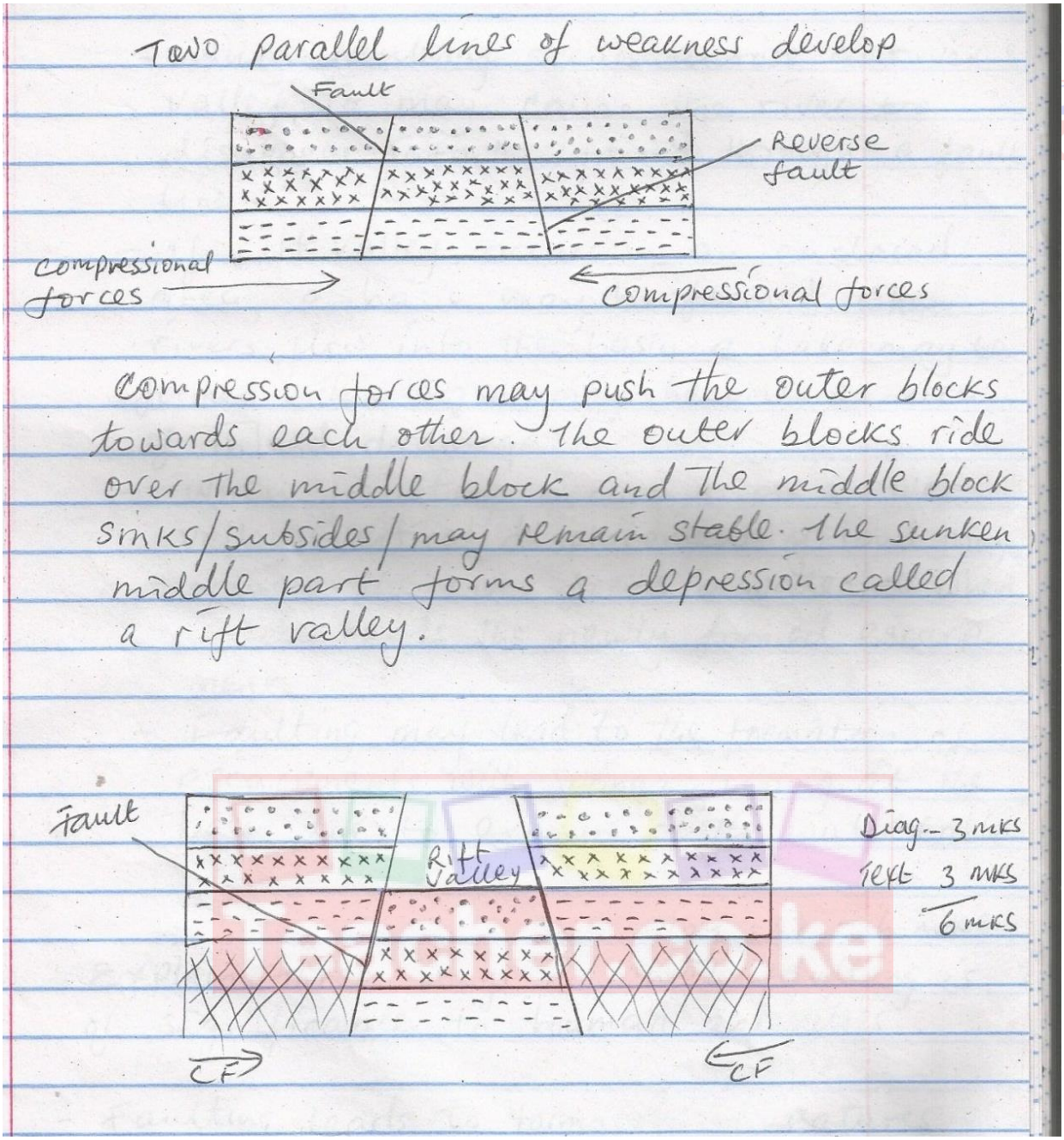
ii) Apart from compressional forces, explain two other process that may cause faulting. (4mks)

- 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 I shearing.
- Faulting may also occur due to vertical movement which may exert a strain in the rocks making them to fracture.

2x2=4mks

b) i)With, the aid of a well labeled diagram, describe how a rift valley is formed by compressional forces. (6mks)





– Compressional forces may push the outer blocks towards each other. The outer blocks ride over the middle block and the middle block sinks/ subsidies/ may remain stable. The sunken middle part forms a depression called a rift valley.

ii) Explain three ways in which faulting may influence drainage system. (6mks)

– Some rivers may end up flowing along faults lines, thus forming a fault guided drainage pattern .
– Uplifting of land which follows faulting may block a river. This may cause it to reverse / change its direction of flow.
– When faulting occurs across a river valley, it may cause the river to disappear into the ground through a fault line.
– If rift valley occurs in an enclosed area, a basin may be formed. When rivers flow into the basin a lake may be formed. This basin may become an area of inland drainage.
– When faulting occurs across a river valley, vertical displacement of land may occur. The river forms a waterfall where it descends the newly formed escarp.

– Faulting may lead to the formation of escarpments with springs forming at the base due to exposure of the water table.

3x2=6mks

c) Explain three ways in which faulting is of significance to human activities. (6mks)

– Faulting leads to formation of features that form beautiful scenery which attracts tourists.
– Faulting leads to formation of lakes that are important fishing grounds /tourists sites/ provide water for irrigation / for domestic use.
– Faulting causes displacement of rocks which exposes minerals that are mined.
– Faulting may lead to the formation of mountains /horst which experiences rainfall on the windward side that give rise to rivers which provide water for industrial / domestic/ agricultural use.
– Block mountains formed through faulting lead to formation of relief rainfall on the windward side which favors agriculture/ forestry settlements.
– Faulting may cause subsidence of land which may lead to loss of life /property.
– Faulting creates deep faults which are passage of steam jets which may be utilized for geothermal power production.
– When faulting occurs a ridge it may provide a dip which could form a mountain pass where transport /communication lines can be constructed/may hinder development of transport.

Any 3x2=6marks

8

a.(i). **What is an air mass?**

– a relatively homogenous body of air sometimes extending over hundreds of kilometers and originates from a specific region and has specific characteristics of temperature and humidity. ***2 x 1 = 2 marks***

(ii). A maritime air mass is a body of moist air which forms and originates over the Sea whereas continental air mass body of relatively dry air originating from the high pressure regions in the continental interiors ***1 x 2 = 2 marks***

b. (i). Forests

– Forests give off large quantities of moisture in to the atmosphere. The rain bearing winds pick up this moisture on passing over the forest hence facilitating abundant rain
– Forest provides friction to the rain heavy winds making them to slow down. The winds release the rain within the area ***2 x 2 = 4 marks***

ii. **Water bodies**

– Water bodies e.g. lakes and oceans provide moisture to the atmosphere through evaporation
– Winds pick up this moisture to other places where it is deposited as rain. ***1 x 2 = 2 marks***

c. **(i) -variation in the earth's orbital characteristics.**

- Variation in atmospheric carbon dioxide amount.
- Variation in solar output. ***2x1=2mks***

(ii) Effects of aridity and desertification

– Development of infertile soils supporting little or little vegetation.

– Hinders agricultural practices
– Exposes land to severe soil erosion and destruction of water catchment areas
– Migration of people to better, wetter areas
– HUGE amounts of sand carried by winds bury roads and even people *5x1=5mks*

(iii) Possible solutions to aridity and desertification

- Afforestation and re-afforestation programmes
- Controlling soil erosion and adopting conservation measures
- Controlled grazing
- Irrigating dry lands *4 x 2 = 8marks*

9

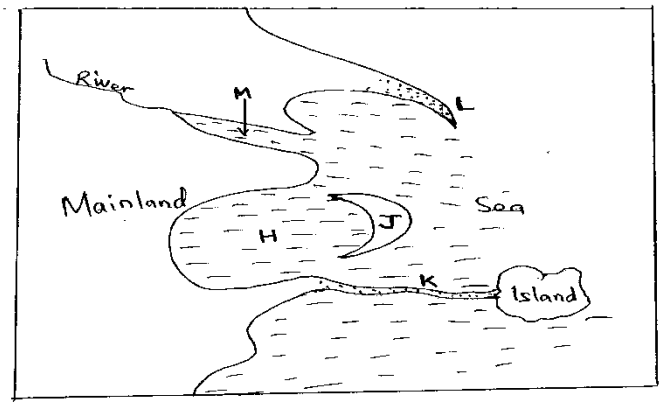
. a (i) Differentiate between a barrier reef and a fringing reef (2mks)

– Barrier reef is fringing reef forms a long distance away from the shore with a wide deep lagoon. While a fringing reef is a platform of coral build near the shore with a shallow lagoon.✓✓

(ii) Causes of ocean currents (3mks)

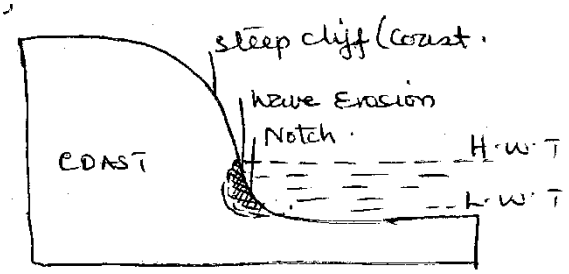
– Winds✓
– Earth rotation✓
– Shape of the landmasses✓
– Differences in water temperatures✓ Any 3 x 1 -= 3mks

b) On the diagram name the features marked H,J,K,L (4mks)

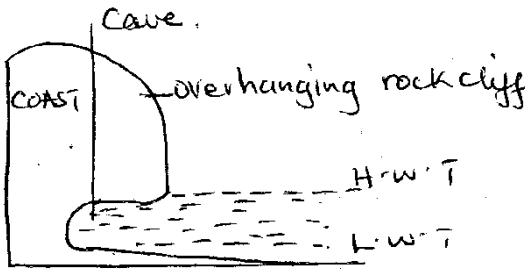


H- Lagoon✓
J –Offshore bar✓
K – Tombolo✓
L -- Spit✓ Any 4 x 1 = 4mks

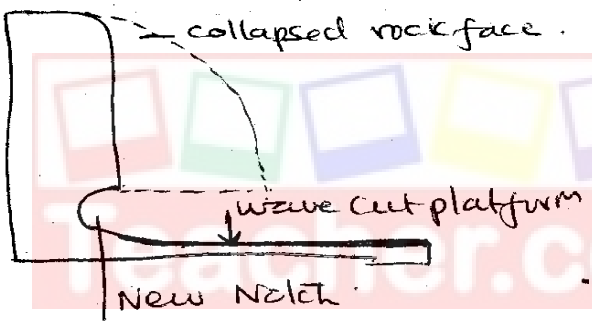
(c) With the aid of diagrams describe how a wave – cut platform is formed. (6 marks)



Wave erosion attacks a steep sloping coast or cliff by hydraulic action, abrasion and solution forming a notch between the high and low water tide. ✓



Over time, continued wave erosion enlarges the notch into a deep cave as the land above the cave forms an overhanging rock cliff. ✓



Weathering attacks the over-hanging rock cliff as the wave erosion continues to enlarge the cave at the base of the rock face. ✓

The overhanging rock cliff collapses exposing a new cliff. As the cliff continues to retreat a floor of the sea between the original cliff and the new cliff is exposed forming a fairly rock platform called a wave-cut platform. ✓

(d) Explain how the following factors influence development of coasts

(i) Climate **(2 marks)**

- Warm conditions I the tropics provide conditions for the growth of polyps and development of coral hence coral coasts.
- High temperatures results into melting / thawing of glaciers leading to a rise in the sea level hence the development of submergent coasts.
- Low temperature results into freezing of water into glacier and the fall in sea level hence the development of emergent coasts. 1x2=2mks

(ii) Gradient of the Coast **(2 marks)**

- A steep coast experience wave erosion hence erosional features.
- A gentle coast experiences wave deposition hence depositional features. 1x2=2mks

(e) Your class intends to carry out a field study on the features along the coast of Kenya.

(i) Why would they need to carry out reconnaissance (3 marks)

- To formulate objectives / hypothesis
- To draw the route map
- To prepare a working schedule
- To identify methods of data collection / recording
- To identify the equipment for the study
- To seek permission from relevant authorities.

Any 3x1=3mks

(ii) Give three disadvantages of using observation to collect data (3 marks)

- Cannot be used by visually impaired students
- It is biased due to subjectivity by the observer
- Its expensive de to travelling
- It takes a long time in carrying out the observation
- May be difficult to use when the weather is bad e.g. fog or rain.

Any 3x1=3mks

10. a. i. Name two types of desert surface. (2 marks)

- Sandy / Erg
- Hamada / rock surface.
- Peg / Angular pebbles, gravel, boulder or stony desert. Any 2x1=2mks

ii. Give two reasons why wind action is effective in the hot desert. (2 marks)

- Absence of vegetation cover to shield the soil.
- Presence of loose unconsolidated dry sand which is easily picked by wind.
- Occurrence of strong tropical winds
- Land surface is generally flat.

Any 2x1=2mks

iii. Explain processes of wind erosion in desert areas. (4 marks)

Abrasion

- This is the process through which materials carried by the wind e.g. sand are used as tools of erosion to grind and polish the desert surfaces.

Attrition

- This is the process through which sand particles which are carried by air collide with each other wind air and reduce in size progressively.

Deflation

- This is the process through which wind blows away and rolls on the ground unconsolidated materials hence lowering the land surface.

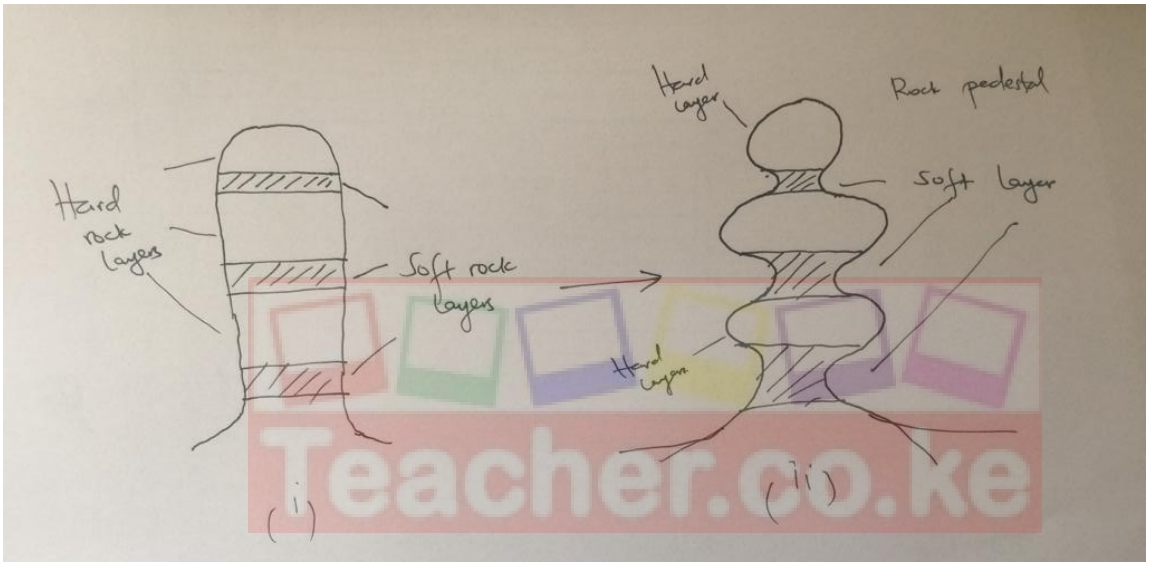
Any 2x2=4mks

b. i. Apart from rock pedestal, name two other erosional features formed by wind in desert. (2 marks)

- Zeugens
- Yaudangs
- Mushroom blocks
- Deflation hollows.

Any 2x1=2mks

ii. With aid of well labeled diagrams, describe the formation of rock pedestal. (6 marks)

- A rock outcrop composed of horizontal alternating layers of hard and soft rock stick above the general surface.
- The rock is attacked by weathering and wind abrasion.
- The softer rocks are eroded faster than the hard layers.
- The lower part is eroded more because wind abrasion is more effective closer to the ground.
- Hence the lower part is reduced to a thin stem. This new feature is called a rock pedestal.
- 

- (Explanation 4 marks, diagrams 2 marks)

c. i. State three factors that influence the transportation of materials in the desert by wind. (3 marks)

- -Strength of winds whereby strong winds in desert areas are capable of transporting heavy and more material due to high velocity
- Nature of the load e.g. light, loose / unconsolidated materials are carried and easily transported by wind over long distances.
- Presence of obstacles on the path of wind may reduce the velocity of wind, making it difficult to transport sand.
- Sudden changes in weather conditions e.g. sudden rain showers in deserts wash down air borne materials that were being transported leading to deposition.

Any 3x1=3mks

ii. Explain three negative effects of desert land forms. (6 marks)

- Sand dunes migration may destroy rich agricultural land and threaten human and animal life.
- Features like wadis make construction of transport lines difficult and expensive.
- Sand dunes make transport difficult as they form barriers to transport line

3x2=6mks