**GEOGRAPHY PAPER 1**

**MARKING SCHEME**

1. **(a) Definition of the term environment**

The term environment refers to all external conditions surrounding an organism and which has influence over its behavior.

(1x1 = 1mk)

**(b) The two types of environment**

* + Physical environment which includes physical conditions of weather , climate e.tc
  + Human environment which includes human activities such as farming, tourism e.t.c

(2 x1 = 2mks)

**(c) Relationship between geography and chemistry.**

* + Chemistry includes the study of substances, their composition and behaviour.
  + Geography applies chemistry in studying the chemical composition of rocks and soils.

2mks – relationship must come out clearly.

1. **(a) Effects of revolution of the earth**

* Causes the four seasons, winter, autumn, spring and summer.
* Causes varying length of day and night.
* Causes Lunar eclipse
* Changes in the position of the midday sun at different times of the year.

**(b)Differences in time between the two longitudinal**

(i) Differences in time

12. 00 – 8.00 = 4hrs √ (1mk)

(ii) The earth rotate through 150 every one hour. in 4 hrs rotation is through

15 x 4 = 600 √ (1mk)

(iii) The time at x is behind that at green wich meridian , so x must be to the west

of green wich by 600.

X is therefore 60 0 w √ (1mk)

1. (a) Amineral is inorganic substance which occurs naturally at or beneath the surface of the earth. (1mk)

(b) Porous are spongy like rocks with pores and have a high capacity to hold water while pervious rocks are solid rocks which have cracks with a high rate of water passage. √ (2x1 = 2mks)

**(e) Factors influencing development of a soil profile.**

* Rate of evaporation
* Human activities
* Vegetation cover
* Time
* Weathering process
* Nature of parent rock

Any 2x1 = (2mks)

1. (a) 1 – Elbow of capture (1mk)

2- Wind gap / Dry valley (1mk)

3- misfit river / Beheaded stream (1mk)

**(b) Causes of a river rejuvenation**

* Increased discharge
* Fall in sea level
* Change in rode resistance
* Regional uplift across river valley
* Local subsidance across river valley

(Any 2 x 1 = 2mks)

1. (a) X – Terminal morain (1mk)

Y – Lateral morain (1mk)

Z - Middle / medial morain (1mk)

Each (1mk x 3 = 3mks)

**(b) Factors influencing the movement of glacier.**

* + Gradient of the slope
  + The thickness and weight of ice
  + Friction along the floor
  + The season, whether summer or winter.

1. **(a) (i) The administrative divisions of Kitale**
   * + West pokot district √ 1
     + Tran – Nzoia district √ 1

(1 mk each)

**(ii) 6-Grid references of Kipsaini police stations**

* + - 341253 √√

**(iii) Two methods to represent relief**

Contours √ 1

Trinogonometrical stations each √

**(b) (i)Area of Kitale minicipality**

* + Full squares 6 ( 6 x 1km2) √ ½
  + Half squares 15 ( 15/2 x 1 km2) √ ½
  + Area of full squares 6 km2 √ ½
  + Area of half squares 7.5 km2 √ ½

Total square are 13.5 km2 √

**(Total 3mks)**

**( ii) 2 Functions of Kitale township**

* + Recreation centre (show ground/ Golf course)
  + Medicare centre (hospital)
  + Trading centre (shops)
  + Entertainment centre (sports club).

(iii)Longitudinal extent of Kitale map extract.

350001 to 350151 √

(Any two 1mk each)

(c) (i) Reduce area bounded by easting 32 to 40 and Northing 11 to 17 . on It mark loose surface road C638.

Squares from 32 to 40 easting

* Squares (8 x ½ = 4 squares)
* Squares from 11 to 17 Northing.

6 squares (6 x ½ )= 3 squares

Before

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8 squares

**6 squares**

After

|  |  |  |  |
| --- | --- | --- | --- |
| **3 sq** |  |  |  |
|  |  |  |  |
|  |  |  |  |

Total marks 3   
4sq

**(ii) Two economic activities giving evidence**

Economic activities Evidence from the map

Farming (wattle) Estates √√

Trade Kitale Township √√ 2

Transport services Road network √√ 2

C638, C637 e.t.c

Any two answers 2mks each (4mks)

**(d) (i) 2 Preparations before field work**

* + - Preparing working schedule
    - Seeking permission from relevant authority
    - Pre – visit for familiarization
    - Budgeting

Any 2 points each 1mk (2mks)

**(ii) Two reasons why pre visit**

* Help in identify respondents
* Helps in identifying materials to carry during the field study
* Helps to identify likely wood problems.
* Helps in scheduling work
* Helps in saving time while in the field

Any two 1mk each (2mks)

1. (a) (i) Mass – wasting refers to the creeping flowing , sliding or falling of weathered rocks down slope under the influence of the force of gravity.

**(ii) Factors influence the speed of Mass – wasting.**

* + Movement of material will be faster on steep slopes compared to gentle slope
  + High amount of water increase the weigh of the rock materials , reduce friction between the material and the surface of the slopes hence faster moist
  + Deeply weathered layers of rocks, weak rocks, and thinly bedded layers of rocks experience rapid movement.
  + Area of high rainfall temperatures experienced a lot of mass – wasting.
  + Bare surface experience faster movement because roots of vegetation hold soil particles together and also protects the ground surface from weathering.
  + Mining , building and construction break the rocks hence encouraging faster mass- wasting.

Any 3 x 1= 3mks

**(b) Causes of Land slides**

* Deep undercutting of the base of a steep slope by a river / wave action or mining or creating Embankments of roads and Railways.
* Earth movement e.g Faulting , folding or volcanicity

**(c) (i) two underground limestone features**

* + Cores / Caverns
  + Stalactites
  + Stalagmites
  + Limestone pillars / columns
  + Underground streams.

(Any 2 x 1= 2mks)

**(ii) Necessity of a work schedule in fieldwork.**

* Provide orderliness in field work
* Ensures that all planned activities are carried.
* It minimizes time wastage
* Enables learners to carryout follow up activities after the study.
* Enables learner to evaluate the progress of the study.

(Any 3 x 1 = 3mks)

**(iii) Two reasons why karst landscape is not suitable for settlement:**

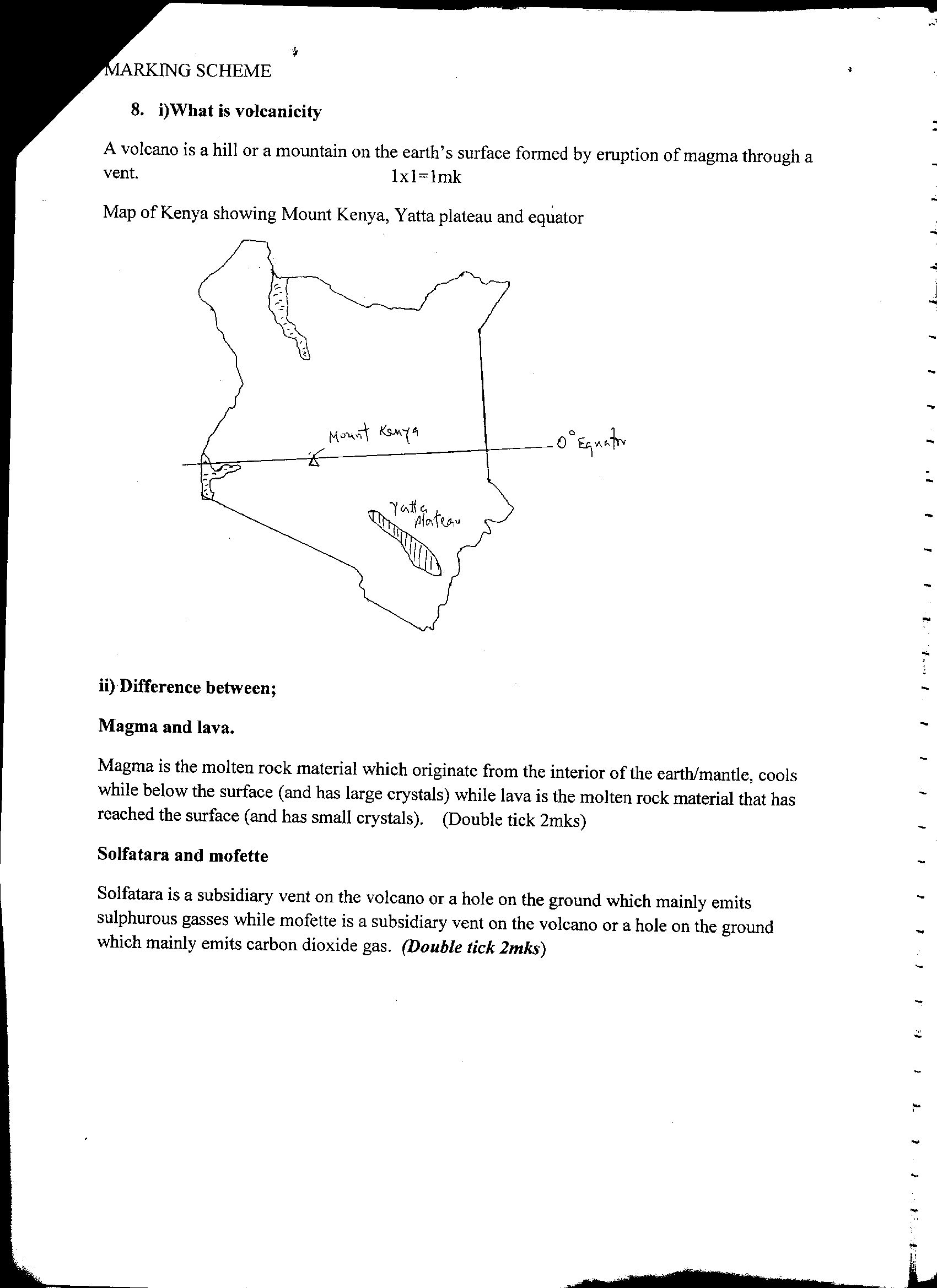
* Karst areas lack surface water and people avoid settling in such areas
* Kars surface is rugged thus discouraging construction of settlement.
* Karst areas have thin soil which discourage crop farming hence discouraging settlement.

(Any 2 x 1 = 2mks`)

1. **(a) What is volcanicity**

A volcano is a hill or a mountain on the earth’s surface formed by eruption of magma through a vent. (1 x 1= 1mk)

Map of Kenya showing Mount Kenya, Yatta plateau and equator



**(b) Difference between;**

**Magma and lava.**

Magma is the molten rock material which originates from the interior of the earth / mantle, cools while below the surface (and had large crystals) while lava is the molten rock materials that has reached the surface ( and has small crystals) (Double tick 2mks)

**Solfatara and mofette**

Solfatara is a subsidiary vent on the volcano or a hole on the ground which mainly emits sulphurous gasses while mofette is a subsidiary vent on the volcano or a hole on the ground which mainly emits carbon dioxide gas. (Double tick 2 mks)

**(c) (i) Formation of mount Kenya**

* The underlying molten rock escaped through a vent to the surface / volcanic eruption accurred.
* Violent eruption threw out solid material such as ash, dust and cinder / pyroclast.
* Acidic lava out poured, cooled and solidified.
* The alternating layers of lava and pyroclast pilled a round the vent
* Over the years , eruption ceased and the volcano become extinct.
* Erosion followed exposing the plug and producing the jugged peak of the mountain Kenya

(4mks)

(**ii) Formation of yatta plateau**

* Was formed when magma reached the surface of the earth through a series of vents / fissures .
* The lava was extremely fluid / ultra basic
* Lava spread evenly over a large area, filed valleys and low lying hills
* Lava cooled slowly and solidified to form a plateau (3mks)

**(d) (i) Likely problems during fieldwork**

* Difficulty in climbing/descending steep landscape.
* Accidents e.g slipping
* Attack by dangerous wild animals.
* Hindrance by poor weather conditions.
* Inability to access some areas. (3 x 1 = 3mks)

**(ii) Negative effects of vulcanicity likely to be observed**

* Some volcanic features like steep create barriers to the construction of communication lines.
* The rugged nature of some volcanic landscapes like mountain slopes discourages settlement.
* Weathered volcanic materials like ashes and granite rocks result in infertile soils that do not support agriculture.
* Volcanic mountain create rain shadow effect on their leeward side , e.g the naro moru- Nanyuki region which receives low rainfall unreliable for agriculture

Any 3 x 2 = 6mks

1. **(a) (i)The three process of wind erosion**

* Abrasion
* Deflation
* Attrition

(3 x 1 = 3mks)

**(ii) Three reasons why wind is as effective agent of erosion in hot desert.**

* + Presence of loose and consolidated materials.
  + Occurrence of strong tropical storms.
  + Absence of vegetation cover

(3 x 1 = 3mks)

**(b) (i) Formation processes.**

**Rock pedestral**

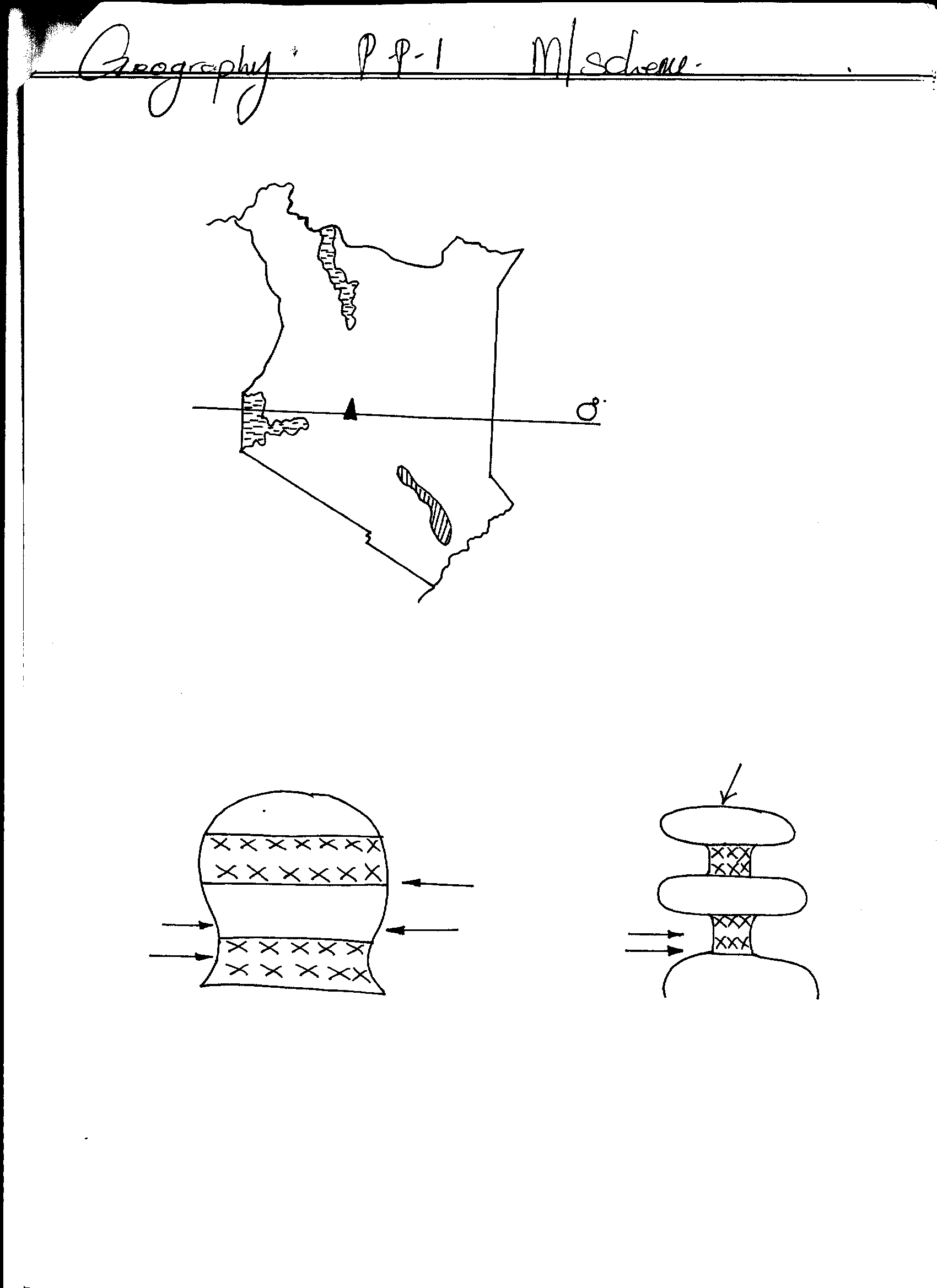
* Wind abrasion and weathering attack a massive rock outcrop with alternating horizontal layers of hard and soft rock
* The less resistance layers are eroded faster than the resistant layers.
* Abrasion is more near the ground because there are more abrasive materials.
* This leads to the formation of an irregular rock pillar with protruding rock layers that alternate with hollows and a narrow base called a rock pedestal

Rock pedestral

Soft rock

Hard rock

wind abrasion



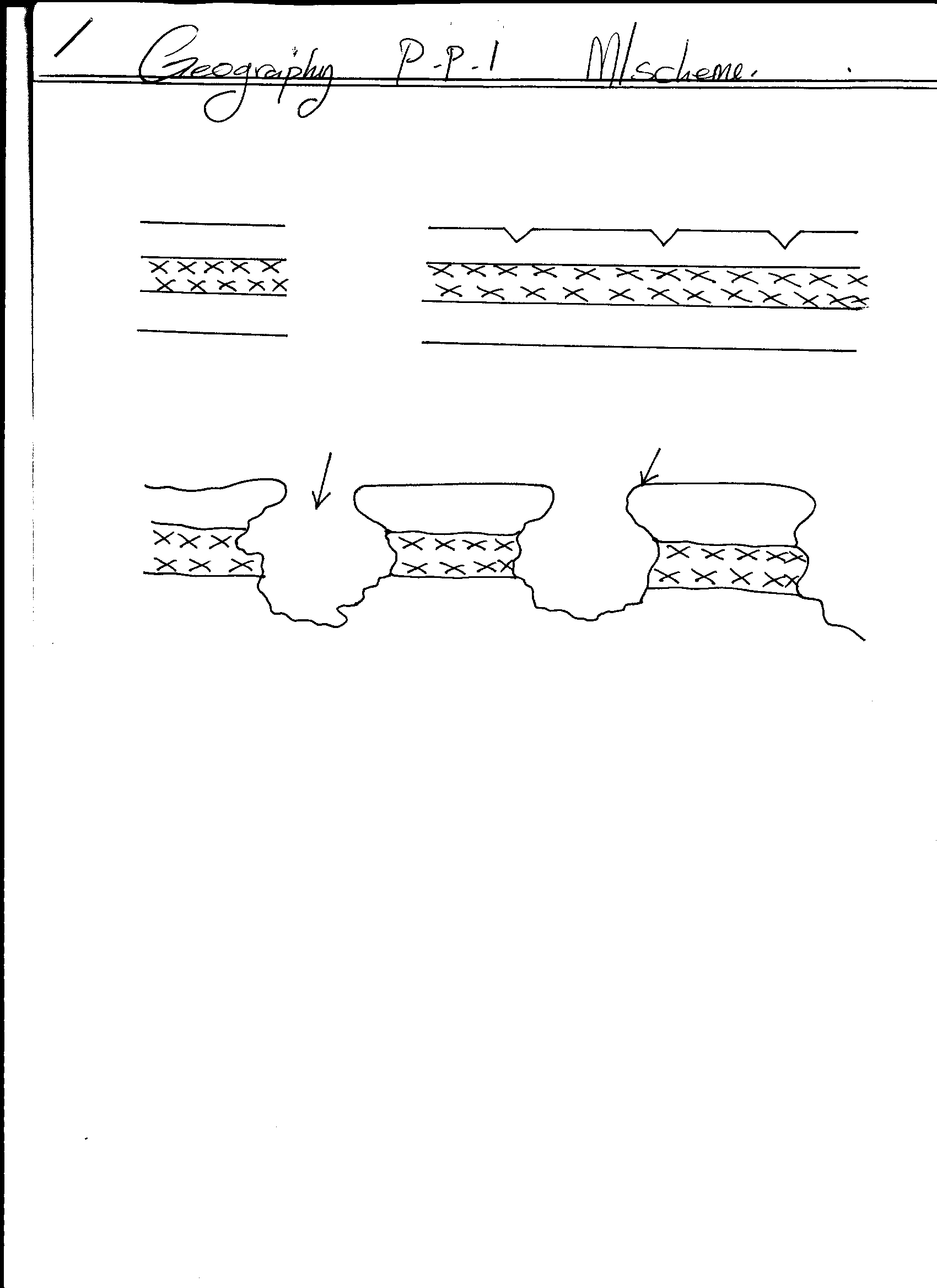
Description = 3mks

Diagrams = 2mks

Total = 5mk

**(ii) Zeugens**

* A masive rock with alternate horizontal layers of hard and soft rocks lies in the path of the prevailing winds.
* The resistant rock in the surface has fronts and lines of weakness
* Physical weathering enlarges the joints causing the rocks to disintegrate along them.
* This opens up the joints and makes it easier for deflation to take place.
* Abrasion acts on the lines of weakness thus enlarging and deeping them.
* The softer layers beneath are reached and greatly eroded to form a landscape with furrows separated by flat topped ridges called Zeugens



Soft rock

hard rock

furrows

Flat topped ridges

**A ZEUGEN**

* Weathering and erosion occurs on a plateau area that is capped by a resistant layer of hard rock.
* The less resistant layer beneath is exposed and undergoes weathering.

Diagrams – 2mks

Description – 4mks

Total = 6mks

**(c) Features that result from water Actions in the desert**

* Wadi, canyon, player, intermontaine basins, pediments, pediplains, inselbergs, Alluvial fans, Dry river valleys, Bajada.

Any 3 x 1 = 3mks

**(d) (i) Three reasons why they needed to sample part of the desert**.

* To save them time.
* To reduce the cost of the study
* To focus on relevant areas
* To conduct a detailed study
* To reduce bias in data collection
* The desert is too big to be covered adequately.

(Any 3 x 1 = 3mks)

**(ii) Two sampling techniques they are likely to have used.**

* + - Random
    - Systematic
    - Stratified

(2 x1 = 2mks)

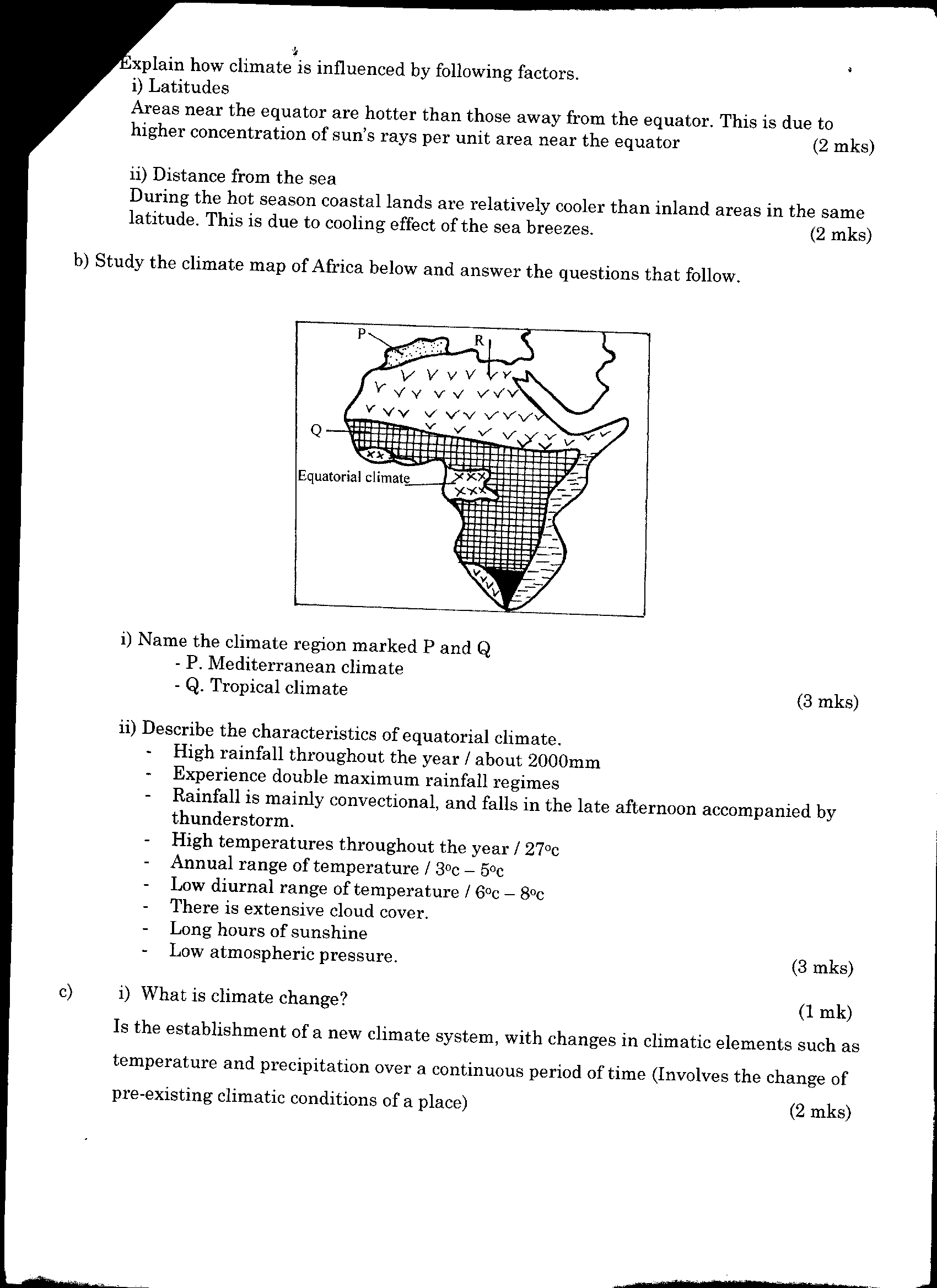
1. **(a) Explain how climate is influenced by following factors.**
2. **Latitudes**

* Areas near the equator are hotter than those away from the equator. This is due to higher concentration of sun’s rays per unit area near the equator

(2mks)

1. **Distance from the sea**

During the hot season coastal lands are relatively cooler than inland areas in the same latitude. This is due to cooling effect of the sea breezes. (2mks)

**(b) Study the climatic map of Africa below and answer the questions that follow.**

1. **Name the climatic region marked P and Q**
   * + P – Mediterranean climate
     + Q – Tropical climate.
2. **Describe the characteristics of equatorial climate.**

* High rainfall throughout the year / about 2000mm
* Experience double maximum rainfall regimes.
* Rainfall is mainly convectional , and falls in the late afternoon accompanied by thunderstorm.
* High temperature throughout the year/ 270C
* Annual range of temperature / 30C – 5oC.
* Low diurnal range of temperature / 6oC – 8oC.
* There is extensive cloud cover.
* Long hours of sunshine.
* Low atmospheric pressure.

(3mks)

**(c) (i) What is climate change?**

* Is the establishment of a new climate system, with changes in climatic elements such as temperature and precipitation over a continuous period of time (Involves the change of pre- existing climatic conditions of a place.)

1. **Explain two effects of climatic change on the physical environment. (4mks)**

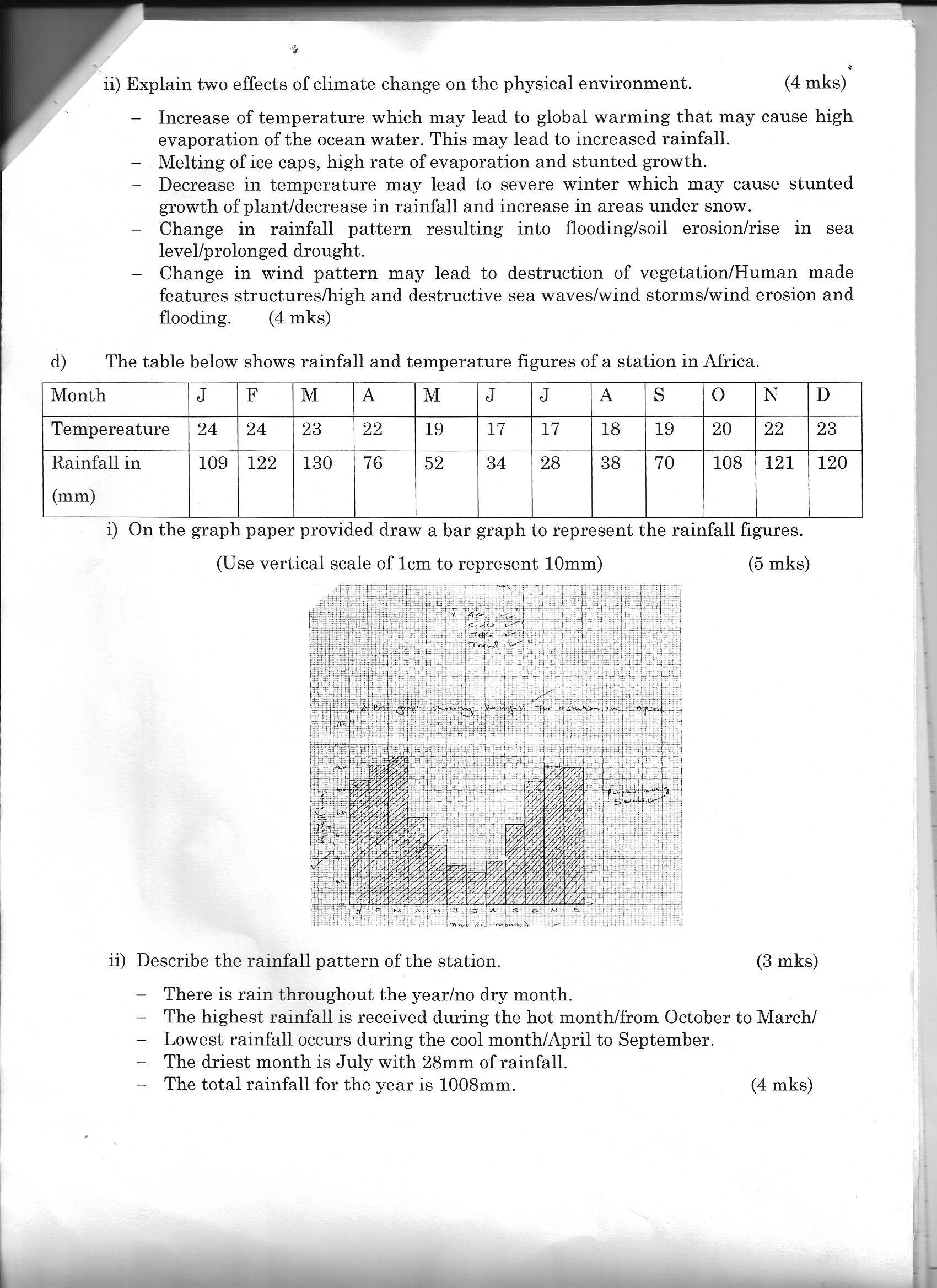
* Increase of temperature which may lead to global warming that may cause high evaporation of the ocean water. This may lead to increased rainfall.
* Melting of ice caps, high rate of evaporation and stunted growth
* Decrease in temperature may lead to severe winter which may cause stunted growth of plant / decrease in rainfall and increase in areas under snow.
* Change in wind pattern may lead to destruction of vegetation / Human made features structures / high and destructive sea waves / wind storms / wind erosion and flooding. (4mks)

(d) The table below shows rainfall and temperature figures of a station in Africa.

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Month | J | F | M | A | M | J | J | A | S | O | N | D |
| Temperature | 24 | 24 | 23 | 22 | 19 | 17 | 17 | 18 | 19 | 20 | 22 | 23 |
| Rainfall (mm) | 109 | 122 | 130 | 76 | 52 | 34 | 28 | 38 | 70 | 108 | 121 | 120 |

1. On the graph paper provided draw a bar graph to represent the rainfall figures.

(Use vertical scale of 1cm to represent 10mm) (5mks)



1. **Describe the rainfall pattern of the station.** (3mks)

* There is rain throughout the year / no dry month
* The highest rainfall is received during the hot month / from October to March
* Lowest rainfall occurs during the cool month / April to September.
* The driest month is July with 28mm of rainfall.
* The total rainfall for the year is 1008mm ( 4mks)

1. Calculating the average monthly temperature for the station.

Mean temperature = 24+24+23+22+19+17+18+19+20+22+23

12

= 20.660C (2mks)

1. Identify the type of climate represented in the table above. (1mk)

Warm temperate eastern margin (china type)