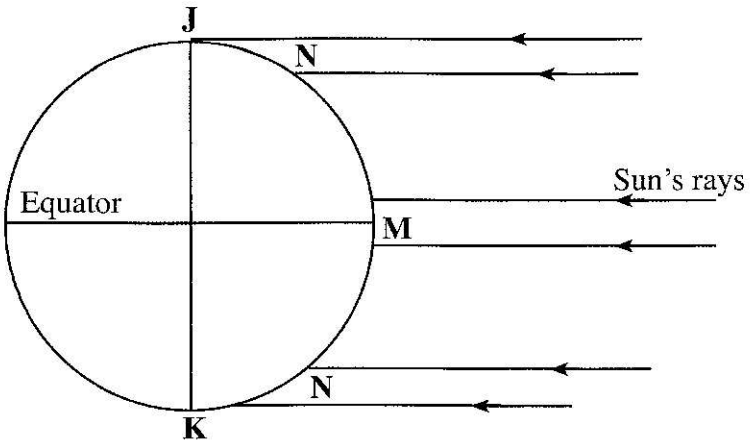
14.0 GEOGRAPHY (312)

14.1 Geography Paper 1 (312/1)

1 (a) The diagram below shows the angles of the sun's rays at different latitudes when the sun is at the equator. Use it to answer questions (a) and (b).



(a) Name the parts of the earth's surface marked J and K
J - North pole
K - South pole

(2 marks)

(b) Give two reasons why the intensity of the insolation is higher at M than at N

There is a higher concentration of heating at M than at N because the surface area at M is small than at N.
The angle of incidence of the sun's rays at M is higher than at N have the variation in intensity.
At N the sun's rays travel over a longer distance than at M thus losing the heat resulting to low intensity.

Any 2 x 1 = 2 marks

2 (a) What is weathering?

Weathering is the breaking down/disintegration and decomposition of rocks at or near the earth's surface in situ by physical or chemical process.

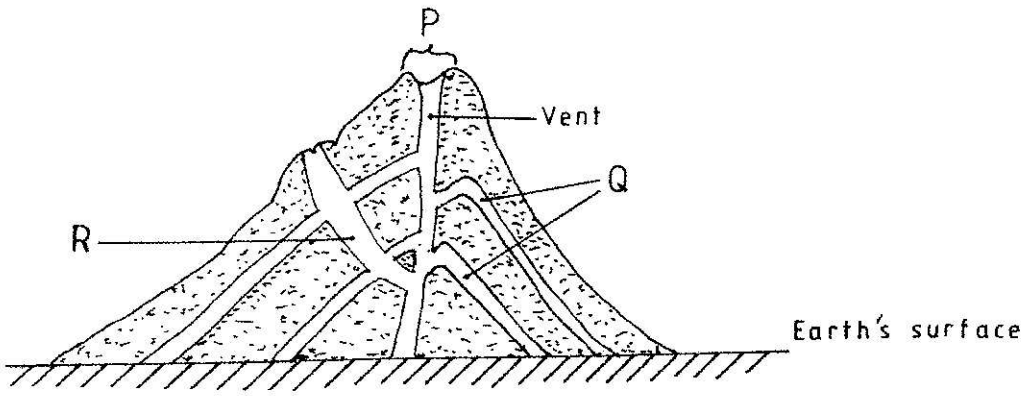
(2 marks)

(b) Give three factors that influence the rate of weathering.
Climate
Nature of the rock
Topography/angle of slope/slope
Living organisms (flora and fauna)
Human activities
Time.

Any 3 x 1 = 3 marks

3 Diagram of a composite volcano (see question paper)

(a) Name the features marked P, Q and R



P - Crater
Q - Lava layers
R - Dyke/slide/vent

(3 marks)

(b) How is a parasitic cone formed?

Pressure is reduced causing the magma from the interior of the earth to fail to reach the top of the volcano.
The upper part of the main vent of the volcano is blocked.
Pressure builds up and the magma escapes through a side vent.
The successive outpoutings of magma through the side vent builds alternative layers of ash and lava.
The layers of ash and lava form a conelet on the side of the composite volcano.
The conelet is the parasitic cone.

Any 3 x 1 = 3 marks

4 (a) What is land breeze?

It is a mass of cool air blowing from the land to the sea during the night.

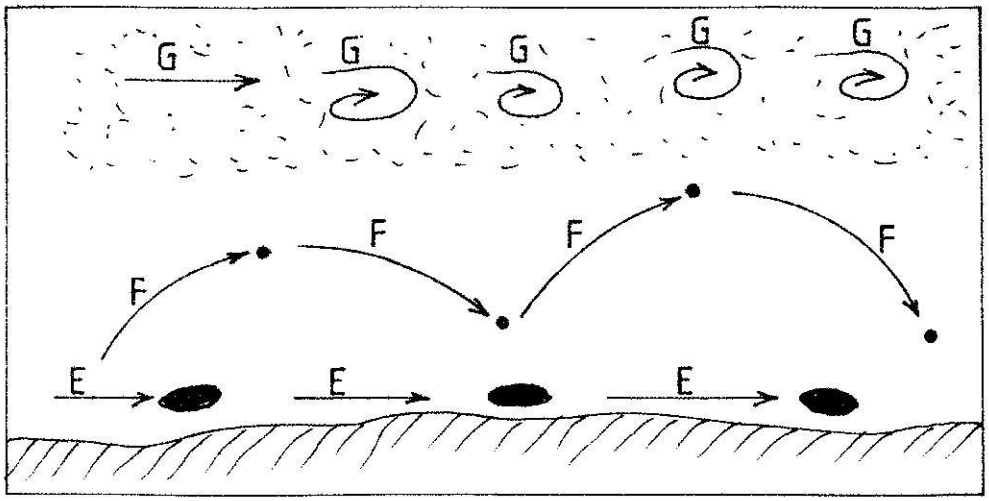
(2 marks)

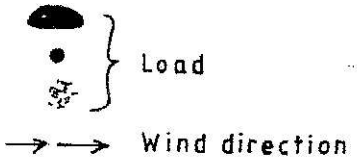
(b) Give two ways in which sea breezes influence the adjacent land

It lowers temperature of adjacent areas.
It may increase rainfall.
It may increase relative humidity.
It moderates diurnal range of temperature.
It may lead to convectional rainfall.

Any 2 x 1 = 2 marks

5





Name the three ways labelled E, F and G.
E - Traction/surface creep
F - Saltation
G - Suspension

(3 marks)

(b) Name three features produced by wind abrasion in arid areas
Rock pedestal
Zeugens
Yardangs
Venitifacts/dreikanters/Einkanter
Mushroom blocks/Gours
Millet seed/sand grains.

Any 3 x 1 = 3 marks

6 Map of Nkubu (provided)

(a) (i)
Latitude - 0° 00′ and Longitude - 37°45′E or
0′00′, 37°45′E

2 marks

(ii) Methods used to represent relief
Contours
Trigonometrical stations
Depression symbols.

Any 2 x 1 = 2 marks

(iii) Relief feature found at the top of Kirui Hill
Depression

1 mark

(iv) Apart from administration, give three other services that are provided at Nkubu Divisional Headquarters

Medical services
Educational services
Commercial services
Religious services
Communication.
Transportation
Rehabilitation

Any 3 x 1 = 3 marks

(b) (i) Length in kilometres of all-weather road bound surface from the bridge at Nkubu water works (509935) to Gatimbi road junction (509995).
7.0 ± 0.1 (6.9 - 7.1) Km.

(2 marks)

(ii) State three problems that may be encountered during construction of roads in the area covered by the map.

The rugged relief/steep/slopes/many hills which may necessitate road cuttings/many road bends.
Many rivers/river valleys may lead to the construction of many bridges/culverts.
The high density of settlement may lead to high cost of compensation.
The presence of Rurie swamp/swamps may lead to detouring of roads/tracks.
Any 3 x 1 = 3 marks

(c) Citing evidence from the map, give three reasons why cattle rearing is widespread in Nkubu area.

The presence of scrub and scattered trees show that there is natural pasture for cattle.
The presence of many rivers/sources of water show that there is adequate water for cattle.
The area has high altitude evidence /above 1000M which provides cool conditions suitable for cattle rearing.
The many cattle dips for treatment of cattle show that there is access to veterinary services.
Availability of extension services to the farmers as shown by Farmers Training Centre.
Large tracts of land with few settlements to the South East ensuring extensive area available for grazing..
Dense settlements to provide market for cattle/cattle products.
Availability of transport as shown by the roads/tracks for movement of cattle/cattle products.

Any 3 x 2 = 6 marks

(d) Describe the drainage of the area covered by the map

The main drainage feature are rivers.
The other drainage features are lakes and seasonal swamps.
There is a high density of/many rivers in the area.
The rivers are permanent.
Most rivers originate from Mt. Kenya forest.
Most rivers from the forest flow Eastwards.
Most rivers form a dentritic pattern.
The main rivers are Kithinu and Thingithu.
Most rivers are in the youthful stage.
Some rivers are bending/winding.

Any 6 x 1 = 6 marks

7 (a) (i) State three conditions that are necessary for siting a wether station.

The area should be away from buildings/trees/tal objects.
The ground should be free from flooding.
The area should have a wide view/open space.
The area should be secure.
The ground should be gentle sloping

Any 3 x 1 = 3 marks

(ii) Give four reasons why weather forecasting is important

It enables farmers to plan their farming activities.
It helps people to choose the clothing for the day.
It influences design of houses.
It guides in the timing of sporting/tourist activities.
It helps in averting natural disasters related to weather.
It guides in landing and taking off of aircrafts.
It helps in planning military activities.
It guides fishing activities.

Any 4 x 1 = 4 marks

(b) Table - See question paper

(i) The mean - 16.1°C

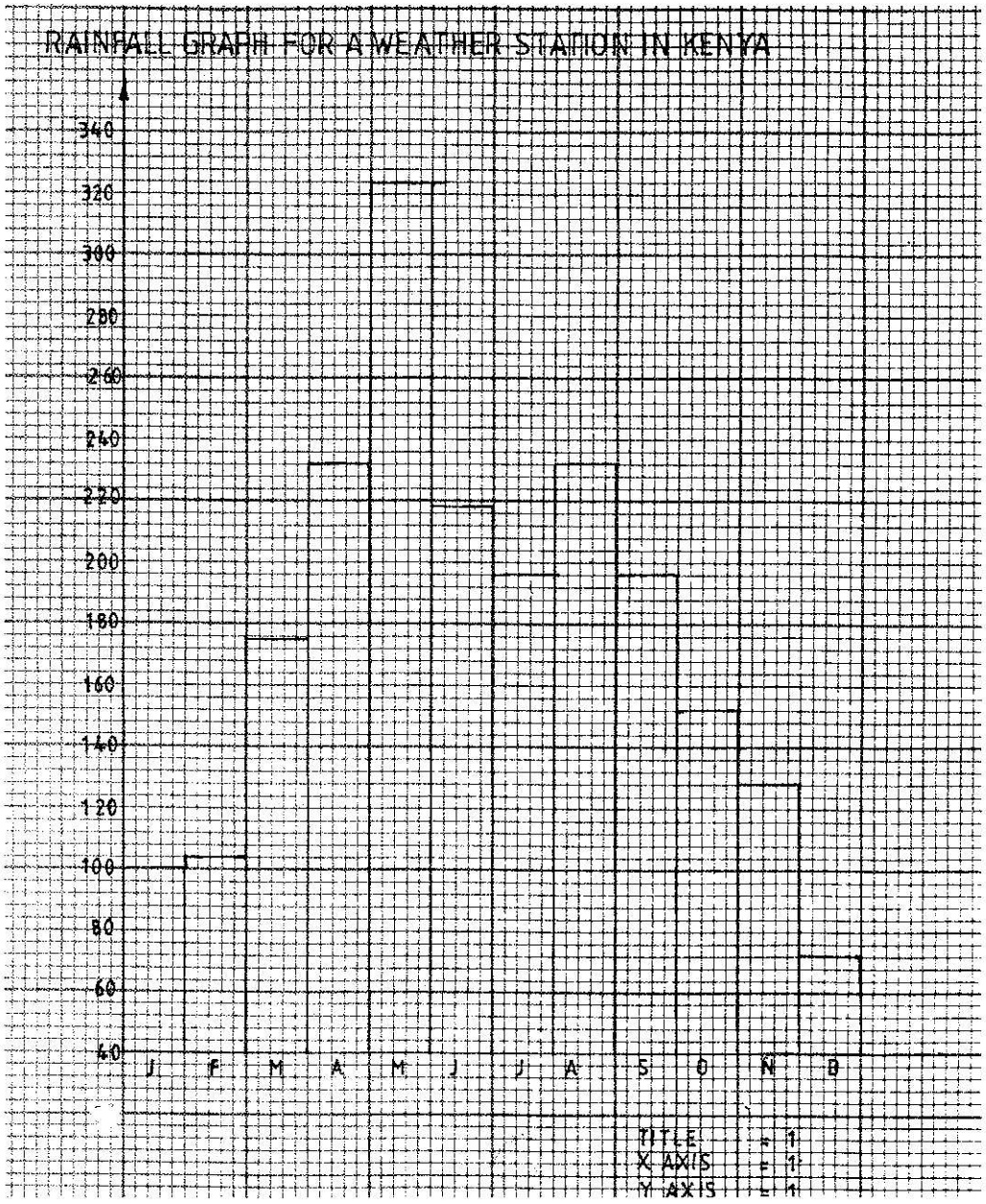
(2 marks)

(ii) Annual range of temperature - 2.1°C

(2 marks)

BAR GRAPH PRESENTING/SHOWING RAINFALL FOR A STATION

(c) (i)



(c) (ii) Describe the characteristics of the climate experienced at the weather station.

The climate conditions are generally cool.
The station receives high rainfall/2125mm.
The lowest rainfall (71 mm) is received in December /the highest rainfall (323 mm) is received in May.
The temperature ranges from 15.0° in August to 17.1°C in March/April. / The annual range of temperature is small /(2.1°C).
The area is wet receives rainfall throughout the year. /There is no dry month.

Any 3 x 1 = 3 marks

(d) Suppose you visited a weather station for a field study on weather;

(i) Give three methods you would use to collect data:
- Observation
- Interviewing
- Reading from secondary sources
- Administering/filling in questionnaires
- Taking measurements eg. rainfall
- Reading instruments (Thermometer)
- Filming/video taping/taking photographs.

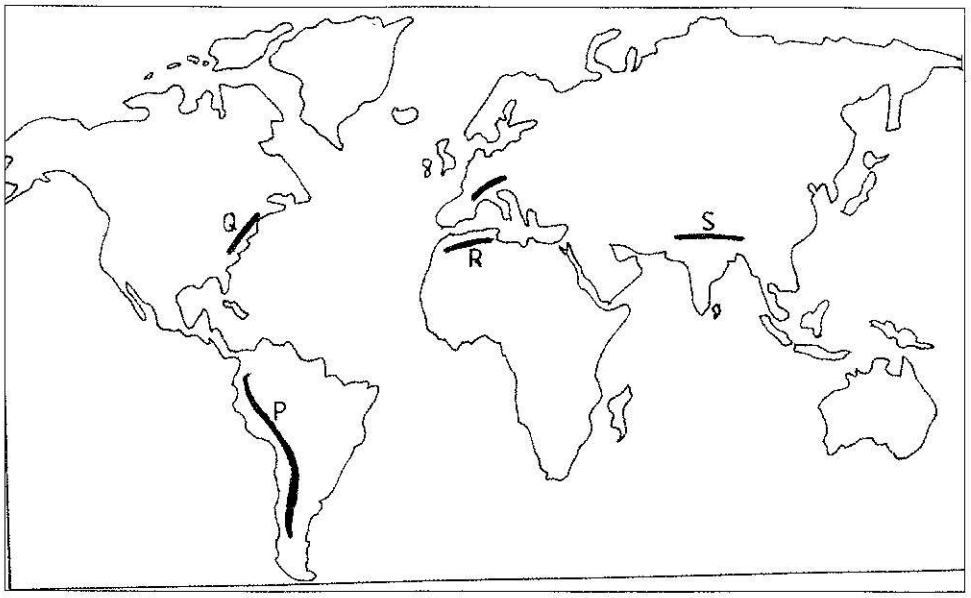
Any 3 x 1 = 3 marks

(ii) State three advantages of studying weather through fieldwork

It enables students to collect first hand information.
It helps students to develop manipulative skills.
It enables students to learn how to make weather recording instruments.
It enables students to apply the knowledge learned in the classroom.
It makes learning interesting.
It makes learning real
It provides detailed/in-depth/broader learning.
It enhances visual memory

Any 3 x 1 = 3 mark

8 (a)



P - Andes
Q - Appalachians
R - Atlas
S - Himalayas.

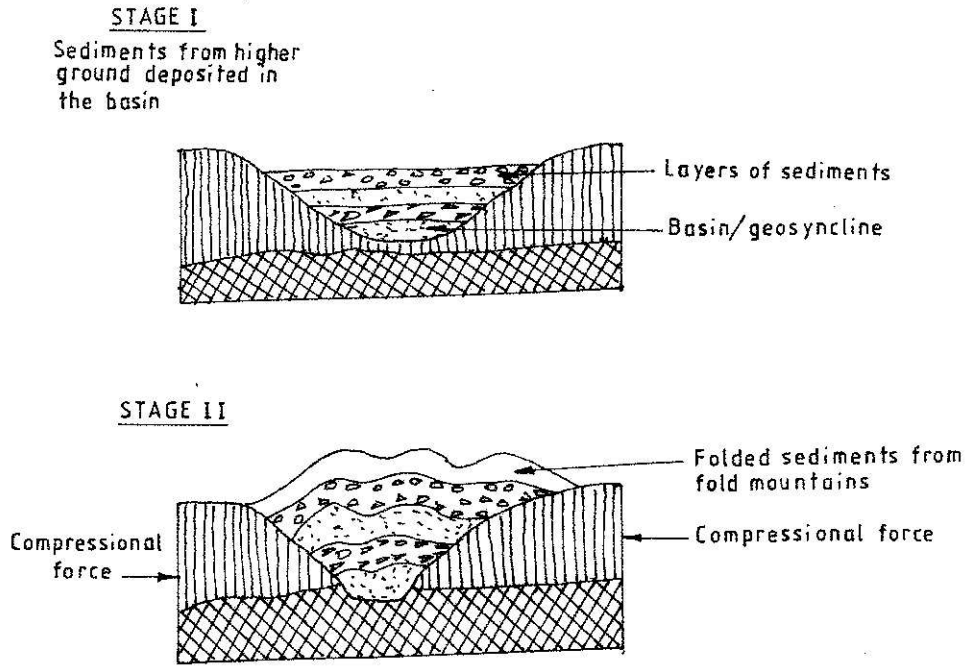
Any 4 x 1 = 4 marks

(b) (i) Apart from fold mountains, name three other features resulting from folding

- Synclinal valleys/depressions
- Rolling plains
- Ridges
- Intermontane basins
- Intermontane plateaus

Any 3 x 1 = 3 marks

(ii) With a well labelled diagram describe how fold mountains are formed.



Extensive shallow depressions called geosynclines develop on the earth's surface.
Prolonged and extensive erosion occurs on the surrounding higher grounds.
Sediments are deposited in the geosyncline forming thick layers.
The weight of the sediments causes subsidence of the geosyncline leading to accumulation of more sediments to great thicknesses.
Further subsidence of the geosyncline triggers off compressional forces which cause the sediments to fold.
The folded layers of sediments in the geocyncline are thrust upwards to form fold mountains, along the edges of a geosyncline due to closeness to the source of forces.

Diagram = 3 marks
Test = 5 marks

(c) Explain the significance of fold mountains to human activities

Fold mountains are sources of rivers that provide water for generation of H.E.P /domestic use/irrigation/industrial use.
Fold mountains are often forested and provide timber which is used in the building and construction industry/medicinal/aesthetic/wildlife habitat.

Some fold mountains have exposed valuable minerals deposits which are mined.
Fold mountains are tourist attractions/snow covered slopes encourage sporting activities, thus earning countries foreign exchange.
The wind ward slopes of fold mountains receive heavy precipitation which enhances agricultural activities.
The rugged nature of some fold mountain landscapes hinder human settlement/agricultural activities.
The leeward slope of some fold mountains create rain shadow effect which result into aridity discouraging crop farming/encourages livestock farming.
Some fold mountains may act as barrier to transport and communication/make the construction of transport and communication lines difficult/expensive.

Any 4 x 2 = 8 marks

9 (a) (i) What are tides?

Tides are the periodic rise and fall in the level of ocean/seas/large lakes as a result of the gravitational attraction of the sun and moon.

2 marks

(ii) Give three causes of ocean currents.

Differences in ocean water density/salinity.
Differences in ocean water temperature.
Winds blowing over the ocean.
Shape of coastal land mass.
Rotation of the earth

Any 3 x 1 = 3 marks

(iii) Name the three ocean currents along the western coast of Africa

Benguela
Guinea
Cannary.

3 x 1 = 3 marks

(b) (i) State three characteristics of submerged lowland coasts.

The coasts have broad shallow indentation/estuaries
The coasts have several creeks.
The coasts have extensive marshes/mudflats exposed at low tides.
The coasts have gentle slopes.
Broad continental shelf

Any 3 x 1 = 3 marks

(ii) Explain three factors that determine the rate of coastal erosion.

The duration of exposure of the coast to wave erosion. The longer the exposure to coastal waves, the higher the rate of erosion.
The degree of exposure of the coast to wave erosion. The exposed coasts are eroded more than the sheltered coasts that are sheltered hence reducing the rate of erosion.

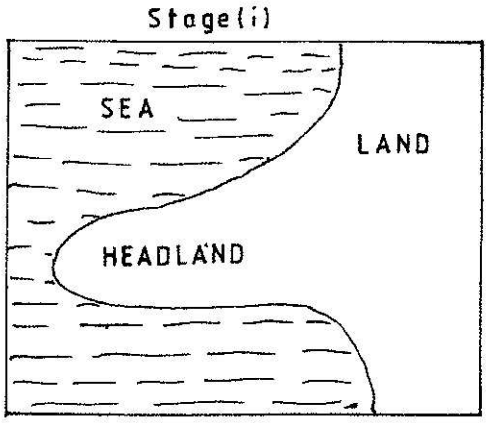
The nature/supply of material. Heavy materials/builders have a higher erosive power than fine materials.
The nature/structure of the coastal rock. A coast made up of soft rocks wears away easily when subjected to sea waves/when rocks are well jointed/fractures/ unconsolidated are weak soluble/composed of limestone/ are easily eroded.

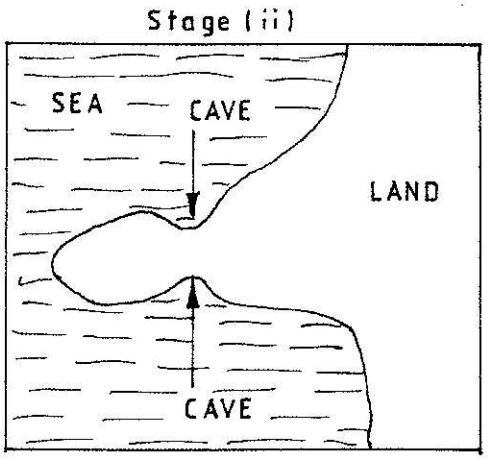
The nature/strength of the destructive waves. Strong waves will cause greater erosion by hydrantic action and erosion process.

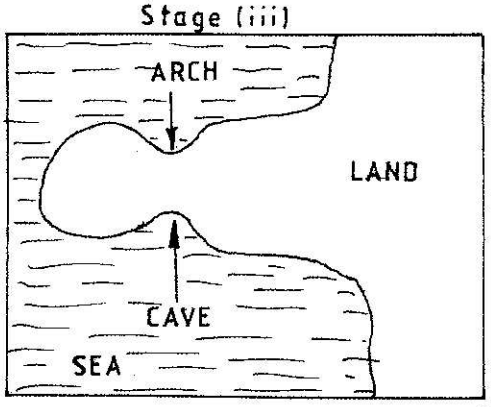
Any 3 x 2 = 6 marks

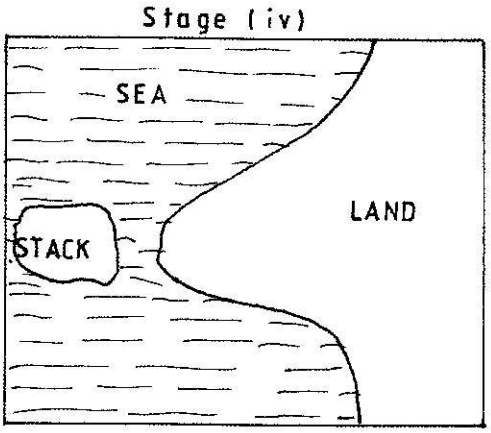
(c) With the aid of labelled diagrams, describe the process through which a stack is formed

Waves attack both sides of a headland at right angle.
The waves erode through abrasion and hydraulic actions forming caves on both sides of the headland.
Continued wave erosion and weathering leads to the elongation of the caves into headland.
Eventually the caves merge leading to formation of an arch.
The roof of the arch collapses leading to isolation of part of the headland on the seaward side.
The isolated headland is the stack.









Diagrams = 4 marks
Text = 4 marks
8 marks

10 (a) (i) What is a lake?

A lake is an extensive body of water in a hollow/depression in the earth's surface.

2 marks

(ii) Name two crater lakes in Kenya

Challa
Paradise
Simbi
Sonanchi (SW of Lake Naivasha)
Crater lake on the Central Island of Lake Turkana.

Any 2 x 1 = 2 marks

(b) Describe how the following lakes are formed.

(i) Corrie lake
Snow accumulates in an existing depression on the mountain side.
Snow gets compacted into ice forming a cirque glacier.
Frost action/alternating freeze-thaw action enlarges the hollow.

Abrasion by ice will deepen the hollow.
Plucking process steepens the backwall.
Eventually a deep arm-chair shaped depression known as corrie is formed.
When the corrie fills up with melt water, it forms a corrie lake.

Any 4 x 1 = 4 marks

(ii) Oasis

A pre-existing depression formed through faulting or otherwise is exposed to wind erosion.
Wind eddies remove unconsolidated materials through deflation.
Wind abrasion deepens and widens/enlarges the depression.
Continued deflation deepens and enlarges the depression.
Further abrasion deflation leads to the depression reaching the water table.
Water oozes out of the ground and collects into the depression to form a lake known as an oasis.

Any 4 x 1 = 4 marks

(iii) Lagoon

Sand/single are moved by the long shore drift and deposited at the entrance of the bay.
The deposits accumulate forming a spit/sand bar/ridge.
The continued deposition elongate the spit, eventually blocking the mouth of the bay forming a bay bar.
The bay bar separates part of the sea water from the open sea.
The enclosed sea water is the lagoon.

Any 4 x 1 = 4 marks

(c) (i) Give three reasons why some lakes in Kenya have saline water.

They lack outlets to the sea.
Some have salt bearing rocks on the lake bed.
High temperatures in the surrounding area lead to high evaporation.
Heavy deposition of mineral salts into the lakes by surface run off.
Underground seepage of water that is rich in mineral salts.

Any 3 x 1 = 3 marks

(ii) Explain how each of the following has affected lakes in Kenya

- Deforestation

It exposes soil which is eroded and carried into the lake causing siltation.
IT destroys catchment areas which reduces water fed into the lakes.

Any 2 x 1 = 2 marks

- Industrialisation

Establishment of industries had led to disposal of waste/pollution/contamination of lakes.
Establishment of industries has led to increased water use which has lowered water levels.

Any 1 x 2 = 2 marks

- Water Needs

When water is diverted into farms during irrigation it leads to lowering water levels in the lake.
Over use of water for industrial processes leads to lowering of water levels in the lakes

Any 1 x 2 = 2 marks