**KENYA HIGH EXAMINTIONS 2021**

**312/1**

**GEOGRAPHY**

**PAPER 1**

**MARKING SCHEME**

**SECTION A**

***Answer ALL questions in this section.***

**Question1**.

(a) Weather is the condition of the atmosphere of a given place over a given period of time/ shot period of time. ***(3 marks)***

(b) ***Five factors considered when siting a weather station.***

* Secure place; should be sited in a secure place to avoid vandalism and theft.
* The site should be away from obstruction (e.g. buildings, vegetation).
* The site should be relatively flat and free from flooding.
* The site should be in an open space where there’s free flow of air.
* The site should have a wide view of surrounding landscape and sky.

**Question2**.

(a) ***Ways that make it possible for geographers to study the earth’s interior.***

* By studying seismic shock waves
* Through study of volcanic lava flows
* Through study of rocks on the moon and meteorites
* Through very deep mining drilling. ***(1 x 2 = 2mks) any 2 points***

(b) ***Changes that may occur in a rock after it has undergone metamorphism***

* New minerals are formed
* Rocks change in hardness
* The rock change in physical appearance
* Rock particles become compacted
* Minerals recrystalise further. **(1 x 3 = 3mks)**

**Question3**.

(a) ***Differentiate between folding and faulting.***

* *Folding* is the bending of crustal rocks due to earth movements while

*Faulting* is the breaking / fracturing of crustal rocks due to tectonic forces.

(b) ***4 orogenesis periods in fold mountains formation****.*

* Charnianorogeny: e.g. African block, Laurentian shield, Russian platform & Deccan Plateau.
* Caledonian Orogeny: e.g. Akwapim hills, Scottish Highlands
* Hercynian Orogeny: e.g. Cape ranges, Appalachian Mtns, Ural
* Alpine Orogeny: e.g. Atlas, Alps, Himalayas, Rockies & Andes Mountains. ***(1 x 4= 4mks)***

**Question4**.

(a) ***Differentiate between a spring and a well.***

* *A spring* is a place on the surface of the earth where underground water flows out onto the surface while
* *A well* is a relatively deep hole in the ground which is dug by people for the purpose of getting water.

 ***(1 x 2 = 2mks)***

(b) ***Ways by which springs develop.***

* When a permeable rock lies on top of an impermeable rock.
* When the hilly country rocks are well jointed.
* When a dyke acts as a dam
* When limestone rocks (escarpments) overlie impermeable rocks.
* When gently sloping layers of permeable rock alternate with layers of impermeable rock.

 ***Any 3 (1 x 3 = 3mks)***

**Question5**.

(a) ***Two ways in which mulching improves soil.***

* Enhancing infiltration / reduce run off.
* Protect soil against splash erosion
* Enable soil to regain fertility / add humus to soil
* Enable moisture retention / reduces excess evaporation. ***Any 2 pints ( 1 x 2 = 2mks)***

**SECTION B**

**Question 6**

(a) (i) 21km2  ***2marks***

 (ii) 6.2 km ***2marks*** 4fig (1mk)

 (iii) 517 388 ***2marks*** 6fig (1mk)

 (iv)

(b) ***Using evidence from the map, state three functions of Homabay town***

 **Function** **Evidence**

* Industrial centre Ginnery
* Health centre Hospital
* Educational centre Schools/ nursing training, farmers training centre
* Transport centre Roads / Pier
* Communication centre Post office
* Trading centre Market ***Any 3 ( 3x1=3mks)***

 ***NB:*** *The point should be qualified (evidence) to earn a mark*

(c) (i) ***3 types of vegetation***

* Forests
* Papyrus swamp
* Scrub ***(3 marks)***

(ii) ***Settlement patterns***

* Linear
* Nucleated
* Dispersal ***(3 marks)***

(d) ***Describe the relief of the area covered by the map.***

* The area between Easting 51 and 54 is hilly as indicated by the presence of Ruri Hills
* The West of the area covered by the map is flat as indicated by widely spaced contour.
* There are rivers valleys around Ruri Hills
* Around Olambwe East the region is very steep as indicated by dense contours.
* The land is plainsland around Olambwe Valley national reserve***.( 1 x 5 = 5mks)***

**Question 7**

1. ***Definition of vulcanicity***
* It’s the processes through which solids, liquids, gaseous and molten materials are forced out of the earth’s interior or are intruded into the earth’s crust***. (1x2 = 2 marks)***
1. ***Four characteristics of a composite volcano.***
* Has vertical vent / pipe/ fissure
* Composed of alternating layers of ash / lava
* Its conical in shape / steep sided
* Has side vents
* Its made up of acidic lava / viscous lava
* Has conelets / parasitic cones
* At the summit, it may have caldera / crater / plug. ***(4 x 1 = 4mks)***
1. ***How a lava plateau is formed.***
* Formed when magma reaches the earth’s surface through fissures / vents
* Lava is ultra basic / low intensity
* Lava flows over a long distance spreading over a large area before cooling.
* Lava cools slowly forming an extensive lava platform bounded by steep slopes.***(4 x 1 = 4mks)***
1. ***Four negative effects of vulcanicity.***
* Volcanic eruptions can result in loss of lives
* Volcanic eruptions can destroy property
* Weathered volcanic rocks / materials e.g. ashes and granite can result in infertile soils.
* Volcanic features like mountains create barriers to transport and communication
* The rugged nature of volcanic landscape discourages economic activities e.g. agriculture and settlement.
* Volcanic eruptions produce poisonous gases e.g. sulphur Co2 which pollute the environment / threaten human life.
* Volcanic mountains create a rain shadow effect which discourage farming activities
* Recent lava flows have immature soils which are not suitable for farming.
* Volcanic eruptions and related hazards cause panic and affect people psychologically / inhibit development.
* Dust particles from volcanic eruptions absorb and scatter solar energy, lowering global temperatures; resulting to health problems to man.
* Volcanic eruptions may cover / burry minerals making mining difficulty and expensive.

 ***(4x2 = 8 marks)***

1. (i) ***Four sources of information that you would use in the preparation for the study***
* Written materials / magazines/ newspapers / text books
* Maps
* Photographs / films
* Resource persons
* Electronic media e.g. T.V / radio ***(4 x 1 = 4mks***)

(ii) ***Three factors that would make it difficult for you to collect accurate data during the field study.***

* Fear of eruptions
* Inaccessibility of some areas due to piled up lava
* Inadequate information because people have been evacuated
* There may be restrictions to access the area. ***(3 x 1 = 3mks)***

**Question 8**

1. ***Three agents of weathering***
* Heat / temperature
* Water / rainfall / moisture
* Plants
* Animals
* Man
* Wind ***(3 x 1 = 3mks)***
1. ***Frost action as a process of weathering.***
* Occurs where temperatures are within the freezing point
* When temperatures rise, snow melt and water enters the crack in the rock
* When temperatures drop, the water freezes, expands and widens the cracks
* Continued process of freezing and thawing lead to break up of rocks***.(4 x 1 = 4mks)***
1. ***Explain how an exfoliation done is formed*.**
* High temperatures during the day causes rocks to expand
* At night temperatures are low hence rocks contract
* Repeated expansion and contraction cause stress on the rocks hence cracks develop.
* Eventually, the outer layer peels off leading to rounded mass of rock known as exfoliation dome.
* Further wind action may smoothen the surfaces.

 ***(5 x 1 = 5mks)***

1. ***3 factors that influence the rate of mass wasting.***
* Steep slopes increase the rate of mass wasting
* The heavier the material, the faster the movement of the material
* The higher the rainfall the faster the movement of the material
* Bare surface increase the rate of the movement of the material
* Earth movements trigger movement of materials
* Human activities e.g. mining / farming / construction accelerate the rate of materials movement.

 ***(3 x 2 = 6mks)***

1. ***Four slow types of mass wasting.***
* Soil creep
* Talus creep
* Solifluction
* Scree creep
* Rock creep ***(4 x 1 = 4mks)***
1. ***Three positive effects of mass wasting.***
* Create scenery that attract tourists for foreign exchange
* It facilitates deposition of rich soils for agriculture in the low lands
* Landslides create barriers across river courses / valley leading to formation of lakes.
* It causes slope retreat encouraging human activities ***(3 x 1 = 3mks)***

**Question 9**

1. (i) ***Three factors that influence transportation of materials in the sea.***
* Ocean currents
* Tidal currents
* Strength of waves
* Nature of materials
* Depth of water
* Slope of the coast / shore
* alignment of the coast ***Any 3 x 1 = 3 mks***

(ii) A simple well labeled diagram of a sea wave. ***3marks***

 

(iii)***Three ways in which islands are formed.***

* Volcanic eruption
* Accumulation of coral into coral reefs
* Submergence of an upland coast
* Deposition across the bays / river mouths / lagoons
* Erosion of head lands***(any 3 x 1 = 3mks)***
1. (i) ***Hydraulic action***
* Action caused by the force of moving water in form of waves
* Involves direct wave force where the pounding force of the wave causes shattering of rocks on the cliff /causes compression of air in the cracks.
* As the wave retreats, the air expands explosively.
* Gradually the rock disintegrates. ***Any 3 x 1 = 3mks***

(ii) ***Solution***

* Is the process where sea water dissolves soluble minerals in the rock which are in contact with it on the sea side and bed.***2 x 1 = 2mks***
1. ***Formation of a spit.***
* It forms on a shallow shore at a point where there is a change in the angle of the coastline
* Sand and shingles are deposited from the headland seaward by long shore drift / oblique waves.
* Continued deposition leads into accumulation of materials seawards.
* With time, an elongated ridge of sand and shingles with one end attached to the mainland and the other projecting into the sea called a *spit* is formed. ***Any 5 x 1 = 5mks***
1. ***3 economic importances of coastal landforms.***
* Coastal rocks e.g. coral limestone are used in building and construction
* Limestone rock is used as a raw material in cement industries
* Coastal features like coral reef attract tourist who bring in foreign exchange
* Fiord and rias provide suitable sites for construction of the harbours / breeding of fish
* Marine life is used in education and research
* Mud flats and mangroves swamps are drained and used for rice cultivation / mangrove forests are exploited to provide poles for construction
* Extensive coastal plains provide suitable sites for human settlements and agriculture. ***Any 3 x 2 = 6mks***

**Question 10**

1. ***Four physical factors that contribute to development of deserts.***
* Continentality / distance from large water bodies
* A place being located in an area with descending winds / anticyclones
* Rain shadow effect
* Prolonged droughts
* Cold ocean currents
* Prolonged / persisted high temperatures
* Climate change / global warming
* Persistent offshore / dry winds / cold winds ***Any 4 x 1 = 4 mks***
1. ***Four characteristics of desert landscape***.
* Most of the ground is bare / scanty vegetation
* Total absence / partial surface water
* Wind is dorminant leading to desert sand storms
* Land surface is covered by fine sand / stones / rock outcrops
* Galleys / badlands are common
* Thin soils
* Little organic matter.***Any 4 x 1 = 4mks***
1. ***Three factors that influence wind transport in the desert.***
* Speed and the force / strength of the wind
* Nature of the load / either light / heavy
* Intervening obstacles e.g. dead animals , twig or rock
* Water mass / rain / moisture. ***Any well explained 3 x 2 = 6mks***
1. ***How a deflation hollow is formed.***
* A pre-existing depression /localized fault is exposed to wind erosion.
* Wind eddies remove the unconsolidated materials by with deflation
* Weathering aids in breaking down the exposed rock
* Wind abrasion excavates the depression by eroding the rock along weak lines
* The depression is deepened and widened as a deflation continues to remove the loose materials leading to formation of a large depression known as deflation hollow. ***Any 4 x 1 = 4mks***
1. (i)***Four preparations for your study.***
* Seeking permission
* Conduct a reconnaissance
* Formulate / adjust hypothesis and objectives
* Choose methods of data collection
* Assemble necessary tools / materials
* Prepare a working schedule
* Divide the students into groups
* Discuss the topic in class
* Literature review***Any 4 x 1 = 4mks***

(ii) ***List three water depositional features you identified.***

* Salina / playa
* Alluvial fans / cones
* Bajadas***3 x 1 = 3mks***