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**CEKENAS END OF TERM TWO EXAM-2022**

**FORM FOUR EXAM**

*Kenya Certificate of Secondary Education. (K.C.S.E)*

**Geography paper 1**

**312/1**

**MARKING SCHEME**

1. **(a)Give two evidences supporting the Nebula Cloud theory on the origin of the earth.**
	* All planets undergo rotation and revolution.
	* Temperatures of the planets increases with the increase in depth.
	* - Material making up the Nebula were hot hence planets nearer the centre of the solar system have higher temperature than those far away. (2x1 = 2mks)
2. The diagram below represents the revolution of the earth.
3. 

  **(i) Give three climatic conditions in Europe when the earth is in position A.**

* High temperatures
* High rainfall
* Convergence of winds
* Low atmospheric pressure
* High humidity
* It is cloudy (3x1 = 3mks)
1. **(a) Give two forces that may cause faulting process.**
* Tensional forces
* Compressional forces
* Vertical forces (2x1 = 2mks)

  **(b) Describe how a block mountain is formed through compressional forces.**

* Earth crustal rock are subjected to compressional forces developing reversed faults.
* Continued subjection to compressional forces on crustal rocks triggers off vertical forces.
* Vertical forces pushes the middle block up at higher level while the side block remains at the original positions.
* The raised middle block that is above the surrounding sides blocks forms block mountains.

 (3x1 = 3mks)

1. **(a) What is natural vegetation?**
* It is the plant cover that grows wildly on the earth’s surface without interference from man and his animals. (2x1 = 2mks)

 **(b) Identify the temperature grassland in the following countries**

* Argentina - Pampas
* South Africa - Veldts
* Australia – Downs

 (3x1 = 3mk)

1. **(a) Name two types of tides.**
* Spring tides
* Neap tides
* Apogean tides
* Perigean tides

 (2x1 = 2mks)

  **(b) State three conditions necessary for formation of a beach.**

* Presence of abundant supply of material to be deposited.
* Presence of a shallow shore/ continental shelf
* A relatively weak long shore current
* Gently sloping land at the sea shore
* A weak backwash/ constructive wave.

 (3x1 = 3mks)

1. **(a) Study the diagram below and answer the questions that follow.**



1. Name the features marked

X – Corrie/ cirque (1 Mark)

Y - Arete (1 Mark)

 Z – Pyramidal peak (1 Mark)

1. Identify two processes through which the feature marked X is formed.
* Abrasion
* Plucking

 (2x1 = 2mks)

**SECTION B**

**Answer question 6 and any other two questions from this section.**

1. **Study the map of Nyeri 1: 50 000 (sheet 120/4) provided and answer the following questions.**
2. **(i) Identify the sheet number of the map provided** (1mk)
* 120/4

 **(ii) Convert the scale of map into a statement scale.** (2mks)

 

 Therefore 1 cm rep 0.5km or 1 cm rep 

1. **What is the bearing of the trigonometrical station 1906 in grid square 6860 from the trigonometrical station 1865 in grid square 6957.** (2 marks)

  or N22W

1. **(i) Identify two physical features found in grid square 6259.** (2mks)
* Stream/river
* River/valley
* Scrub vegetation
* Woodland vegetation

 **(ii) Give the latitudinal extent of the area covered by the map.** (2mks)



 Latitudinal extent = 

 **(iii) Identify two districts in the area covered by the map.**  (2mks)

* Nyeri district
* Laikipia district
1. **(i)Using a scale of 1 cm represents 20m, draw a cross section from Easting 68 to Easting 74 along Northing 64.** (4mks)

On it mark and name

* A hill top (1mk)
* A stream/river (1mk)
* All weather road loose surface (1mk)



**(ii) Calculate the vertical exaggeration of the cross-section.** (2mks)

 

**(d) Citing evidence from the map identify two social services offered in Mweiga township.**

* Recreation services as evidenced by presence of youth club
* Education as evidenced by presence of school
* Medical/ Health as evidenced by presence of dispensary
* Administration as evidence by the chief’s office
* Security as evidenced by presence of police station.

 (2x2 = 4mks)

1. **(a) What is climate**
* Climate is the average weather conditions of a place over a long period of time.

 (2x1 = 2mks)

**(b) (i) Explain two effects of climate change on the physical environment.**

* + Global warming and increase in temperatures.
	+ Increased temperature may lead to melting of ice caps and ice sheets leading to rising sea level.
	+ Increase in temperatures may result to high evaporation leading to drought.
	+ May cause changes in rainfall patterns in different parts of the world.

 (2x2 = 4mks)

 **(ii) State four characteristics of the hot dessert climate.**

* + High temperatures during the day and low temperatures during the night due to high terrestrial radiation.
	+ High diurnal range of temperature
	+ Clear and cloudless skies
	+ Receives less than 250mm of rainfall annually
	+ Receive short and torrential rains which cause flash floods
	+ Humidity is low and evaporation rate is high
	+ Sandstorms are very common
	+ High wind velocity due to the frictional force.

 (4x1 = 4mks)

1. **Using a well-labelled diagram, explain the formation of anabatic winds.**



* During the day, mountain slopes are heated and warm faster than in the valley bottoms.
* Low pressure develops on mountain slopes than at the valley bottoms
* The air on the mountain slopes expands and rises by convection.
* The cool air from the valley bottom rises as anabatic wind to take its place

 (5x1 = 5mks)

**(d) (i) Define micro climate.**

* Climate experienced within a small or restricted area which is different from general climate in the region.

 (1x2= 2mks)

 **(ii) Explain four human activities that can lead to aridity and desertification.**

* Clearing of vegetation for settlement and agriculture interfering with the water cycle causing drying up.
* Overstocking that leads to overgrazing leaving the land bear exposing to soil erosion.
* Poor agricultural practices such as over- cultivating, monoculture, slashing and burning leading to soil erosion.
* Poor irrigation methods leading to evaporation and salts brought from below to the surface and deposited on the top soil making soils salty and unable to support plants.
* Industrial release of greenhouse gasses like CO2 to the atmosphere which absorb heat rising earth’s temperatures.

 (4x2 = 8mks)

**8. (a) Identify the types of earthquake waves.**

* Primary waves
* Secondary waves
* Longitudinal waves/L waves

 (1x2 = 2mks)

 **(b) (i) Describe two ways in which the strength of an earthquake is measured.**

* The strength of an earthquake is measured by its intensity.
* Intensity measures how strong and hard an earthquake shakes the ground
* It is measured on the Mercalli scale or Rossi Farrell scale
* The strength is measured by its magnitude
* Magnitude measures the amount of energy released by an earthquake.
* It is measured on the Ritcher scale

 (2x2 = 4mks)

 **(ii) Human causes**

* Use of explosives
* Underground nuclear tests
* Construction of large reservoirs
* Movement of trains

 (3x1 = 3mks)

**(c) Explain four effects of earthquakes on physical environment.**

* It causes landslides/slumps
* It causes raising or lowering of land
* It causes faulting of the crust
* It causes lateral or vertical displacement of rocks
* It causes rising and lowering of the sea level.

 (4x2 = 8mks)

**(d) Students from Karatina School carried out a field study of an area affected by earthquake.**

**(i) Identify three effects they noticed on human environment.**

* Cracks in buildings
* Landslides covering crops etc.
* Collapse of weak buildings
* Panic and fear amongst people
* Death and destruction of properties due to falling objects

 (3x1 = 3mks)

**(ii) What are the advantages of collecting information in the area using photographs?**

* They are easy to take
* Cheap to produce
* Can be stored for future references
* Easy to extract information of well-labelled
* Features portrayed are realistic

 (3x1 = 3mks)

**(iii) Give two problems that they are likely to experience**

* Inaccessibility of the area due to massive destruction
* The rubble may obscure the evidence
* Lack of informers because people may have evacuated

 (3x1 = 3mks)

**9. a) i) Distinguish between the river system and river interfluves**

* River system is the main river and its tributaries while river interfluves is the high areas in between the tributaries.

 (1x2 = 2mks)

**ii) Give three types of river erosion.**

* Head ward erosion
* Vertical erosion
* Lateral erosion

 (3x1 = 3mks)

**b) i) What is a waterfall?**

* A waterfall is the sharp break in the river channel over which the river falls

 (1x2 = 2mks)

**ii) Give four types of waterfalls.**

* Waterfalls formed where a river channel passes over underlying hard rock
* Waterfall formed where there is vertical hard work along the river channel.
* Waterfall formed where the river course flows over a fault scarp.
* Waterfall formed where a river enters a coastal plain from a plateau
* Waterfall as a result of river rejuvenation
* Waterfall formed where a river channel flows over underlying volcanic dykes, lava dorms or plugs
* Waterfall formed where a river enters the sea through a cliff.
* Waterfall formed in a glaciated upland where a river flows from a hanging valley and plunges into a u-shaped valley.

 Any (4x1 = 4mks)

**c) Describe each of the following drainage patterns.**

**i) Dendritic pattern**

* The pattern develops in areas where rocks have uniform structure.
* The direction of flow is influenced by the slope of the land
* The tributaries join the main river at acute angles.
* The tributaries join the main river forming a shape like that of a tree and its branches.
* Rivers join the main river from many directions.

 Any (4x1 = 4mks)

**ii) Trellis pattern**

* The pattern develops where soft and hard rocks alternate vertically.
* The tributaries join the main river at right angles.
* The consequent streams are parallel to the main river.
* Some consequent streams flow to the opposite direction of the main river.
* The main river and its tributaries form a rectilinear pattern.

 Any (4x1 = 4mks)

**d) Your class is required to carry out a field study on the lower course of a river.**

**i) Give three advantages of dividing the class into groups.**

* The class would be able to study the entire course of the river.
* It will enable them to obtain detailed information on the river.
* It will enable the field study to be carried in an orderly way.
* It will encourage participation of all the members of the class
* It will facilitate more interaction among the group members.

 Any (3x1 = 3mks)

**ii) List three features the students would identify.**

* Alluvial fan
* Meanders
* Oxbow lakes
* Natural levees
* Deferred tributaries
* Braided channels
* Flood plains
* Delta
* Distributaries

 Any (4x1 = 4mks)

**10. a) i) Define the term ‘leaching’.**

* It is the removal by rainwater on soluble mineral matter in solution from the upper horizon or the soils (horizon A) to the lower horizons of the soils.

 (1x2 = 2mks)

 **(ii) State two factors that contribute to the leaching of soils.**

* Nature of the soils especially its texture and solubility or its minerals
* High rainfall in the rain season alternating with a dry season
* Topography

 Any (2x1 = 2mks)

**b) (i) Explain how laterization (ferrallization) occur. (6mks)**

* It occurs in areas which experience alternating wet and dry seasons especially the warm hot humid tropical regions.
* During the wet season mineral salts in the A- horizon dissolve in percolating rain water.
* The dissolved minerals percolate from A – horizon downwards i.e. leached out.
* The soil solution also cause removal or silica in a process called desilication.
* The dissolved minerals are deposited in the lower layer in a process known as precipitation.
* Insoluble minerals such as iron and aluminum oxides accumulate in A – horizon to form a crust known as laterite.
* -There is rapid circulation or bases between the soil and the vegetation because or abundance of leaf litter and its rapid decay.

**(ii) State three types of soils degeneration.**

* Physical degeneration
* Chemical degeneration
* Biological degeneration

 (3x1 = 3mks)

**c (i) Explain four ways in which vegetation protects the soils and prevents soil erosion.**

* The leaf cover helps to reduce the force or rain drops which would otherwise loosen and remove soil particles if their force was not checked.
* vegetation cover increases the rate or infiltration or rainwater and thus reduces surface run-off
* Plant roots which penetrate the soil create space through which water percolates deep into the ground.
* A wide – spreading and deeply penetrating root system is very effective in binding the soil particles together.
* Plant cover breaks the force of wind at ground and reduces evaporation which would otherwise dry and loosen the soil.
* Decayed vegetable matter provides humus which binds the soil particles together.

Any (4x2 = 8mks)

**(ii) State four advantages of mulching soil using organic matter.**

* It reduces the rate of evaporation of water from the soil
* It protects the soil from erosion
* It increases the humus content of the soil when they disintegrate
* Increases the rate of infiltration of water into the soil
* The mulch provide suitable habitat for borrowing animals which churn the soil and improve its texture and capacity.

 Any (4x1 = 4mks)