**TOP EVALUATION EXAMINATION - 2016**

**Kenya Certificate of Education**

**Geography Paper 1**

**FORM 3**

**JULY/AUGUST**

**MARKING SCHEME**

1. Name two layers of discontinuity that are part of the interior structure of the earth. (2marks)

* ***Mohorovicic***
* ***Gutenberg***

(b) Identify any **three** areas covered under human and economic Geography. (3 marks)

* *Mining*
* *Forestry*
* *Agriculture*
* *Fishing*
* *Wildlife and tourism*
* *Industry*
* *Energy*

1. (a) List theories that explain the origin of fold mountains. (2 marks)

* **Contraction theory**
* **Convectional theory**
* **Continental theory**
* **Plate tectonics theory**

(b) State three positive significance of folding. (3 marks)

* **Fold Mountains are a tourist attraction which brings foreign exchange.**
* **Fold Mountains are water catchment areas and sources of rivers.**
* **Some fold mountains have valuable mineral deposits such as coal and petroleum.**
* **Fold Mountains act as protective barriers during war.**
* **Some fold mountains on the path of rain bearing rainfall influence rainfall.**
* **Folding can lead to formation of valuable minerals due to metamorphism.**
* **Folding brings valuable minerals to the surface.**

1. (a) At town A 40◦E time is 1 pm what is the time at town B 40◦E? (2 marks)

**40◦+20◦=60◦**

**60×4=240min=4hours**

**B is behind in time =1.00-4=9am**

(b) State **three** characteristics of comets. (3 marks)

* ***appear to have a head and a long tail***
* ***Made of ice, dust and frozen gas***
* ***The head is made of many particles of dust, rock and frozen gases.***
* ***Their tail is made of gases and points away from the sun.***
* ***Move around the sun in extremely long and oval orbits***
* ***Their orbits cross the earth’s orbits.***

1. (a) Differentiate between rocks and minerals. (2 marks)

***Rocks are hard substances made up of mineral particles forming the earths crust while minerals are naturally occurring inorganic substances with definite chemical composition and physical properties.***

1. Give **three** changes that occur in rocks during metamorphism. (3 marks)

* *New minerals are formed.*
* *The rocks are hardened / become more resistant.*
* *The rock may recrystalize.*
* *The chemical composition of the rocks change.*
* *Physical characteristics / appearance of the rock changes is altered.*

1. (a) Identify two types of desert. (2 marks)

* *Erg*
* *Hamada*
* *Reg*
* *Hot continental interior deserts*
* *Coastal deserts of western*
* *Mid latitude deserts*
* *Ice and snow desert*

(b) State **three** characteristics Tropical Monsoon Climate. (3 marks)

* *High mean annual temperatures of about 28◦c*
* *Seasonal reversal of winds.*
* *Heavy rainfall when monsoon winds are onshore (600-1300mm) climate.*
* *Rain falls in a few months and the rest of the year is dry due to influence of latitude.*
* *Low pressure in summer when winds blow onshore.*
* *High pressure in summer when winds blow offshore.*
* *Cloudy skies in summer and clear skies in winter.*

**SECTION B**

*Answer question* ***6 (compulsory)****& any other* ***TWO*** *questions from this section.*

Use map of Migwani 151/1 provided to answer question 6

1. (a)Name **two** type of natural vegetation found along northing 68. (2marks)
   * **Scrub vegetation**
   * **Scattered trees**
   * **Papyrus swamp mash, bog**

(b)Citing evidence from the map, explain three factors that could have favoured the establishment of Mutitu (Ndooa) Town in the area (6marks)

* **Availability of water shown by presence of rivers near the area which provide water for domestic and industrial use.**
* **Topography – gently slopping land shown by contours far apart suitable for construction of building.**
* **Transport connected to many roads used to move goods and passengers into and out of town.**
* **Availability of land shown by few settlements, land is used to expand the town**

(c) Measure the approximate distance of all weather loose surface road to the north west of the map.

(2 marks)

**8km2**

**Show working**

(d) Describe the drainage of the area covered by the map. (6 marks)

* + **There are many permanent rivers**
  + **The river rises from West to East.**
  + **The river forms dendritic pattern**
  + **The main river is Ikoo**
  + **Some rivers are seasonal**
  + **There are dams**
  + **There is a borehole.**
  + **Rivers to the north west forms radial drainage pattern.**
  + **There is a spring**
  + **There is also a water tan**k.

***Any six points***

(e) Giving evidence in each case, identify **four** social services offered at Mtito Ndoa. (4 marks)

* **Transport eg dry weather roads.**
* **Health, eg health centre hospital**
* **Communication, post office**
* **Education, presence of school**
* **Administration, presence of chief’s office**
* **Water supply, water pipe**

(f) Citing evidence from the map, state three economic activities carried out in area carried by the map (3marks)

* **Transportation – roads**
* **Trading – markets / shops**
* **Forestry – roads ending in the forests / Mutito forest**

(g) List two types of scales shown on the map. (2 marks)

* **Linear scale**
* **Representative fraction scale**

1. (a) The picture below shows a type of river erosion. Use it to answer the questions after it.



(i) Identify the feature. (1 mark)

**Gorge**

(ii) List three characteristics of the feature above. (3 marks)

**Narrow**

**Deep**

**steep-sided**

(iii) Describe **three** modes of the formation of the feature above. (6 marks)

* **Where a river flows along a fault or a section of soft rocks eroding the channel vertically through the soft**
* **rocks or fault.**
* **By head ward erosion at a water fall when the river’s erosive activity is increased due to increased gradient causing the river to undercut at the base of the water fall, then the rock above the undercut base collapses causing the waterfall to shift upstream resulting in a gorge below the water fall.**
* **Where a river flows across a plateau with alternating horizontal layers of hard and soft rocks eroding them resulting in a gorge with stepped sides called a canyon e.g. Grand canyon on R. Colorado in USA.**
* **Due to river rejuvenation when the river’s erosive activity is renewed causing the river to vigorously erode deep into its channel.**
* **Where a river maintains its course across land which is being uplifted gradually.**

(b) (i) What is river transportation? (1 mark)

*River carrying away materials that its water has eroded from the channel.*

(ii) Explain **three** ways of river transportation. (6 marks)

* *Suspension-River transportation of light and insoluble materials in form of a mixture.*
* *Saltation/Hydraulic Lift-River transportation of large particles through a series of jumps and hops.*
* *Traction-River transportation of heavy materials like boulders by rolling them by the force of water.*
* *Solution-River transportation of load in solution form.*

(c) List any **three** types of deltas. (3 marks)

* **Marine**
* **Lacustrine**
* **Inland Delta**
* **Arcuate Delta**
* **Birds Foot Delta**
* **Estuarine Delta**

(d) State positive **five** significance of rivers. (5 marks)

* ***Rivers are sources of water for domestic and industrial use.***
* ***Rivers water is used for irrigation.***
* ***They provide port facilities where they have rias and estuaries.***
* ***Some rivers are used for transportation e.g. R. Congo and Nile.***
* ***Some rivers are fishing grounds e.g. Tana.***
* ***Rivers are dammed and used for H.E.P generation.***
* ***Features formed by river action such as waterfalls, gorges and oxbow lakes are a tourist attraction.***

1. Your class is planning to go on field work to study organically and chemically formed sedimentary rocks in the neighbouring village.
2. Give **five** ways in which you would prepare for the field work. (5 marks)

* *Seek permission from relevant authorities*
* *Conduct reconnaissance (Pre visit)*
* *Hold discussion in class*
* *Looking through formulated objectives and hypotheses*
* *Preparation of a questionnaire*
* *Dividing into groups*
* *Preparation for documents*
* *Reading through relevant books*
* *Preparation of a work schedule*
* *Selection of important tools and equipment.*

1. Suggest **four** ways in which you would classify the rocks under study. (4 marks)

* *Calcareous rocks*
* *Ferruginous Rocks*
* *Siliceous Rocks*
* *Carbonaceous Rocks*
* *Carbonates*
* *Sulphates*
* *Chlorides*
* *Silicates*
* *Iron stones*

1. Since it is a place you do not know well, you have resorted to ask for a map.
2. What type of map will you be given? (1 mark)

*Sketch map*

1. Mention **three** characteristics of the map in c(i). (3 marks)

* *neat and clear*
* *title*
* *frame*
* *key*
* *compass direction*

1. State **three** uses of the map above. (3 marks)

* *Summarizes information for easy reference.*
* *Give information on distribution of geographical phenomena e.g. vegetation*
* *Help travellers to find their way.*
* *Used to locate physical features like landforms*

1. State **five** importance of field work to a student. (5 marks)

* *Reinforces what has been learnt in class.*
* *Enables one to gain more geographical knowledge.*
* *It breaks the monotony of classroom work.*
* *It provides learner with practical skills of collecting, recording and analysing data and report writing.*
* *Gives students an opportunity to go out and practise what they have learnt in class.*
* *Enables students to familiarise themselves with the environment and develop a positive attitude towards it.*
* *Enables students to develop a positive attitude towards manual work.*
* *Promotes development of virtues like cooperation by working in groups*

1. Mention **four** challenges you are likely to face during this field work. (4 marks)

* *Language Barrier*
* *Hostility*
* *Dishonest Respondents.*
* *Bad Weather*
* *Accidents in the Field*
* *Inaccessibility*

9. (a) What is weathering? (1 mark)

**Mechanical breakdown or chemical decay of rocks “in situ” (without movement).**

(b) Apart from people, list **three** other agents of weathering. (3 marks)

* **Weather elements:-rainfall-temperature-frost-gases**
* **Plants**
* **Animals**

(c) Explain three factors that influence weathering. (6 marks)

* **Climate-Different areas with different climatic elements experience different types of weathering e.g. block disintegration are experienced in arid areas while frost action is experienced in temperate regions and mountainous regions of tropics.**
* **Topography-Weathering is faster on steep slopes than on gentle slopes because weathered material is washed away quickly exposing the rock once again to agents while on gentle slopes materials remain in one position shielding the rock from weathering agents.**
* **Nature of rocks-Dark coloured rocks absorb more heat than light coloured ones hence break faster due to excessive expansion and contraction.A rock with different minerals may disintegrate faster due to differential expansion and contraction of minerals.**

**-A well jointed rock will break faster because physical and chemical agents can penetrate faster e.g. by**

**freezing and thawing.**

**-Fine textured rocks have a large surface area on which chemical processes can act e.g. Limestone.**

* **Biological organisms-Bacteria facilitate rotting of organic matter producing organic acids which reacts with some minerals causing the rock to break up.Plant roots and burrowing animals penetrate rocks resulting in cracks providing passage for agents such as water to act on rocks.**

(d) Identify **two** human activities that accelerate the rate of weathering. (2 marks)

* **Digging**
* **Blasting**
* **Drilling**

(e) The picture below shows a type of mechanical weathering. Use it to answer questions that follow.



1. With a reason, identify the process shown in the picture. (2 marks)

**Block Disintegration/Separation**

**There is breaking of rocks into blocks along the joints.**

1. Why is the process shown effective in arid areas? (1 mark)

**Because of great diurnal temperature range**.

1. Describe the process above. (4 marks)

* **Day, well jointed rocks are subjected to intense heating causing minerals in it to expand.**
* **In the night the rock is cooled causing it to contract**
* **The rock joints enlarge due to the alternating cooling and contraction.**
* **The process is repeated over a long time causing the rock to disintegrate into blocks along the joints**

(f) Explain **three** importance of weathering. (6 marks)

* Leads to soil formation which is important for agriculture.
* Produces other natural resources such as clay used in pottery, brick making, etc.
* Weathered rocks form beautiful scenery for tourist attraction e.g. Hells Gate and crying stones of

Kakamega.

* Weakens rocks easing their exploitation by quarrying and mining

10.(a)(i) What is vulcanicity? (1 mark)

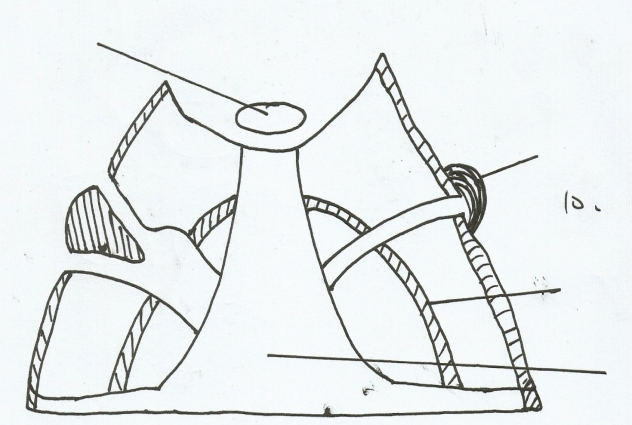
**Process in which solid, liquid or gaseous materials are forced out of the interior of the earth into the earth’s crust or onto the earth’s surface**

(ii) Differentiate between an intrusive volcanic feature and extrusive volcanic feature. (2marks)

**Extrusive volcanic features is formed when magma flows out as lava solidifies on the earths surface**

**while intrusive volcanic feature is formed when magma solidifies inside the earth’s crust**

(b) Use the diagram below to answer the question that follows:



**Crater**

**B**

**C**

**Vent**

1. Identify the type of volcano represented above (1mark)

**composite volcano**

1. Name the parts marked B,C (2marks)

B **– conelets / parasitic cone/ subsidiary cone**

**C – layers of ash / pyroclasts**

1. Mention **three** features of above volcano above. (3 marks)

* **Cone shaped**
* **Stratified (made of alternating layers of lava and pyroclasts.**
* **It has conelets (parasitic cones).**
* **It has steep slopes.**
* **Made of acidic lava**

1. Explain any three features that are formed as a result of intrusive vulcanicity. (6 marks)

**Sill-An igneous intrusion which lies along a bending plane of rock strata.**

**Laccolith-Amushroom-shaped igneous intrusion lying between bending planes of a country rock.**

**Batholiths-Largest igneous intrusion formed underground formed when very hot magma intrudes bedding planes of rocks and replaces or metamorphoses it.**

**Lopolith-a large saucer shaped igneous intrusion formed when viscous magma intrudes into bedding planes of a country rock. They form shallow depressions on the earth’s surface of the earth**

**Phacolith-A lens shaped igneous intrusion which forms in the crest or trough of an anticline**

(c) List and explain the three life cycles of a volcano. (6marks)

* **active volcano – known to have erupted in recent times (frequently )**
* **dormant volcano –not known to have erupted . I but show signs of eruption**
* **Extinct volcano – it does not have signs of future eruption over a long period of time .**

(d) Give two differences between a hot spring and geyser. (2 marks)

**In Hot spring;**

**-Water comes out quietly.**

**-only water comes out.**

**-water may just be warm.**

**In geysers;**

**Water and steam come out violently.**

**-water is accompanied by steam.**

**-water is very hot**

(e) State **three** negative effects of vulcanicity to human environment. (3 marks)

* *Volcanic eruptions cause of life and destruction of property .*
* *Volcanic mountains are barrier to transport and communication.*
* *Volcanic mountains on the path of rain winds cause leeward slopes to receive little rainfall by preventing rain bearing winds from reaching there.*
* *Volcanic eruptions cause environmental pollution from dust, ash and sulphur dioxide.*