**PATHWAY EVALUATION EXAMINATION - 2016**

**Kenya Certificate of Education**

**Geography Paper**

**FORM 1**

**JULY/AUGUST**

**MARKING SCHEME**

1. (a) Identify two divisions of the environment. (2 marks)

* **The Physical Environment**
* **The human environment**

(b) Give two examples of each of the above. (2 marks)

**Physical environment**

**weather, climate, vegetation, animals, soil, landforms ,drainage.**

**The Human Environment**

**farming, forestry, mining, tourism, settlement,**

**transportation, trade and industry.**

(c) Identify the branch of geography that deals with: (5 marks)

1. study of the origin, structure and composition of the earth.

**Geology**

1. the study of internal and external land forming processes and landforms

**Geomorphology**

1. the studyof climate and weather

**Climatology**

1. the study of soils

**Pedology**

1. the study of soils, vegetation and animals.

**Biogeography**

(d) Explain the relationship between Geography and: (4 marks)

(i) Mathematics

**Mathematical techniques are used in drawing graphs and pie charts and mathematical formulae are used in geography to calculate distances, areas, population density, population densities, etc.**

(ii) Agriculture

**Geography studies farming systems, their distribution and factors affecting farming activities.**

2. (a) (i)Explain supernova theory about the origin of solar system. (3 marks)

* **There was a violent explosion of a star.**
* **A cloud of dust (nebular) remained from the star.**
* **There was fast movement of the cloud due to the force of explosion.**
* **Rotation speed increased due to gravitational attraction**
* **The cloud flattened into a disc.**
* **The matter began to accumulate towards the centre to form a proto-sun which**

**later began to shine.**

* **The rest of the cloud collapsed to form planets.**

(ii) State two weaknesses of the theory above. (2 marks)

**It doesn’t explain the origin of the star**

**Doesn’t explain the cause of explosion**

(b) Give three characteristics of the Sun. (3 marks)

* **It’s a star.**
* **It’s made of very hot gases.**
* **Has a diameter of 1392000km.**
* **Surrounded by a layer of gas which has boiled from its surface which is called corona**
* **Rotates on its own axis in anticlockwise direction.**
* **Has gravitational pull which holds all the planets in orbit around it.**
* **Temperature at its centre is 15m◦c and at the surface is 5500◦c.**
* **Radiates solar energy which is very important for all forms of life on the earth.**

(c) What is an eclipse? (1 mark)

Phenomenon occurring when the rays of the sun are blocked from reaching the earth or the moon.

(d) Explain **two** types of lunar eclipse. (4 marks)

**Penumbral Lunar Eclipse.**The Moon passes through Earth's penumbral shadow.

 **Partial Lunar Eclipse.** A portion of the Moon passes through Earth's umbral shadow.

**Total Lunar Eclipse.**The entire Moon passes through Earth's umbral shadow.

(e) Why is the shape of the earth is called geoid? (2 marks)

 **It is imperfect sphere by being wide at the equator and flat at the poles.**

(f) Point out the proofs that show that the earth is spherical. (3 marks)

* **If one moves towards the east in a straight line he will end up where he started.**
* **Satellite photographs taken from space show that the earth is like a sphere.**
* **Places in the east see the sun earlier than those in the west.**
* **When a ship is approaching the smoke is seen first, then the mast and finally the whole ship.**
* **All the planets are spherical so the earth being one of them is also spherical.**
* **During the moon eclipse the earth casts a spherical shadow on the moon.**
* **The earth’s horizon appears curved when observed from a very high point like a tower**.

(g) State two effects of rotation of the Earth. (2 marks)

* **Creates day and night because at any one time one side of the earth faces the sun (day) and the other remains in darkness (night).**
* **Causes deflection of winds and ocean currents in the N hemisphere to the left and in the S hemisphere to the right.**
* **It causes rising and falling of ocean tides.**

(h) The time at GWM is 12 noon what is the local time at Kuresoi 40◦E? (3 marks)

**Time gained=40×4=160min=2 hours 40min**

**Local time at Watamu is 11.00**

**+2.40=13.40**

**-**

**1200=1.40pm**.

(i)What is the longitude of place x whose local time is 8 am when local time at GWM is noon? (2 marks)

**Time difference =12.00-8=4 hours**

**Degrees=4×15=60◦**

**Since x is behind intime it’s then 60◦W**.

(j) identify the **two** dates referred to as equinoxes. Why this name? (3 marks)

* **21st march**
* **23rd September**
* **the length of day and night is equal/The sun is vertically overhead at noon at the equator**.

(k) State the significance of atmosphere. (3 marks)

* **Animals and plants breathe in from it oxygen for respiration.**
* **Plants use carbon dioxide from it for photosynthesis.**
* **Water vapour in the atmosphere condenses to form clouds which give us rain.**
* **Ozone layer in the stratosphere shields us from ultraviolet radiation which may cause cancers.**
* **Carbon dioxide and methane in the atmosphere cause global warming through the green house effect.**

3. (a) What is weather? (1 mark)

**Daily atmospheric conditions of a place at a particular time.**

(b) Make a list of elements of weather. (3 marks)

**Temperature**

**Humidity precipitation**

**Precipitation**

**Atmospheric pressure**

**Wind**

**Sunshine**

**Cloud cover**

(c) Enumerate factors that you would consider when sitting a weather station. (3 marks)

* **An open place where there is little obstruction of weather elements.**
* **Accessible place so that recording can be done easily.**
* **A fairly level or gently sloping ground (5◦) so that it’s easy to position weather instruments.**
* **The place should provide a wide view of the surrounding landscape and the sky.**
* **The site should be free from flooding.**
* **The place should have security**.

(d) Carefully observe the picture below and then answer questions that follow.



1. Identify the instrument. (1 mark)

**Stevenson screen**

1. Name at least **three** instruments found in it. (3 marks)
* **Maximum thermometer**
* **minimum thermometer**
* **Six’s thermometer**
* **hygrometer**
1. State **three q**ualifications of the structure above that makes it suitable for its work. (3 marks)
* **Painted white for little absorption of solar heat energy.**
* **Made of wood which is a bad conductor of heat.**
* **Well ventilated to allow easier flow of air inside it.**
* **Raised to prevent contact with terrestrial radiation.**
* **Has double roof which acts as an insulator to prevent direct heating from the sun**.

(e) Briefly explain how wind vane works. (4 marks)

* **As the wind blows the arrow swings.**
* **The arrow points in the opposite direction of the wind flow.**
* **The direction is read from the cardinal compass points.**
* **The arrow will point in the direction from which the wind is blowing.**

(f) State three factors that hinder weather forecasting. (3 marks)

* **Lack of skilled man power due to limited training facilities.**
* **Lack of modern equipment leading to wrong forecasts.**
* **Natural calamities such as storms and earthquakes.**
* **Extreme weather conditions which may damage or displace instruments.**
* **Use of faulty instruments.**
* **Human error.**
* **Poor sitting of instruments**.