Term 2 - 2022

GEOGRAPHY

(MARKING SCHEME PAPER I )

FORM FOUR

TIME: 2 3/4 HOURS

Name: …………………………………………………………. Adm No: ……………….

School: ……………………………………………………….. Class: …………………..

Signature: …………………………………………………….. Date

|  |  |  |
| --- | --- | --- |
| 1. **(a)** | **Name the first two planets of the solar system.**   * Mercury * Venus | 1×2=2 marks |
| **(b)** | **State three effects of the rotation of the earth on its axis.**   * occurrence of day and night * rising and falling of ocean tides * deflection of winds and ocean currents * difference in time at different longitudes | 3×1=3 marks |
| 1. **(a)** | **The diagram below shows the angles of the sun’s rays at different altitudes when the sun is overhead at the equator. Use it to answer question (a) and (b).**    **Name the parts of earth’s surface marked J and K.**   * **J –** north pole * **K –** south pole | 2×1=2 marks |
| **(b)** | **Give two reasons why the intensity of insolation is higher at M than at N.**   * there is higher concentration of heating at M than N because the surface area is smaller at M than N * the angle of inclination of the sun’s rays at M is higher than at N * at N the rays travel over a longer distance compared to M | 3×1=3 marks |
| 1. **(a)** | **Identify the temperate grasslands found in the following countries.**  **(i) Canada** – prairies  **(ii) Russia** – steppes  **(iii) Australia** – downs | 3×1=3 marks |
| **(b)** | **Give two reasons why the Tundra region has scanty vegetation.**   * the ground is frozen most of the year * the area has thin soils * the area has short summers/growing period * some parts are poorly drained | 2×1=2 marks |
| 1. **(a)** | **Identify two sources of water found in a lake.**   * rainwater * rivers * underground water * glacial melt water | 2×1=2 marks |
| **(b)** | **Give three ways through which lakes are formed.**   * erosion * earth movements * vulcanicity * human activities * weathering * mass movement | 3×1=3 marks |
| 1. **(a)** | **Give three factors that determine soil leaching.**   * solubility of minerals * amount of rainfall * nature of the soil * nature of slope | 3×1=3 marks |
| **(b)** | **State three ways in which mulching helps in soil conservation.**   * protects the soil from erosion * increases the humus content of the soil * increases the rate of infiltration of water into the soil * reduces water loss/evaporation from the soil | 3×1=3 marks |
| 1. **(a)** | **(i) Identify two map sheets to the eastern part of Nyeri.**   * Karatina – 121/3 * Naro Moru – 121/1 * Fort Hall (Muranga) – 135/1 | 2×1=2 marks |
|  | **(ii) Name two administrative units found in Nyeri.**   * province * district | 2×1=2 marks |
|  | **(iii) Calculate the magnetic declination of the area covered by the map as at 1978.**   * as at 1975 – 1031’ * 1978 – 1975 = 3 years * annual change is 5’ East →(3×5’) = 15’ * 1978 → 1031’- 15’= 1016’ | 3×1=3 marks |
| **(b)** | **(i) Give three types of natural vegetation found in the area covered by the map.**   * bamboo * forest * woodland * scrub | 3×1=3 marks |
|  | **(ii) Measure the length of the road D 432 in the southern part from Unjiru junction to Kangaita market. Give your answer in kilometers.**   * 4.1±0.1 km | 1×2=2 marks |
| **(c)** | **Using a vertical scale of 1cm to represent 50 metres;**  **(i) Draw a cross section from grid reference 680630 to 730650.** |  |
|  | **(ii) On the cross section, mark and name the following;**   * **Hill** * **River** * **Road D 449** |  |
| **(d)** | **Citing evidence from the map, identify three economic activities in the area covered by the map.**   * transport-roads/railway * forestry – aberdare and nyeri forest/forest station/forest guard post * trade – shops/market * ranching – monte carlo ranch * quarrying – quarry * tourism – aberdare national park * crop farming – coffee factory * manufacturing/processing – coffee factory | 3×2=6 marks |
| 1. **(a)** | **(i) Define the term folding.**   * this is the process by which crustal rocks bend upwards and downwards due to tectonic forces. | 1×2=2 marks |
|  | **(ii) Name two fold mountains that were formed during Alpine orogeny.**   * Alps * Atlas * Himalayas | 2×1=2 marks |
| **(b)** | **(i) Apart from fold mountains, give three other features resulting from folding.**   * escarpments * rolling plains * intermontane basins or plateaus * synclinal valleys * valley and ridge landscape | 3×1=3 marks |
|  | **(ii) With the aid of a diagram, describe the formation of an overthrust fold.**   * layers of crustal rocks are subjected to compressional forces * intense folding lead to formation of overfold, increased pressure result in formation of recumbent fold. * due to increased pressure, a fracture develops along the axis of the recumbent fold producing a thrust plane. * the upper part of the recumbent fold slides forward over the lower part along the plane resulting in the formation of an overthrust fold     *Text – 4 marks*  *Diagram – 2 marks* |  |
| **(c)** | **Explain three positive effects of fold mountains on human activities.**   * fold mountains are water catchment areas which provide water for rivers used for domestic/industrial/irrigation/production of hydroelectric power * windward slopes of fold mountains receive heavy rainfall which support crop production/attract settlement * some fold mountains have exposed valuable minerals making mining easy. * fold mountains/snow covered slopes form beautiful sceneries which attract tourists who bring foreign exchange. | 3×2=6 marks |
| **(d)** | Members of your class are planning to carry out a field study on an area that has undergone folding process  **(i) Give three ways you would prepare for the study.**   * formulate the objectives and hypothesis for the study * identify methods of data collection * seek permission from school administration * conduct a pre-visit to the study area * prepare a working schedule * assemble relevant tools * divide themselves into groups | 3×1=3 marks |
|  | **(ii) State three advantages of studying landforms through field work.**   * learners are able to acquire first-hand information * students are able to apply knowledge gained to real life situations * allow learners to acquire/apply skills * breaks the classroom monotony * enhances visual memory of the features observed | 3×1=3 marks |
| 1. **(a)** | **(i) What is weathering?**   * this is the physical breakdown or chemical decomposition of rocks at or near earth’s surface in situ/without movement | 1×2=2 marks |
|  | **(ii) Apart from plants, give three other factors that influence the rate of weathering.**   * nature of rocks * slope * climate * human activities | 3×1=3 marks |
|  | **(iii) Explain two ways in which plants cause weathering.**   * plant roots penetrate into rock joints/cracks causing them to widen and eventually disintegrate * plants absorb minerals from rocks and this weakens the rocks causing them to disintegrate * rotting plant remains release organic acids which react with minerals in the rocks causing chemical disintegration. | 2×2=4 marks |
| **(b)** | **Describe the following processes of weathering:**  **(i) Block disintegration**   * occur in areas with large diurnal temperature ranges * high temperatures during the day intensely heat rocks causing them to expand * at night rapid cooling occurs causing the rocks to contract * the process of expansion and contraction is repeated over time causing stress in the rocks * the rocks break along cracks and joints hence separate | 4×1=4 marks |
|  | **(ii) Carbonation**   * common in limestone/chalk areas * rainwater dissolves carbon (IV) oxide in the atmosphere to form weak carbonic acid * weak carbonic acid reacts with limestone rocks to form calcium bicarbonate which is soluble in water * the rock readily disintegrates | 4×1=4 marks |
| **(c)** | **Explain four effects of mass wasting on the environment.**   * mass wasting lead to land dereliction as scars are left on the surface spoiling the beauty of the land * as the materials move over the land they facilitate the loosening of top soil leading to erosion * materials from a landslide may cause a barrier across a river leading to formation of a lake. * landslides may cause a river to change its cause reducing the amount of water downstream * landslides may cause damage to property when roads/settlements are buried * landslides may cause loss of life when settlements are buried | 4×2=8 marks |
| 1. **(a)** | **(i) Apart from surface run off, give two other processes in the hydrological cycle.**   * precipitation * evaporation * transpiration * interception * infiltration * percolation | 2×1=2 marks |
|  | **(ii) State three factors that determine the amount of surface run off.**   * amount of rainfall * rate of evaporation * gradient/slope of the land * nature of the rocks/pervious/impervious * amount of vegetation cover | 3×1=3 marks |
| **(b)** | **Explain three factors that influence the transportation of materials by a river.**   * volume of water-large water volume carry large amount of load * gradient of the channel-steep slopes generate greater kinetic energy enabling faster flow * nature of the load-light load is transported faster/over long distance * amount of load-small quantity transported for a long distance/large load reduces the efficiency of a river to transport | 3×2=6 marks |
| **(c)** | **(i) What is river rejuvenation?**   * this is the renewal of the erosive activity of a river | 1×2=2 marks |
|  | **(ii) Explain three conditions that lead to rejuvenation of a river.**   * increase in river discharge due to increased rainfall/river capture resulting in increased erosive power * change in rock resistance which make the river to start eroding vigorously * change in base level due to local uplift or drop in sea level causing a steep gradient | 3×2=6 marks |
| **(d)** | **Explain three negative effects of rivers to the human environment.**   * flooding of rivers may destroy property/crops/displace people * flooding of rivers can lead to loss of human lives * some rivers are habitat to dangerous animals which may attack human beings or destroy crops * wide or deep rivers are a barrier to transport especially where bridges have not been constructed * river water may be a medium of spreading water borne diseases especially when flooding occurs | 3×2=6 marks |
| 1. **(a)** | **(i) What is an ice sheet?**   * a continuous mass of ice covering a lowland area. | 1×2=2 marks |
|  | **(ii) Explain three factors that influence the movement of ice from the point of accumulation.**   * slope of the land-movement is faster on steep slopes * temperature/seasonal changes-high temperatures result in thawing leading to faster movement * friction lower the movement of ice * size or thickness of glacier-large masses of ice exert pressure causing melting which result in faster movement | 3×2=6 marks |
| **(b)** | **Describe how an arête is formed.**   * two adjacent cracks or hollows exists on a mountain side * the hollows are filled with ice * ice erodes the sides through plucking and deepens the hollow through abrasion * the back walls of the hollows slowly recede and eventually the hollows (cirques) are separated by a knife-edged ridge called an arête | 6×1=6 marks |
| **(c)** | **The diagram below shows features resulting from glacial deposition on a lowland area.**    **(i) Name the features marked X and Y.**   * X – drumlins * Y – river/melt water | 2×1=2 marks |
|  | **(ii) Describe how terminal moraine is formed.**   * moving ice stagnates and the ice at the snout melts * melting ice releases its load and gradually the load piles into a ridge * over time the ridge form a block of solid materials called terminal moraine | 3×1=3 marks |
| **(d)** | **Explain three positive effects of glaciation in lowland areas.**   * glacial till provides fertile soils suitable for arable farming * outwash plains comprise of sand and gravel which are used as building materials * glacial lakes in lowland areas can be exploited for various economic uses such fishing and transportation * features such as eskers/drumlins attract tourists hence earning foreign exchange * glaciated lowlands have gentle slopes ideal for establishment of settlements. | 3×2=6 marks |