**ZERAKI ACHIEVERS EXAM**

**TERM 2-2022**

**GEOGRAPHY (MARKING SCHEME)**

**FORM 4**

**TIME 2¾ HOURS**

**PAPER 1**

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

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

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

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| 1. **(a)** | **Define the term equinox.**   * *the time of the year when the sun’s overhead position at noon is over the equator causing equal length of day and night throughout the world.* |  |
| **(b)** | **If the local time at 750W is 8.00 a.m., what is the local at the longitude 350E?**   * *750+350 = 1100* * *110×4 min →440 minutes →7hours 20 mins* * *1520Hrs OR 3:20 P.M.* |  |
| 1. **(a)** | **Give two examples of non-metallic minerals.**   * *coal, nitrates, graphite, sulphur, potash, petroleum, asbestos, sodium, diamond, silicon, carbon, flourspar* |  |
| **(b)** | **State three ways through which sedimentary rocks are formed.**   * *deposition and accumulation of rock fragments* * *sedimentation of organic remains* * *precipitation/evaporation of dissolved minerals* |  |
| 1. **(a)** | **What is natural vegetation?**   * *plant cover that grow on the earth’s surface without interference from man* |  |
| **(b)** | **State three characteristics of Mediterranean type of vegetation.**   * *some plants have small/spiny leaves* * *some plants have long roots* * *grasses dry off during summer and germinate in winter* * *some trees are deciduous* * *some plants have thick barks* * *some plants have large fleshly bulbous roots* |  |
| 1. **(a)** | **The diagram below shows a barchan. Use it to answer question (a).**    **Name (i) the feature marked X.**   * *horn*   **(ii) the air current marked Y.**   * *eddy current*   **(iii) the slope marked Z.**   * *concave slope* |  |
| **(b)** | **Give two ways in which wind transport its load in deserts.**   * *suspension* * *saltation* * *surface creep* |  |
| 1. **(a)** | **Differentiate between a catchment area and a watershed.**   * *a catchment area is a land or area from which a river draws its water from while a watershed is a ridge/boundary separating drainage or river systems or basins*. |  |
| **(b)** | **Give three features that result from river rejuvenation.**   * *river terraces* * *rejuvenated gorges* * *incised meanders* * *knick points* |  |
| 1. **(a)** | **(i) What is the approximate height of Kijabe hill?**   * *2660 metres*   **(ii) Give the six grid reference of the school at Mai Mahiu in the southern area.**   * *314906*   **(iii) Calculate the area covered by the thicket to the west of the rail way line.**   * *3 +  = 10.5 Km2* |  |
| **(b)** | **(i) What is the approximate location of Kijabe Railway Station in terms of latitude and longitude?**   * *0055’S, 36035’E* |  |
| **(ii) Identify three methods used to represent relief on the area covered by the map.**   * *Contours* * *Trigonometric stations* * *Use of names* |  |
| **(c)** | **Draw a rectangle measuring 10cm by 5cm to represent the area enclosed by easting 30 and 40 and Northing 95 and 00.**  **On it mark and name the following features:**   * **Railway** * **All weather road bound surface** * **Forest** * **Murrum pit** |  |
| **(d)** | **Citing evidence from the map, identify two economic functions of Kijabe centre.**   * *Trading centre – presence of shops* * *Forestry – presence of forest* * *Transport – presesnce of roads/railway* * *Manufacturing /processing – presence of dairy* |  |
| **(e)** | **Explain three factors influencing the distribution of vegetation in the area covered by the map.**   * *High attitude on the eastern part of the area covered has favoured the growth of forests due to the low temperatures and heavy rains.* * *Human settlement on the central part of the area has discouraged the growth of vegetation thus a few woodlands.* * *The cold dry descending winds (leeward side) in the Ewaso kedong valley only supports scrub vegetation.* * *The soils and unreliable rainfall encourage the growth of thickets on the lower central part of the area.* |  |
| 1. **(a)** | **(i) What is plate tectonics?**   * *this is the study of the movement of plates and the resultant landforms* |  |
|  | **(ii) Explain three evidences supporting the continental drift theory.**   * *Sea floor spreading; the age of rocks in the middle of the ocean differs outwards towards the coast with the newest rocks found in the centre of oceans while oldest rocks are found near the coast.* * *The jigsaw fit of the continental margins; the Eastern coastline of South American continent fits well into the western coastline of the African continent.* * *Geological evidence; there is a close structural resemblance of rocks [type age formation] especially between the South American (Brazil) and African coastline (Republic of South Africa).* * *Biological evidence ;only continental drift seems to explain the similarities of fossils in southern continents and between North America and Europe.* * *Paleomagnetic evidence; minerals with the same magnetic alignment are found in different continents, adjacent to one another.* |  |
| **(b)** | **(i) Apart from fold mountains, give three other features resulting from folding.**   * *escarpments* * *rolling plains* * *cuesta* * *intermontane plateaus and basins* * *valley and ridge landscape* |  |
| **(ii) With the aid of well labeled diagrams, describe how movement of tectonic plates may lead to formation of fold mountains.**   * *an oceanic plate and continental plate move towards one another forming a depression/geosyncline at the subduction zone* * *extensive erosion occurs on the surrounding continental land masses.* * *the eroded materials/sediments are deposited in the geosyncline forming thick layers on the ocean floor* * *compressional forces causes the two plates to move towards each other, the layers of sediments are compressed and they fold upwards to form fold mountains* |  |
| **(c)** | **Explain three positive significance of fold mountains to human activities.**   * *fold mountains provide beautiful scenery which attract tourists thus earning foreign exchange to a country* * *fold mountains receive heavy rainfall on their windward sides which supports dense forest, this stimulates lumbering activities* * *heavy rainfall on the wind ward slopes of mountains encourage agriculture and settlement* * *fold mountains form catchment areas giving rise to rivers that are used to generate hydro-electric power/irrigation/industrial and domestic use.* |  |
| 1. **(a)** | **(i) Define the term climate.**   * *this is the average weather conditions of a given place over a long period of time, usually 30 to 35 years.* |  |
| **(ii) Explain how the following factors influence the climate of an area.**   * **latitude** * *Areas near the equator are hotter than those away from the equator. This is due to higher concentration of sun’s rays per unit area near the equator/relatively short distance covered by the solar radiation* * **distance from the sea** * *During the hot season coastal lands are relatively cooler than inland areas in the same latitude. This is due to cooling effect of the sea breezes* |  |
| **(b)** | **The table below shows temperature readings at a weather station.**   |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | | **Day** | **MON.** | **TUE.** | **WED.** | **THUR.** | **FRI.** | **SAT.** | **SUN** | | **Max (oC)** | **26** | **25** | **26** | **24** | **27** | **27** | **24** | | **Min. (oC)** | **15** | **17** | **17** | **13** | **19** | **18** | **17** |   **Calculate;**  **(i) the diurnal temperature range for Monday.**   * *26 – 15 = 110C*   **(ii) the mean daily temperature for Friday.** |  |
| **(c)** | **Study the climate map of Africa below and answer the questions that follow.**    **(i) Name the climatic regions marked P, Q and R.**   * *P – Mediterranean* * *Q – Tropical/hot desert* * *R – Tropical monsoon*   **(ii) Describe the characteristics of equatorial climate.**   * *High rainfall throughout the year / about 2000mm* * *Experience double maximum rainfall regimes* * *Rainfall is mainly convectional, and falls in the late afternoon accompanied by thunderstorm.* * *High temperatures throughout the year / 27oc* * *Annual range of temperature / 3oc – 5oc* * *Low diurnal range of temperature / 6oc – 8oc* * *There is extensive cloud cover throughout the year.* * *Long hours of sunshine* * *Low atmospheric pressure.* |  |
| **(d)** | **Explain three ways in which vegetation has adopted to the climatic conditions in the region Q.**   * *Some plants have thick / freshly / succulent leaves to enable them store water* * *Trees have long roots to tap underground water.* * *Some plants have no leaves / have needle like leaves to reduce transpiration.* * *Some plants have shining surface s to reflect light.* * *Some plants have seeds which remain dormant awaiting the short rains* * *Some plants have thick / hard barks to reduce transpiration.* * *Some plants wilt in the absence of moisture but have quick recovery ability.* * *Some plants have thorns to protect themselves from browsing animals* * *Some trees are umbrella shaped to provide shade on the ground surface to reduce the rate of transpiration.* |  |
| 1. **(a)** | **(i) What is an artesian basin?**   * *this is a saucer-shaped depression which consists of a layer of permeable rock that is sandwiched between two layers of impermeable rocks.* |  |
| **(ii) Explain three factors which influence the formation of features in limestone areas.**   * *the surface rock must be thick limestone to allow solubility by rain water* * *the rock should be hard and well jointed to allow water to percolate through the lines of weakness* * *the climate should be hot and humid to facilitate chemical reaction/weathering/carbonation* * *the water table should be deep/far underground to allow for the formation of the features* |  |
| **(b)** | **(i) A part from stalagmites, name two other underground features in limestone areas.**   * *stalactite* * *limestone pillar* * *underground cave/caverns* * *underground streams* |  |
| **(ii) With the aid of a diagram, describe how a stalagmite is formed.**   * *rain water dissolves CO2 in the atmosphere to form weak carbonic acid* * *the weak acid seeps through the roof of an underground cave , reacts with the limestone rocks to form calcium hydrogen solution which drips through the roof to the floor of the cave* * *Each drop which falls on the floor spreads out and evaporates leaving residue of calcium carbonate in the form of tiny crystals* * *the crystals accumulate and build upwards to form a projection called stalagmite.* |  |
| **(c)** | **Your supposed to carry out a field study on limestone region**  **(i) Give two reasons why you would need a map of the area of study.**   * *to show the extent/limit of the area of study* * *to show the route to be followed* * *to estimate the distance to be covered* * *to show the general nature of the terrain* |  |
| **(ii) State two ways you would prepare for the study.**   * *obtain permission from the school authority* * *conduct pre-visit* * *revision of objectives* * *selecting appropriate data collection methods* * *assembling relevant tools and equipment* * *preparing a working schedule* * *dividing into workable groups* |  |
| **(iii) Give three reasons why you are likely to find few settlements in the study area.**   * *rocky surface hinder settlements* * *thin soils limit agricultural activities hence few settlements* * *poor vegetation cover discourage livestock rearing limiting settlements* * *inadequate water supply hence few settlements* * *the rugged terrain hinders construction of roads and houses hence few settlements.* |  |
| 1. **(a)** | **(i) Define the term glacier.**   * *a mass of ice of limited width moving outward from an area of accumulation.* |  |
| **(ii) Give two processes of glacial erosion.**   * *plucking/sapping/quarrying* * *abrasion* |  |
| **(b)** | **Explain three conditions that lead to glacial deposition.**   * *Rising temperature lead to melting of ice thereby causing the ice to deposit its load.* * *Change of gradient to relatively flat surface will reduce the velocity of the glacial movement which will subsequently lead to deposition of glacial materials.* * *Alternating warm and cold periods lead to seasonal melting of ice which allows materials embedded in the ice to be released and deposited.* * *Stagnation/accumulation of glaciers leads to pressure at the base of the glacier which in turn leads to melting of ice at the base. The melt water then carries and deposits materials underneath which loosens the heavy materials beneath the mass ice and is subsequently deposited.* * *Friction at the base and sides of a glacier and a rough surface leads to melting of ice, causing the ice to deposit its load.* |  |
| **(c)** | **The diagram below shows features resulting from glacial deposition in lowlands.**    **(i) Identify the features labeled A and B.**   * *A – drumlins* * *B – outwash plain*   **(ii) Describe how a terminal moraine is formed.**   * *Moving ice stagnates and ice at the snout melts.* * *Melting ice releases its load* * *Gradually the load piles into a ridge* * *Over time the ridge forms a horse shoe shape/block of solid materials called terminal moraine* |  |
| **(d)** | **Explain five positive significance of glaciation in lowland areas.**   * *Glacial till provides fertile soils which are suitable for arable farming.* * *Ice sheets in their scouring effect may expose the minerals making them easy to extract.* * *Out wash plains comprise of sand and gravel which are used as building/construction materials.* * *Glacial lakes found in lowland areas can be exploited for various economic uses such as fishing and transportation.* * *Glaciation forms features such as drumlins, eskers which are tourists attraction hence foreign exchange earnings.* * *Glaciated lowlands are generally flat and ideal for establishment of settlements/development of transportation network*. |  |