**MID TERM SERIES –TERM 1 -2023**

**GEOGRAPHY (312/1)**

**FORM 4**

**MARKING SCHEME**

**SECTION A**

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| 1. **(a)** | **What is a weather station?**   * a place that is set aside for the purpose of observing, measuring and recording weather elements. | 1×2=2 marks |
| **(b)** | **Give three factors that influence wind direction.**   * the pressure gradient * coriolis force * centrifugal force * friction with the earth’s surface | 3×1=3 marks |
| 1. **(a)** | **Name two types of tectonic plate boundaries.**   * divergence/extension/constructive * convergence/compressional/destructive * transform/conservative | 2×1=2 marks |
| **(b)** | **Give three effects of the movement of tectonic plates.**   * they cause earthquakes * can lead to formation of fold mountains * can lead to formation of new oceanic crust * can lead to formation of submarine islands/volcanic islands | 3×1=3 marks |
|  | **State four causes of the decline of the areas under forests in Kenya.**   * forests are destroyed by accidental or intended fires * pests attack planted forests making them to dry up * human activities/settlement/charcoal burning/logging have destroyed many forests * overexploitation depletes some tree species * prolonged droughts lead to degeneration of forests * government policy of degazetting some forests | 4×1=4 marks |
| 1. **(a)** | The diagram below shows a section of a river. Use it to answer the questions that follow.    **Identify the stage of development of the section of the river**.   * old/lower stage | 1×1= 1 mark |
| **(b)** | **A part from feature marked R, give two other features formed at this stage.**   * meanders * braided channel * flood plain * deltas * bluffs * deferred tributaries | 2×1=2 marks |
| **(c)** | **State three conditions necessary for the formation of the feature marked R.**   * presence of pronounced meanders in the flood plain * heavy load being carried by the river * a reduction in the river gradient/energy/low velocity * presence of obstacles in the river channel * lateral erosion on the outer side of the river banks * deposition on the inner side of the river banks |  |
| 1. **(a)** | **Differentiate between an aquifer and a water table.**   * an aquifer is a mass of permeable rock which can hold water in its air spaces and can allow it pass through while a water table is the level of ground water below which all available air spaces are saturated with water. | 1×2=2 marks |
| **(b)** | Give **three** problems associated with artesian wells.   * saline water in the wells * overexploitation of the wells * pollution of ground water * prolonged drought leading to the wells drying up | 3×1=3 marks |

**SECTION B**

|  |  |  |
| --- | --- | --- |
| 1. **(a)** | **(i) Give the longitudinal extent of the area covered by the map.**   * 36045’E to 37000’E | 1×2=2 marks |
| **(ii) Give the six figure grid reference of the trigonometric station at Nyeri Hill forest.**   * 665548 | 1×2=2 marks |
| **(iii) Calculate the area of Nyeri forest. Give your answer in square kilometres.**   * 2 + = 11.5 km2 | 1×2=2 marks |
| **(b)** | **(i) What is the bearing of The Ark Lodge from the trigonometric station 120 UT 16.**   * 3170±10 or N430W | 1×2=2 marks |
| **(ii) Identify three man-made features in grid square 7263.**   * road D449 * other track/footpath * settlement/houses * Nderitu farm | 3×1=3 marks |
| **(iii) Give three drainage features found in the area covered by the map.**   * rivers * dams/reservoirs * water holes * water tank * ditch | 3×1=3 marks |
| **(c)** | **Describe the relief of the area covered by the map.**   * there are several river valleys * there is a hill in grid square 6963 * north eastern and western area has gentle slopes * there are steep slopes in the north western and southern parts * there are ridges in the south western part * the highest point is 2820m and lowest point is 1680m * the area generally slopes downwards from west to east | 5×1=5 marks |
| **(d)** | **Citing evidence from the map, identify three social services offered in Nyeri Township.**   * administration services – PC/DC/Admin offices * religion – church * recreation – golf course/club/show ground/hotel * rehabilitation – prison * education – school * security – police station | 3×2=6 marks |
| 1. **(a)** | **(i) What is a mineral?**   * a mineral is an inorganic substance with a definite chemical composition found at or beneath the surface of the earth.   **(ii) Describe the following characteristics of minerals:**   * **Lustre** - minerals differ in their brightness depending on the nature of their reflective surfaces (dull/shiny).      * **Colour** – different minerals display different colours * **Cleavage** – minerals have patterns in which they split/divide/break into thin layers or along layers or shapes | 1×2=2 marks  1×2=2 marks  1×2=2 marks  1×2=2 marks |
| **(b)** | **Describe three ways in which igneous rocks are formed.**   * **mechanically formed sedimentary rocks**; rock fragments are transported by wind/water/ice are deposited in layers. Over a long period they are compacted in hard rocks. * **organically formed sedimentary rocks**; remains of plants or animals are deposited in layers. Over long period of time the remains are compacted into hard rocks * **chemically formed sedimentary rocks**; dissolved minerals are transported into water bodies. They are then precipitated/evaporated over time. Precipitates or evaporates are compacted to form hard rocks. | 3×3=9 marks |
| **(c)** | **Explain four significance of rocks to the economy of Kenya.**   * some rocks form unique features that attract tourists earning the country foreign exchange/income * some sedimentary rocks contains fossil fuels which are sources of energy for domestic/industrial use e.g. coal * some rocks act as storage for ground water which can exploited for domestic/industrial/agriculture * some rocks e.g. phonolites are exploited for building ad construction * rocks weather to form fertile soils that support crop farming * some rocks are ores with valuable minerals that are exploited and sold to generate income | 4×2=8 marks |
| 1. **(a)** | **(i) State three causes of faulting.**   * earth movements causing tension within rocks * earth movements causing compression within rocks * faulting can occur when rocks shear * vertical movement in the rocks cause rocks to fracture | 3×1=3 marks |
| **(ii) Differentiate between a normal fault and a reverse fault.**   * a normal fault is caused by tensional forces while reverse fault is caused by compressional forces * in a normal fault, the upthrow moves away from the downthrow while in a reverse fault, the upthrow rides over the downthrow. | 2×2=4 marks |
| **(b)** | **(i) A part from rift valley, give three other relief features formed due to faulting.**   * tilt block * escarpment/scarp slope * block mountain/horst * fault steps | 3×1=3 marks |
|  | **(ii) With the aid of diagrams, describe how compressional forces can lead to formation of a rift valley.**   * When layers of crustal rocks are subjected to compressional forces, lines of weakness occur and forms adjacent reverse faults      * Continued compression pushes out/thrusts the outer blocks over the central/middle block to form the floor of the rift valley.      * The steep fault scarps on either sides of the outer blocks are further worn out by denudation (erosion, mass wasting, and transportation) to form gentle slopes.     *Text – 5 marks Diagrams – 3 marks* |  |
| **(c)** | **Students from your class are planning to carry out a field study on an area affected by faulting.**  **(i) State four reasons why it is important to have a pre-visit to the area.**   * to draw route map * prepare a working schedule * identify relevant tools/equipment for the study * identify suitable methods of collecting data * seek permission from the authorities at the area of study * prepare budget for the study | 4×1=4 marks |
| **(ii) Give three reasons why it would be inappropriate to use observation to collect data during the field study.**   * expensive to travel long distances * time consuming * limited to primary sources * only suitable to the sighted people | 3×1=3 marks |
| 1. **(a)** | **(i) What are ocean tides?**   * ocean tides are periodic rise and fall in the level of ocean waters as a result of the gravitational attraction of the sun and the moon. | 1×2=2 marks |
| **(ii) Name two ocean currents along the western coast of Africa.**   * Benguela * Guinea * Cannary | 2×1=2 marks |
| **(b)** | **State three factors that determine the rate of coastal erosion.**   * duration of exposure of coast to wave erosion * degree of exposure of the coast to wave erosion * nature of materials transported by waves * structure/nature of the coastal rocks * nature/strength of the waves | 3×1=3 marks |
| **(c)** | **With the aid of labeled diagrams, describe the formation of the following coastal features:**  **(i) Fringing reef**   * This is a platform of coral which forms when coral polyps start building a reef near the shore. * The reef extends seawards where the building is faster because of more food and the water is clearer. * As the reef builds seawards, it encloses a shallow lagoon with the coast.     *Text – 3 marks Diagram – 2 marks* |  |
|  | **(ii) Spit**   * The movement of materials by the longshore drift is halted by a headland and the materials piled up/deposited in the sea/ocean water. * This continues until they bulge out with the accumulation growing towards the sea     *Text – 3 marks Diagram – 2 marks* |  |
| **(d)** | **Explain the significance of oceans to human activities.**   * Presence of oceans modifies climatic conditions of an area through land and sea breezes. * Oceans provide rich grounds for subsistence and commercial fishing. * Ocean tides and waves can be harnessed to produce tidal power. * Oceans are natural habit for marine life/ Biodiversity conservation. * Provides cheap free water ways to transport goods and services across continents. * Oceans provide sites for a variety of recreational activities e.g. water skiing, cruising sport fishing and tourism. * Oceans provide grounds for navy/ military activities * Ocean water can be distilled to provide fresh water * Ocean water provide grounds for scientific/ educational research | 4×2=8 marks |
| 1. **(a)** | **Name three components of soil.**   * soil air * soil water/moisture * soil organic matter/humus * soil inorganic matter/minerals | 3×1=3 marks |
| **(b)** | **Explain how the following factors influence the formation of soil:**  **(i) Climate**   * Areas with heavy precipitation (rainfall) are heavily leached and weathered compared to drier areas, they therefore have deep soils * High temperatures promote rapid faster weathering and chemical changes in the soil/cold temperatures slow these processes * Winds act as agents of soil erosion, blowing fine sand and dust and depositing them far away forming rich fertile soils | 2×2=4 marks |
|  | **(ii) Topography**   * valley bottoms/gentle slopes encourage formation of deep and fertile soils due to deposition/accumulation of materials * steep slopes encourages erosion of top layer of soil slowing down formation of soil/have thin soils * flat areas/flood plains are saturated with water slowing down soil formation * slope influence the arrangement of soil. | 2×2=4 marks |
| **(c)** | **Describe how laterization occurs.**   * during wet season, mineral salts in the top layer of the soil dissolve in the rain water * dissolved minerals percolate or seep downwards from the top soil to the sub-soil * the dissolved minerals are further moved downwards to lower layer * Insoluble minerals such as iron and aluminium accumulate on the top layer to form a crust of laterites hence laterization. | 6×1=6 marks |
| **(d)** | **Explain four ways in which human activities contribute to soil erosion.**   * cultivation on steep slopes increases the rate of soil erosion * shifting cultivation/bush fallowing may leave land unprotected against agents of erosion * cutting down trees exposes the soil to agents of erosion * continuous ploughing weakens the soil structure, making it easy for the agents of erosion to carry it away. * overgrazing leads to the removal of the protective cover of grass exposing the soil to agents of erosion * overstocking leads to many animals trampling on the topsoil, loosening the particles and making it easy for them to be carried away. | 4×2=8 marks |