



MARANDA HIGH SCHOOL

Kenya Certificate of Secondary Education
FORM 4 END-TERM 1 – 2022 EXAMINATIONS

312/1

GEOGRAPHY

Paper 1

June 2022

MARKING SCHEME

SECTION A

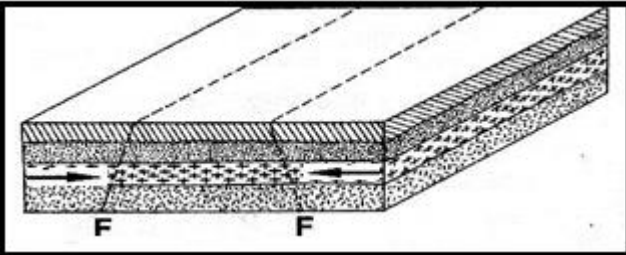
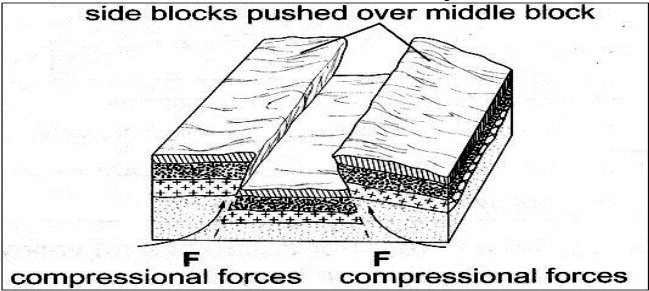
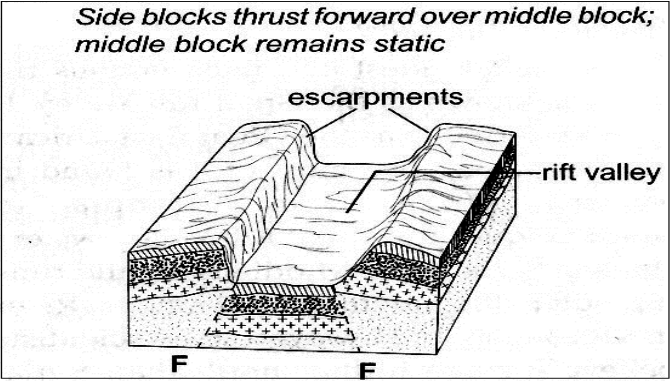
1. (a)	<p>What is a weather station?</p> <ul style="list-style-type: none"> • a place that is set aside for the purpose of observing, measuring and recording weather elements. 	1×2=2 marks
(b)	<p>Give three factors that influence wind direction.</p> <ul style="list-style-type: none"> • the pressure gradient • Coriolis force • centrifugal force • friction with the earth's surface 	3×1=3 marks
2. (a)	<p>Name two types of tectonic plate boundaries.</p> <ul style="list-style-type: none"> • divergence/extension/constructive • convergence/compressional/destructive • transform/conservative 	2×1=2 marks
(b)	<p>Give three effects of the movement of tectonic plates.</p> <ul style="list-style-type: none"> • 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
3.	<p>State four causes of the decline of the areas under forests in Kenya.</p> <ul style="list-style-type: none"> • 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
4. (a)	<p>The diagram below shows a section of a river. Use it to answer the questions that follow.</p>	

	Identify the stage of development of the section of the river. <ul style="list-style-type: none"> old/lower stage 	1×1= 1 mark
(b)	A part from feature marked R, give two other features formed at this stage. <ul style="list-style-type: none"> 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. <ul style="list-style-type: none"> 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 	
5. (a)	Differentiate between an aquifer and a water table. <ul style="list-style-type: none"> 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. <ul style="list-style-type: none"> 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

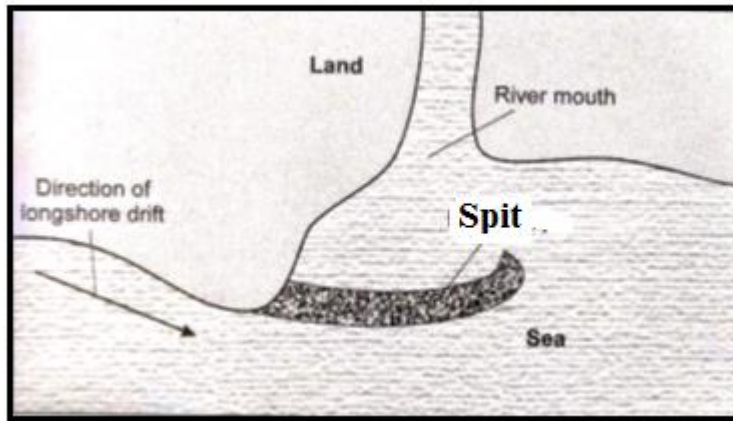
SECTION B

6. (a)	(i) Give the longitudinal extent of the area covered by the map. <ul style="list-style-type: none"> 36°45'E to 37°00'E 	1×2=2 marks
	(ii) Give the six figure grid reference of the trigonometric station at Nyeri Hill forest. <ul style="list-style-type: none"> 665548 	1×2=2 marks
	(iii) Calculate the area of Nyeri forest. Give your answer in square kilometres. <ul style="list-style-type: none"> $2 + \frac{19}{2} = 11.5 \text{ km}^2$ 	1×2=2 marks
(b)	(i) What is the bearing of The Ark Lodge from the trigonometric station 120 UT 16. <ul style="list-style-type: none"> 317°±1° or N43°W 	1×2=2 marks
	(ii) Identify three man-made features in grid square 7263. <ul style="list-style-type: none"> 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. <ul style="list-style-type: none"> rivers dams/reservoirs 	

	<ul style="list-style-type: none"> • water holes • water tank • ditch 	3×1=3 marks
(c)	<p>Describe the relief of the area covered by the map.</p> <ul style="list-style-type: none"> • 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)	<p>Citing evidence from the map, identify three social services offered in Nyeri Township.</p> <ul style="list-style-type: none"> • 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
7. (a)	<p>(i) What is a mineral?</p> <ul style="list-style-type: none"> • a mineral is an inorganic substance with a definite chemical composition found at or beneath the surface of the earth. <p>(ii) Describe the following characteristics of minerals:</p> <ul style="list-style-type: none"> • 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 	<p>1×2=2 marks</p> <p>1×2=2 marks</p> <p>1×2=2 marks</p> <p>1×2=2 marks</p>
(b)	<p>Describe three ways in which igneous rocks are formed.</p> <ul style="list-style-type: none"> • 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)	<p>Explain four significance of rocks to the economy of Kenya.</p> <ul style="list-style-type: none"> • 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

<p>8. (a)</p>	<p>(i) State three causes of faulting.</p> <ul style="list-style-type: none"> • 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 <p>(ii) Differentiate between a normal fault and a reverse fault.</p> <ul style="list-style-type: none"> • 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. 	<p>3×1=3 marks</p> <p>2×2=4 marks</p>
<p>(b)</p>	<p>(i) A part from rift valley, give three other relief features formed due to faulting.</p> <ul style="list-style-type: none"> • tilt block • escarpment/scarp slope • block mountain/horst • fault steps 	<p>3×1=3 marks</p>
	<p>(ii) With the aid of diagrams, describe how compressional forces can lead to formation of a rift valley.</p> <ul style="list-style-type: none"> • When layers of crustal rocks are subjected to compressional forces, lines of weakness occur and forms adjacent reverse faults  <ul style="list-style-type: none"> • Continued compression pushes out/thrusts the outer blocks over the central/middle block to form the floor of the rift valley.  <ul style="list-style-type: none"> • 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.  <p><i>Text – 5 marks Diagrams – 3 marks</i></p>	

<p>(c)</p>	<p>Students from your class are planning to carry out a field study on an area affected by faulting.</p> <p>(i) State four reasons why it is important to have a pre-visit to the area.</p> <ul style="list-style-type: none"> • 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 <p>(ii) Give three reasons why it would be inappropriate to use observation to collect data during the field study.</p> <ul style="list-style-type: none"> • expensive to travel long distances • time consuming • limited to primary sources • only suitable to the sighted people 	<p>4×1=4 marks</p> <p>3×1=3 marks</p>
<p>9. (a)</p>	<p>(i) What are ocean tides?</p> <ul style="list-style-type: none"> • 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. <p>(ii) Name two ocean currents along the western coast of Africa.</p> <ul style="list-style-type: none"> • Benguela • Guinea • Canary 	<p>1×2=2 marks</p> <p>2×1=2 marks</p>
<p>(b)</p>	<p>State three factors that determine the rate of coastal erosion.</p> <ul style="list-style-type: none"> • 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 	<p>3×1=3 marks</p>
<p>(c)</p>	<p>With the aid of labeled diagrams, describe the formation of the following coastal features:</p> <p>(i) Fringing reef</p> <ul style="list-style-type: none"> • 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. <div data-bbox="350 1388 1325 1707" data-label="Diagram"> </div> <p style="text-align: center;"><i>Text – 3 marks Diagram – 2 marks</i></p>	
	<p>(ii) Spit</p> <ul style="list-style-type: none"> • 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

<p>(d)</p>	<p>Explain the significance of oceans to human activities.</p> <ul style="list-style-type: none"> • 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 habitat 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 	<p>4×2=8 marks</p>
<p>10. (a)</p>	<p>Name three components of soil.</p> <ul style="list-style-type: none"> • soil air • soil water/moisture • soil organic matter/humus • soil inorganic matter/minerals 	<p>3×1=3 marks</p>
<p>(b)</p>	<p>Explain how the following factors influence the formation of soil:</p> <p>(i) Climate</p> <ul style="list-style-type: none"> • 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 	<p>2×2=4 marks</p>
<p></p>	<p>(ii) Topography</p> <ul style="list-style-type: none"> • 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. 	<p>2×2=4 marks</p>
<p>(c)</p>	<p>Describe how laterization occurs.</p> <ul style="list-style-type: none"> • 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. 	<p>6×1=6 marks</p>

(d)	Explain four ways in which human activities contribute to soil erosion. <ul style="list-style-type: none">▪ 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
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