NAME:……..CLASS:……ADM NO…..

FORM FOUR
GEOGRAPHY PAPER 1
TERM 2 2022 OPENER EXAM FORM 4

MARKING SCHEME
SECTION A

Answer all the questions in this section.

1a). Define mass wasting. (2mks)

- **This is the movement of weathered rock materials downslope uner the influence of gravity.**

b) State **THREE** factors that influence mass wasting. (3mks)

- **The nature/weight of the rock materials**
- **Amount of water/level of saturation**
- **The gradient/slope of the land**
- **The amount of rainfall/precipitation**
- **Plant/vegetation cover**
- **Human activities such as mining/moving trains**
- **Tectonic movements/earthquake/volcanic eruptions**

2. (a) Distinguish between **weather** and **Climate.** (2mks)

- **Weather refers to the atmospheric conditions of a place at a specific time while climate is the average weather conditions of a place over a long period of time.**

b) Give **THREE** characteristics of ITCZ. (3mks)

- **Found within the tropics**
- **It is a region of low pressure belt and doldrums**
- **Moves with the apparent movement of the midday sun.**
- **Associated with high temperatures**
- **It is a zone of convergence where NE and SE trades meet.**
- **It receives high rainfall/associated with convectional rain.**

3. (a) List **THREE** sources of sedimentary rocks. (3mks)

- **Pre-existing weathered rocks.**
- **mineral compounds**
- **Remains of organisms (dead plants and animals)**

b) Give T**WO** examples of mechanically formed sedimentary rocks. (2mks)

- **conglomerates**
- **Breccia**
- **Boulder clay**
- **Sandstone**
- **Mudstone**
- **Shale**
- **Clay stone**
- **Siltstone**
- **loess**

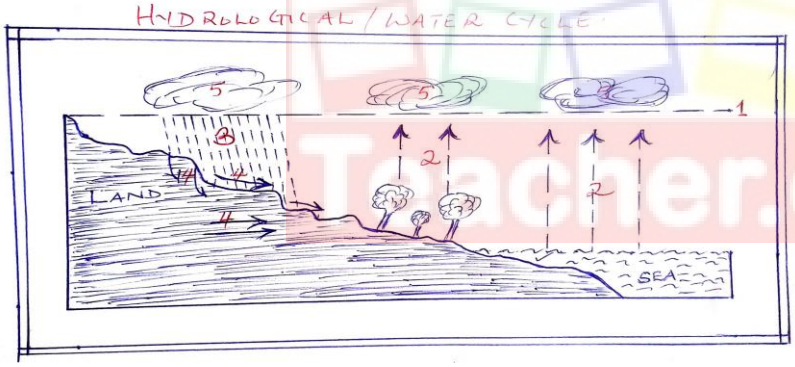
4. (a) Name **TWO** ways in which Biological weathering takes place. (2mks)

- **through the action of plants**
- **through the action of animals**
- **through the action of people**
-

(b) Identify **THREE** benefits of weathering. (3mks)

- **Weathering leads to formation of soil used in Agriculture.**
- **Weathering produces other natural resources e.g clay used in brick making and pottery.**
- **Weathering weakens rocks making them easier for people to exploit e.g Quarrying/mining.**
- **Weathered rocks like the granitic tors are fascinating therefore act as tourist attraction.**

5. Draw a well labelled diagram of the water cycle. (5mks)



KEY:

1. **Condensation level**
2. **Evaporation/Evapotranspiration**
3. **Rain/precipitation.**
4. **Surface run-off/infiltration/percolation**
5. **Clouds**

SECTION B

ANSWER QUESTION 6 AND ANY OTHER two QUESTIONS FROM THIS SECTION.

6. Study the map of kijabe 1:50000 (sheet 134/3) provided and answer the following questions.

a) (i) What is the map title for Kijabe? (1mk)

- **East Africa 1:50000(Kenya)**

(ii) Give the approximate height of Kijabe Hill. (2mks)

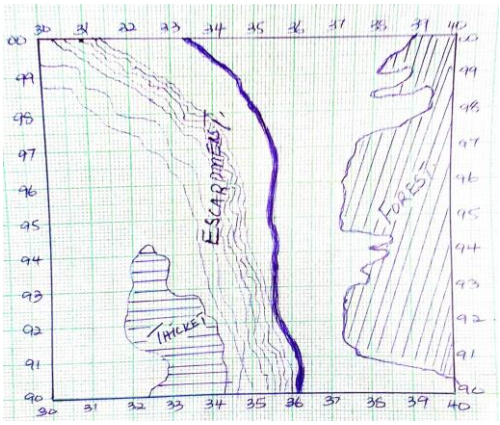
- **Above 2660m and below 2680M a.s.l**

(iii) Measure the distance of the dry weather road in the North- Western corner of the map. (Give your answer in kilometres) (2mks)

5.0km (+ 1)

b) Draw a square measuring 10cm x 10cm to represent the area bounded by Easting 30 to 40 and Northing 90 to 00. On it mark and name: (5mks)

- Escarpment
- All weather Bound surface Road C 68
- Forest
- Thicket



c) (i) Citing evidence from the map, identify the climatic conditions experienced in the area covered by the map. (4mks)

- **High rainfall is experienced to the eastern part because of presence of forest/bamboo/permanent rivers.**
- **Low rainfall / dry conditions to the Western part shown by scrub vegetation**
- **Cool conditions shown by scrub vegetation.**
- **Cool conditions shown by high altitude of contour heights above 1780m**
- **Moderate rainfall to the central part covered with woodland vegetation**

(ii) Explain **THREE** factors which have influenced the distribution of settlement in the area covered by the Map. (6mks)

- **There are no/few settlements on steep slopes because it is difficult to construct houses.**
- **There are many settlements around market centres due to easy access to goods and services**
- **There are linear settlements along roads because of ease of movement.**
- **There are many settlements on undulating lands because it is easy to construct houses.**
- **There are no settlements in the plantations because the land has been set aside for cash cropping.**

d) Describe the relief of the area covered by the map. (5mks)

- **There are many hills in the area covered by the map**
- **There are many river valleys in the area covered by the map**
- **The land rises from the South-West towards the North**
- **There are steep slopes on the slopes of Kijabe Hill**
- **The highest point on the map is 2680m a.s.l while the lowest point is 1780 m. a.s.l.**

7.(a) (i) Define folding. (2mks)

- **This is the process of Crustal rocks distortion that causes rocks to bend upwards and downwards due to compressional forces.**

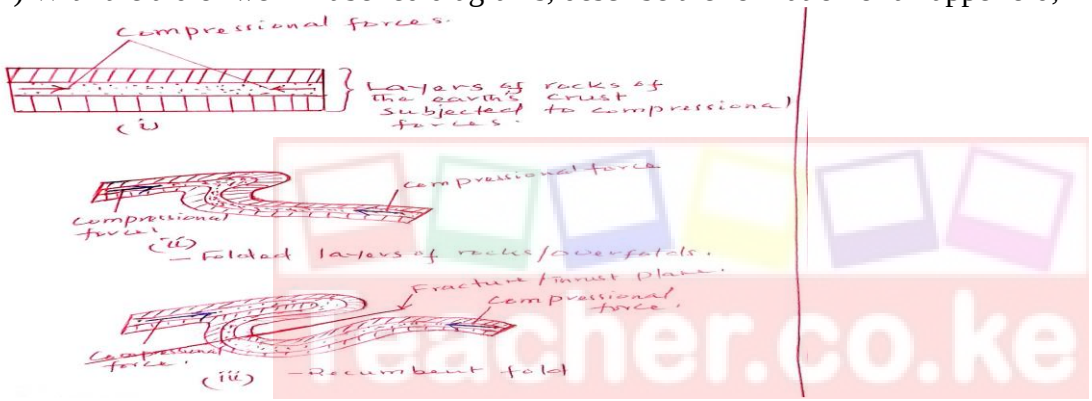
(ii) State **THREE** factors that influence folding (3mks)

- **The age of the sedimentary rocks**
- **Flexibility/elasticity of the rocks**
- **Strength/ intensity of compressional forces**
- **Temperature within the rocks**

b)(i) Apart from nappe fold, name **FOUR** other types of folds. (4mks)

- **Symmetrical/simple folds**
- **Asymmetrical folds**
- **over folds**
- **Isoclinal folds**
- **Recumbent folds**
- **Anticlinorium folds**
- **Synclinorium folds**

(ii) With the aid of well – labelled diagrams, describe the formation of a nappe fold, (8mks)



- **Earth's crustal rocks are subjected to compressional forces.**
- **Increased compressional forces lead to formation of an over fold**
- **Increased compressional forces on the over fold form a recumbent fold.**
- **Greater compressional forces lead to formation of a fracture along the axis of the recumbent fold to form a thrust plane.**
- **Compressional forces push the upper limb over the lower limb along the thrust plane to form a nappe/an over thrust fold.**

c) Explain **FOUR** significance of Fold Mountains to human activities. (8mks)

- **Fold Mountains may form unique scenery that may attract tourists, encouraging tourism.**
- **Windward slopes of Fold mountains receive high rainfall encouraging human settlement/farming**
- **Windward slopes of fold Mts. May support the growth of forests encouraging forestry/wildlife**
- **Some fold mts have exposed valuable minerals encouraging mining.**
- **High rainfall on fold mts or melting ice makes sources of rivers that provided water for domestic use/ irrigation/Industrial.**

8. (a) Differentiate between a catchment area and a river divide. (2mks)

- **A catchment area is an area where a river draws its water while a river divide is a boundary/ridge that separates drainage basins.**

(b) Give **FIVE** characteristics of a flood plain. (5mks)

- **Broad and fairly level landscape**
- **Made of alluvial deposits**
- **Presence of meanders**
- **Presence of ox-bow lakes**
- **Presence of natural/ levees/raised banks**
- **Presence of swamps/marshy vegetation.**

c)(i) State **FIVE** factors which influence the ability of a river to deposit materials. (5mks)

- **A reduction in river gradient/gentle gradient**
- **A decrease in the river volume**
- **Nature/large amount of load**
- **Presence of obstacles in the river channel**
- **A wider river channel**
- **When a river empties its water into a calm water body.**

(ii) Describe **FOUR** ways by which a river transports its load. (8mks)

- **Traction – The large and heavy loads of the river are rolled/dragged along the river bed**
- **Saltation – fairly heavy particles/pebbles are lifted and bounce over short distances in a series of hops /jumps.**
- **Suspension – fine particles such as silt/clay are lifted and maintained within the turbulence of the water/float on the surface of the water.**
- **Solution – Soluble mineral salts dissolve in the river water and are carried away in solution.**

(iii) Describe superimposed drainage system. (5mks)

- **Discordant drainage**
- **A river flows on rocks of uniform structure**
- **These rocks overlie rocks of different structure**
- **Once the rocks are removed through erosion**
- **The river starts flowing over a new set of rocks of a different structure but maintains its original direction.**

9. (a) Give **THREE** ways in which the shape of the landmasses may influence movement of the Ocean waters. (3mks)

- **May change direction of flow**
- **May force ocean currents to flow along the coastline of the landmass**
- **May split currents into two parts and flow in different directions**

(b) Distinguish between constructive waves and destructive waves. (2mks)

- **CONSTRUCTIVE WAVES: waves whose swash is more powerful than backwash leading to deposition of materials at the shore while**
- **DESTRUCTIVE WAVES: waves whose backwash is more powerful than swash leading to more removal of materials/erosion from the shore than is being deposited.**

(c) Describe the following processes of wave erosion along the coast.
(i) Abrasion/corrosion. (3mks)

- **When the waves break, the swash carries pebbles, sand, boulders and other rock fragments from the shore.**
- **The materials are then hurled against the base of the cliff/the foot and the face of a rock by a breaking wave**
- **This leads to undercutting and rocks break up.**
- **Some of these materials are dragged back into the water by backwash of the wave.**
- **Such materials, the heavy ones also erode by scratching , the ocean floor while the suspended materials in the backwash hit the rock face causing particles to break off.**

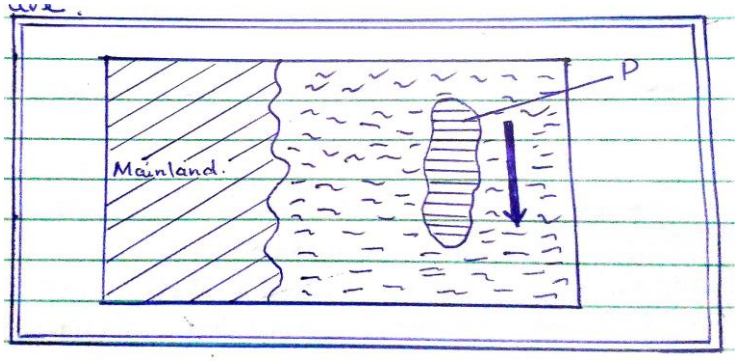
(ii) Solution/corrosion. (3mks)

- **Sea water has both corrosive and dissolving effects**
- **Some oceans have coasts with soluble rocks which simply dissolve directly in ocean water**
- **The dissolved minerals are carried away in solution leaving hollows/cavities in the rocks/cliffs**
- **Some oceans have coasts made of rocks that react with sea water to form soluble products that are washed away by the sea water.**
- **Carbon IV Oxide dissolves in sea water forming weak carbonic acid**
- **This weak acid reacts with minerals in some rocks in the ocean coast i.e limestone.**

(iii) Hydraulic action. (3mks)

- **Erosion action caused by the force of moving water.**
- **In a breaking wave large amount of water crush against the rock face/surface**
- **Water continuously pound the rock face /cliff surface at intervals.**
- **This weakens the rock causing it to break into small particles which are carried by water**
- **As the water pounds the cliff face, it may also force air into the cracks/crevices**
- **Once inside the cracks, the air becomes compressed and increases in pressure.**
- **The pressure causes widening of the cracks**
- **As water retreats, the pressure is suddenly released causing the trapped air to suddenly expand explosively.**
- **This causes the rocks to fracture and the cracks to enlarge**
- **When this process occurs repeatedly, it causes the shattering of rocks.**

d) The diagram below shows a wave deposition feature.



(i) Identify the feature labelled P. (1mk)

- **Off shore bar**

(ii) State **TWO** factors that favour the formation of the feature named in (i) above. (2mks)

- **Very gently sloping coasts**
- **The coasts extending deep into the sea/ocean**
- **Presence of sand**

e) Students from Gede secondary school went out for a field study on Coastal landforms.
(i) State **THREE** objectives for their study. (3mks)

- **The find out the wave erosional /depositional features at the coast.**
- **To find out the importance of coastal land forms**
- **To find out processes of wave transport along the coast.**

(ii) Give **THREE** preparations they made for their study. (3mks)

- **Seeking permission**
- **Conducted a pre-visit**
- **Prepared work schedule**
- **Divided themselves into groups**
- **Formulated/adjusted objectives and hypotheses.**

(iii) Identify **TWO** methods they might have used to collect information before the actual field study. (2mks)

- **Observing films/photographs in the library**
- **Reading written materials about oceans/coasts from the internet.**

10. (a) What is soil? (2mks)
- Naturally occurring thin layer of loose unconsolidated materials that overlies crustal rocks and on which plants grow.

(b) (i) Name THREE components of soil. (3mks)

- **Organic matter/humus**
- **Inorganic matter/minerals**

- **Soil water/moisture**
- **Soil air/gases.**

(ii) Describe how the following factors influence the formation of soil.

- Topography (3mks)
    - **Gentle slopes form deep, well drained and mature soils having clear profile**
    - **Steep slopes are heavily eroded forming thin and immature soils**
    - **Valley bottoms have deposition of weathered rocks forming deep soils.**
    - **Low, flat lying areas are waterlogged forming poorly drained soils.**
    -
- Nature of the parent rock. (3mks)

- **Rocks minerals determine the fertility, colour and chemical characteristics of the soil.**

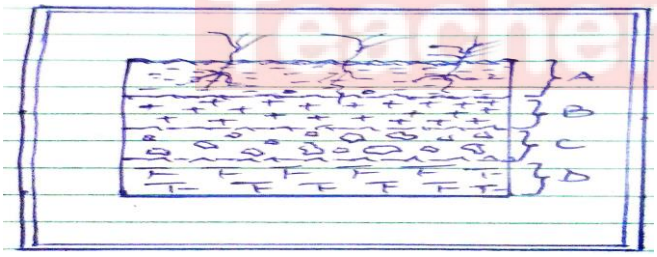
- **Hard rocks weather slowly taking long time for formation of soil/soft rocks weather faster to form soil.**

- **Determines soil texture, coarse grained rocks form coarse grained soils/fine grained rocks from fine soils.**

- (c) (i) Define soil profile. (2mks)

- **This is the vertical arrangement of soil in layers/horizons from the earth's surface to the bedrock.**

  (ii) The diagram below represents a fully- developed soil profile. State the characteristics of horizon A. (4mks)



- **Intense chemical and bacterial activities**
- **Dark in colour**
- **Contain humus**
- **Has two layers**
- **Zone of eluviation/leaching occurs**

(d) Explain **FOUR** ways in which farming practices may lead to loss of soil fertility. (8mks)

- **Frequent Ploughing weakens the soil structure making the soil easily eroded by agents of erosion.**
- **Mono cultural practices exhausts soil nutrients**
- **Ploughing across contours creates channels for surface run-off encouraging soil erosion**
- **Overgrazing leads to removal of vegetation over exposing soil to agents of erosion**
- **Continuous irrigation cause soil nutrients to e leached making the top soil deficient of soluble minerals.**