THE UNITED REPUBLIC OF TANZANIA

NATIONAL EXAMINATIONS COUNCIL

CERTIFICATE OF SECONDARY EDUCATION EXAMINATION

013 **GEOGRAPHY**

(For Both School and Private Candidates)

Time: 3 Hours **ANSWERS** **Year: 2013**

Instructions

1. This paper consists of ELEVEN questions.

2. Answer all questions in section A and B and two questions from section C.

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1. For each of the items (i) – (x), choose the correct answer from among the given alternatives and write its letter beside the item number in the answer booklet provided.

(i) A cirque is
A an arm-chair shaped depression on a glaciated lowland area
B an arm-chair shaped depression on the sides of a glaciated mountain
C an arm-chair shaped depression in the desert areas
D an arm-chair shaped valley in glaciated areas
E an arm-chair shaped depression on the plateau.
Answer: B
Reason: A cirque is a bowl-shaped, amphitheatre-like depression eroded into the side of a mountain by a glacier, typically found on glaciated mountain slopes.

(ii) A geyser can be described as
A a hot spring
B an explosion of volcanic vapour
C a fountain of superheated water and steam
D a thermal stream
E a pool of hot water.
Answer: C
Reason: A geyser is a hot spring that periodically erupts, ejecting a column of hot water and steam due to pressure buildup beneath the Earth's surface.

(iii) Which one of the following conditions is important for the growth of coral reefs?
A Warm and muddy river water
B Warm and muddy sea water
C Warm and clear sea water
D Warm and clear tape water
E Warm and clear river water.
Answer: C
Reason: Coral reefs require warm, clear, shallow, and well-lit seawater conditions to thrive, which is found in tropical marine environments.

(iv) A time accepted throughout a time zone of 15° longitude is known as
A local time
B noon time
C greenwich mean time
D sun time
E standard time.
Answer: E
Reason: Standard time is the uniform time established within a time zone spanning 15° longitude, used legally and officially across the zone.

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(v) Which sequence of the following processes is necessary for the formation of rainfall?
A Condensation, cooling and evaporation
B Evaporation, cooling and condensation
C Evaporation, sedimentation and cooling
D Evaporation, condensation and cooling
E Evaporation, cooling and sedimentation.
Answer: B
Reason: Rainfall occurs through evaporation of water, cooling as the moist air rises, and condensation forming clouds that precipitate as rain.

(vi) Which of the following instruments is used to measure pressure?
A Wet and dry bulb thermometer
B Aneroid barometer
C Anemometer
D Rain gauge
E Hygrometer.
Answer: B
Reason: An aneroid barometer is used to measure atmospheric pressure, unlike thermometers (temperature) or anemometers (wind speed).

(vii) Faulting may lead to the formation of
A rift valleys
B moraines
C ox-bow lakes
D boulder clays
E yardangs.
Answer: A
Reason: Rift valleys are large elongated depressions with steep walls formed due to faulting when crustal blocks move apart.

(viii) Which of the following statements is true to an equatorial region?
A It has a small annual range of temperature
B It has four rainfall maxima
C It experiences temperatures below 20°C
D It has a high annual range of temperature
E It is found between 15° and 30° north and south of the equator.
Answer: A
Reason: Equatorial regions have consistent temperatures throughout the year, resulting in a small annual range.

(ix) The earth's crust is also known as
A atmosphere
B hydrosphere

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C mantle
D lithosphere
E troposphere.
Answer: D
Reason: The lithosphere includes the crust and uppermost mantle and is the rigid outer layer of the Earth.

(x) What is the compass bearing of WNW?
A 270°
B 337°
C 315°
D 327°
E 292°
Answer: E
Reason: WNW (West-Northwest) lies between west (270°) and northwest (315°), and is exactly 292.5°, rounded to 292°.

2. Match the items in List A with the responses in List B by writing the letter of the correct response beside the item number in the answer booklet provided.

List A
(i) A tidal wave formed as a result of an earthquake or volcanic eruption.
(ii) Denser rocks that form the ocean floor.
(iii) A force that causes the bending of the earth's crust.
(iv) Intrusive volcanic feature formed horizontally along the bedding plane.
(v) Formed when two caves on opposite sides of headland join up.

List B
A Compression
B Dyke
C Sial
D Ocean currents
E Faulting
F Arch
G Sima
H Tsunami
I Stack
J Sill

Answers:
(i) H
(ii) G
(iii) A
(iv) J

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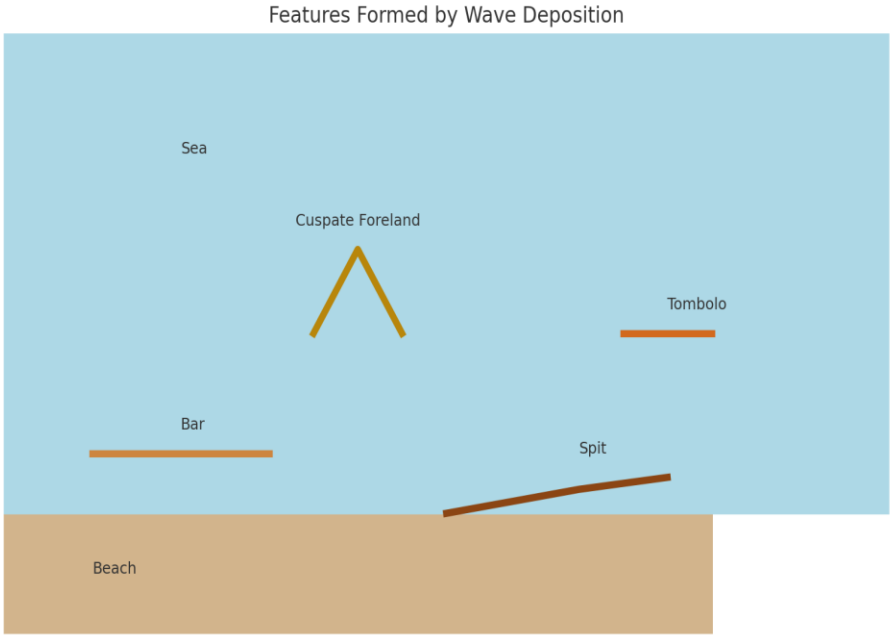
(v) F

3. With the aid of diagram, explain any five features formed by wave deposition.

Wave deposition occurs when the energy of the sea reduces, allowing materials like sand, shingle, and pebbles to be dropped along the shore. This leads to the formation of several depositional features:
Spit: A spit is a long, narrow ridge of sand or shingle that extends from the coast into the sea. It is formed by longshore drift which transports materials along the shoreline. Where the coastline changes direction, deposition continues into open water forming the spit. It may develop a hook if influenced by wind or tides.
Beach: A beach is a gently sloping accumulation of sand, pebbles, or shingle deposited along the shore between high and low tide levels. It is formed where waves lose energy and drop materials carried from offshore or along the coast.
Tombolo: A tombolo is a bar or ridge of sand or shingle that connects an island to the mainland or to another island. It is formed when waves deposit material in the sheltered area between the coast and an island.
Bar: A bar is a ridge of sand or shingle formed across the mouth of a bay. It is created when longshore drift deposits material across a bay, sometimes enclosing a lagoon behind it.
Cuspate foreland: This is a triangular-shaped low-lying area of deposited material that extends from the shoreline out to the sea. It is formed when waves approach the shore from two different directions and deposit sediments at a point where they converge.



4. (a) Explain the meaning of the standard deviation.

Standard deviation is a statistical measure that shows the extent to which values in a data set differ from the mean of the data. It indicates how spread out or concentrated the values are. A small standard deviation means the values are close to the mean, while a large standard deviation shows a wider spread.

(b) Study the following data showing the age of the Primary School pupils at Tumaini Primary School and answer the questions that follow:
15, 8, 7, 6, 12, 5, 14, 13

(i) Determine the range and median of the age of the pupils.

Range is the difference between the largest and smallest values in the data set.
Maximum value = 15, Minimum value = 5
Range = 15 - 5 = 10

To find the median, first arrange the data in ascending order:
5, 6, 7, 8, 12, 13, 14, 15
There are 8 values. Median is the average of the 4th and 5th values.
Median = (8 + 12) / 2 = 10

(ii) Calculate the standard deviation.

Step 1: Find the mean
Sum = 5 + 6 + 7 + 8 + 12 + 13 + 14 + 15 = 90
Mean = 90 / 8 = 11.25

Step 2: Find the squared deviations from the mean
$(5 - 11.25)^2 = 39.06$
$(6 - 11.25)^2 = 27.56$
$(7 - 11.25)^2 = 18.06$
$(8 - 11.25)^2 = 10.56$
$(12 - 11.25)^2 = 0.56$
$(13 - 11.25)^2 = 3.06$
$(14 - 11.25)^2 = 7.56$
$(15 - 11.25)^2 = 14.06$

Step 3: Find the average of squared deviations
Sum = 120.48
Variance = 120.48 / 8 = 15.06
Standard deviation = $\sqrt{15.06} = 3.88$

5. (a) What is research?

Research is a systematic investigation aimed at discovering, interpreting, and analyzing facts and information to answer questions or solve problems. It involves collecting data, analyzing it, and drawing conclusions to enhance knowledge or make informed decisions.

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(b) Explain four benefits of conducting research.

Research helps in identifying and solving real-life problems by providing relevant data and evidence. This allows individuals, institutions, and governments to take action based on factual findings rather than assumptions.

It enhances knowledge and understanding in various fields such as science, education, health, and technology, contributing to development and innovation in society.

Research supports planning and policy-making. It enables governments and organizations to formulate policies and strategies based on accurate data and projections.

It promotes economic development by identifying areas with investment potential, determining market trends, and improving productivity through tested solutions.

6. (a) Explain the best steps required in order to conduct an accurate chain survey.

The first step is planning the survey by identifying the area to be measured and determining the best methods and equipment to be used. The objective and scope should be clearly defined.

Next is reconnaissance survey, where a preliminary inspection of the area is done to note obstacles, terrain, and overall layout. This helps in choosing suitable survey lines and stations.

Then, mark out the survey lines with ranging poles and ensure the chain lines are straight and clear of obstructions. Temporary benchmarks may be set.

Measurement follows, where distances are measured using a chain or tape. Readings are recorded on a field sheet, ensuring accuracy by applying necessary corrections.

The final step is plotting and calculation, where all measurements are transferred to a drawing scale on paper to produce a map or plan of the area.

(b) What are the five good booking methods used in chain survey?

The tie line method involves booking tie lines connecting various points to check the accuracy and shape of the traverse.

The check line method involves measuring lines from fixed points to verify the correctness of previous measurements and ensure closure.

The triangulation method uses a network of triangles to determine the position of features. The angles and sides are measured and booked accurately.

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The offset method records measurements of objects/features perpendicular or obliquely from the main chain line and includes the distance along the chain line and the offset distance.

The cross-staff survey method uses cross-staffs to measure angles and features. Readings are booked based on the angle and distance from the baseline.

7. (a) By using the vertical scale of 1 cm to 20 m, draw a cross section from grid reference 910570 to grid reference 932620 and determine its Vertical Exaggeration (V.E).

Cross section should be plotted using the heights between the two points based on the contour lines observed on the Kigoma map. Vertical Exaggeration is calculated as:

V.E = Vertical scale / Horizontal scale
Vertical scale = 1 cm represents 20 m = 1:2,000
Horizontal scale = 1:50,000
V.E = 50000 / 2000 = 25
So, the vertical exaggeration is 25 times.

(b) With vivid evidence from the map, mention the major types of transport shown in the area.

The map shows a railway line running through the area, indicating railway transport. This is identified by the railway line symbols present on the map.

Road transport is also shown by the all-weather roads and other vehicle tracks represented on the map. These roads connect several settlements and economic areas.

Water transport is evident due to the presence of Lake Tanganyika along the western edge of the map. The proximity to Kigoma port shows that water transport is a key mode of movement.

(c) Apart from fishing activities, use concrete evidence to name other economic activities taking place in the area.

Agriculture is practiced in areas with scattered settlements and open land, particularly to the east and south of Kigoma, as indicated by land use patterns and symbols for cultivation.

Trade and commerce are active in the urban area of Kigoma town where dense building patterns and the presence of the railway station and port encourage business activities.

Transportation services are another economic activity, evidenced by the railway line, port, and road network that support the movement of goods and people.

(d) In which hemisphere is the mapped area located? Give evidence for your answer.

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The mapped area is located in the Southern Hemisphere. This is evident from the latitude markings on the map which are shown as degrees south of the equator (e.g., 4°S).

8. (a) Identify the type of photograph. Give concrete evidence.

The photograph is a ground-level photograph. This is evidenced by the fact that the photo was taken from the ground, showing the buildings from the base upwards, with a clear front view of different structures.

(b) By providing evidence from the photograph, describe the relief of the area.

The relief of the area is generally flat or gently sloping. This is evidenced by the uniform height of the buildings and the lack of visible hills or valleys in the background. The structures stand upright without any adjustment to terrain, indicating a relatively level land.

(c) Explain three possible factors which have contributed to the growth of this town.

The presence of economic opportunities such as trade, finance, tourism, and administration has attracted people to settle and work in this area. The buildings indicate commercial centers and offices which provide employment.

The development of infrastructure like roads, electricity, and water supply has supported urban expansion and improved living standards, thus drawing more residents.

The availability of social services such as hospitals, schools, and communication facilities has made the area attractive for settlement and investment.

(d) Apart from providing shade, explain any other three advantages of the vegetation shown on the photograph.

Vegetation improves the quality of air in urban areas by absorbing carbon dioxide and releasing oxygen, thus helping in pollution control and promoting healthier living environments.

It helps in temperature regulation by cooling the surrounding area through evapotranspiration and by reducing the urban heat island effect.

Vegetation prevents soil erosion by stabilizing the soil with their roots, especially during rainy seasons, and also adds beauty to the townscape, contributing to urban aesthetics.

9. Explain six factors which account for the development of car manufacturing industry in Japan.

Japan has a highly skilled and disciplined labor force which contributes to high productivity and innovation in the automobile industry. Workers are trained, efficient, and quality-oriented.

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Advanced technology and automation in Japanese industries support mass production of cars with high precision and reliability. Research and development are also heavily invested in.

Good infrastructure such as transport networks, ports, and electricity supports the production and distribution of cars within Japan and to export markets.

Availability of capital from domestic and international sources has enabled investment in modern machinery, expansion of production lines, and global marketing of Japanese cars.

Strategic government support through favorable policies, subsidies, and cooperation with industries has fostered growth and stability in the sector.

Strong global demand for Japanese cars due to their reliability, fuel efficiency, and affordability has encouraged expansion of production and continuous improvement.

10. Describe six problems facing railway transportation in East Africa.

Most railway infrastructure in East Africa is outdated, with old tracks, wagons, and equipment leading to frequent breakdowns and inefficiencies.

Poor maintenance of railway lines and stations has reduced the reliability and safety of train transport. Many lines are abandoned due to lack of repairs.

Limited coverage of railway networks restricts access to many rural and remote areas, reducing its usefulness for regional connectivity.

Competition from road transport, which is more flexible and faster in some areas, has reduced the number of users and revenue for railway companies.

Inadequate funding for expansion and modernization of railway infrastructure limits the capacity to upgrade or extend services.

Vandalism and theft of railway materials such as rails, bolts, and communication systems disrupt operations and increase maintenance costs.

11. Elaborate six importance of Mount Kilimanjaro to Tanzania.

Mount Kilimanjaro is a major tourist attraction in Tanzania, bringing in foreign exchange and creating employment opportunities in the tourism sector.

It serves as a water catchment area, with glaciers and forests supplying rivers that provide water for domestic, agricultural, and industrial uses.

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The mountain supports biodiversity by providing diverse ecological zones that host different plant and animal species, some of which are endemic.

It contributes to climatic regulation through forest cover that influences local weather patterns and helps in absorbing carbon dioxide.

Kilimanjaro has cultural significance to local communities such as the Chagga, who regard the mountain as sacred and part of their heritage.

The area around Kilimanjaro supports agriculture due to fertile volcanic soils, especially on the lower slopes where crops like bananas and coffee are grown.

12. Examine six effects of environmental pollution in African cities.

Air pollution caused by industrial emissions, vehicle exhaust, and burning of waste leads to respiratory problems, eye irritation, and other health issues among urban populations.

Water pollution from untreated sewage, industrial waste, and domestic dumping contaminates water bodies, causing diseases like cholera and typhoid.

Soil pollution due to poor waste disposal and use of chemicals reduces soil fertility and affects urban agriculture, limiting food production.

Noise pollution from traffic, construction, and factories causes hearing problems, stress, and reduces the quality of life for residents.

Pollution of natural habitats, including wetlands and forests, reduces biodiversity and disrupts ecosystems, threatening wildlife and plant species.

Accumulation of waste and poor sanitation in cities leads to blocked drainage systems, flooding, and breeding grounds for disease vectors such as mosquitoes and rats.