**WAKISSHA JOINT MOCK EXAMINATIONS**
**MARKING GUIDE**
**Uganda Advanced Certificate of Education**
**UACE August 2016**
**GEOGRAPHY P250/1**

## GUIDELINES FOR MARKING

- **Marking section A is factual**
- **Section B and C marking is impressional unless otherwise stated.**
- **While marking make necessary comments in the margin to help you arrive at the final mark.**
- **Guidelines for impressional marking are as follows.**

| | |
|---|---|
| **0** | **Completely irrelevant answer.** |
| **1 – 6** | **Rudimentary facts** |
| **7 – 9** | **O' level answer** |
| **10 – 12** | **Basic A' level answer** |
| **13 – 15** | **Good but not outstanding** |
| **16 – 19** | **A very good answer** |
| **20+** | **Excellent answer** |

### MAP READING.

1. (a) (i) Grid reference of the hill peak at Soba is $62\underset{1}{0}44\underset{0}{9}$. **(01mark)**

(ii) Physical feature is a river valley / river confluence. **(01mark)**

(b) (i) The distance in km of the dry weather road is 7.9kms
Accept 7.7 – 8.1km. **(02marks)**

(ii.) The detour index of the dry weather road is

$$DT = \frac{\text{Actual distance of the road - straghtline distance}}{\text{Actual distance of the road}} \times 100$$

$$DT = \frac{7.9 - 6.5}{7.9} \times 100$$

$$DT = 17.72\%$$

(c) (i) On the graph paper

Method 01
Answer 01
0**2marks**

(ii) New scale;

old scale of $\frac{1}{50000} \times \frac{2}{1}$

New scale = 1:25000

Method 01
Answer 01
**02marks**

(d) (i) Drainage.

- The area has permanent swamps in the North.
- The area has seasonal swamps in the North West.
- The area has permanent rivers like Waragwomi in the North.
- The area is well drained in the East and North East.
- The area has dendritic drainage pattern in the central and North.

03marks

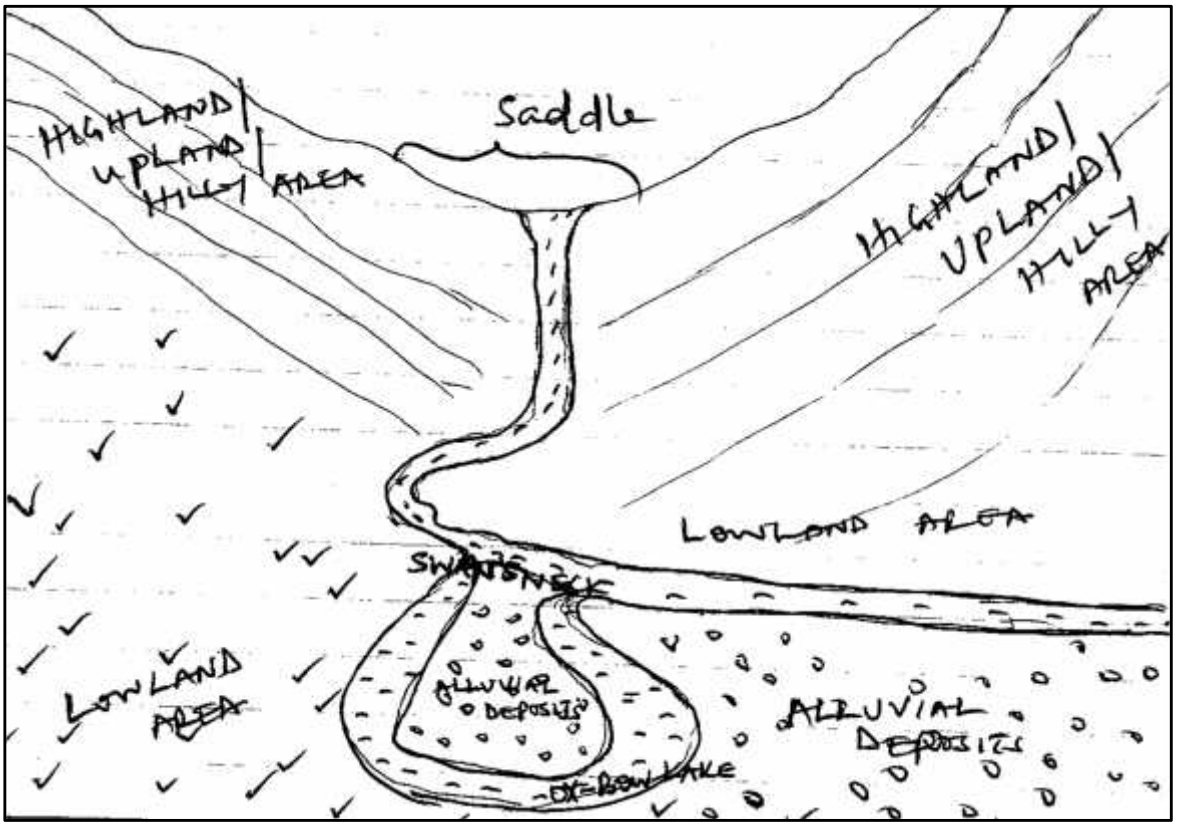
(ii) Relationship between relief and drainage.

- Rivers like Waragwomi flow from uplands to lowlands.
- Rivers like Waragwomi, Kachwamba throw through valleys.
- Uplands / ridges in the central form watersheds.
- Gentle slopes of Mbale, Kyegegwa are well drained.
- Lowlands / broad valleys have permanent, seasonal swamps / poor drained in the North and Northwest.
- Steep slopes in the central, North East are well drained.
- Rivers along steep slopes flow through narrow valleys e.g. Kibale, Irunga etc.

Any 2 X 2 = 04marks

***An enlarged sketch map: see last page***

2. (a) A LAND SCAPE SKETCH OF THE AREA SHOWN ON THE PHOTOGRAPH SHOWING RELIEF REGIONS, SADDLES, ALLUVIAL DEPOSITS, MAJOR DRAINAGE FEATURE AND SWAN'S NECK.




RELIEF REGIONS

- Highland/upland/Hilly area
- Lowland area.

MI = 03marks
Features = 06marks

(b) (i) Characteristics of the drainage feature.
- River flow from uplands to alow lying area.
- It flows through a narrow valley in the background.
- The water flows very fast in the background.
- Flood plain has developed in the foreground.
- Deposition of the materials in the foreground.
- Meanders have developed with cliffs and slip off slopes.
- An ox-bow lake has also developed.

Any 4 X 1 = 04marks

(ii)
- An ox-bow lake.
- It is a horse shoe shaped lake formed when a pronounced meander is cut off from the main river.
- Erosion takes place on the outer bank of the river.
- Deposition takes place on the inner bank of the river.
- A narrow neck remains in between the two meander loops.
- During flood times or continuous erosion, the narrow neck is cut through.
- It is sealed off by alluvial deposits hence an ox-bow lake.

Factual marking 06marks

(c) Problems likely to be faced;
- Flooding due to river valley in the foreground.
- Drowning due to the river valley in the foreground.
- Waterborne diseases due to river valley in the foreground.
- Erosion in the highlands in the background.
- Landslides in the highlands in the background.

Any 4 X 1 = 04marks

(d) Area.
Lower valleys of rivers,
- Mpanga.
- Nyando.
- Ngaila.
- Semuliki.
- Kilombero.
- Rwizi.
- Nzoia.
- Tana.

**Reason.**
- Presence of pronounced meanders.
- Presence of ox – bow lakes.
- Flow from hilly areas and deposit alluvium in lowlands.

Area = 02marks
Reason 01mark
**02 Marks**

***3. (a) Distinguish between a sill and a dyke. 06marks***

***(b) Examine the influence of intrusive vulcanicity on landform development in East Africa. 19marks***

- A sill is a tabular sheet of igneous rocks lying horizontally between the bedding planes.
  Examples are seen at Kakinzi in Luwero, Thika falls on R. Thika in Kenya.
  Illustration. 03marks

***While***

- A dyke is a vertical wall like / steeply inclined rocks intruded across the rock strata.
  Examples are found in Isingiro, Rungwa-Kisumu complex, Sukuru etc.
  Illustration 03marks

**Factual marking 06marks**

(b) Candidates are expected to;
- Define intrusive vulcanicity.
- Provide origins.
- Resultant landforms after denudation.

- Intrusive vulcaanicity is a process through which molten rock materials are injected, cooled and solidified within the earth's crust.
- The magmatic materials are due to geophysical, geochemical and radioactivity.
- The materials were intruded due to viscosity of the magma, insufficient pressure and failure of the lines of weakness to reach the earth is surface.
- They cool and solidify at varying levels of depth to form features which are exposed by denudation process resulting into landforms.

- **Batholith.**
  - A very large dome shaped intrusion made up granite materials (rocks).
  - It forms at a great depth due to deep seating of the acidic magma.
  - Overtime due to denudation, rocky highlands, resistant outcrop rocks and inselbergs result e.g. Nakasongola, Mubende, Kachumbala etc.
  - Where a batholith is less resistant to denudation than the surrounding rocks, batholiths form depressions when worn away called Arenas e.g. Rubanda Arena.
    Illustrations.

- **Dyke.**
  - Is a vertical / wall like steeply inclined rocks intruded across a rock strata.
  - It results from intrusion of igneous rocks across a vertical fissure.
  - Where a dyke is harder than the surrounding areas, ridges / elongated hills are formed e.g. Sukuru,Isingiro, Busia, Kisumu, Rungwa complex etc.
  - Where a dyke is less resistant, linear trenches are formed e.g around L. Turkana.
    Illustrations.

- **Sill.**
  - Is a tabular sheet of igneous rocks lying horizontally between the bedding planes?

- Magma rises, spreading horizontally and solidifying between the bedding planes of the rock strata.
- Where sills are hard compared to the sorrunding areas, on exposure, flat topped hills, cliffs and escarpments are formed.
- Examples include Kakinzi in Luwero, Thika falls on R.Thika in Kenya. Illustrations.

- **Laclolith.**
  - Are dome shaped intrusive igneous rock structures with a flat base.
  - They form from injection of viscous magma into layers of the rock strata, unable to spread accumulating as a large mass.
  - When exposed, uplands are formed e.g. at Voi & Kitui.

Relevant illustrations and examples required.
Impressional marking = 19marks

***4. Explain the influence of diastrophic movements on lake formation in E.Africa.***

Candidates are expected to;
- Define a lake.
- Provide characteristics of lakes.
- Define diastrophic movement and give their origins.
- Identify and describe the lakes due to diastrophic movements.
- Relevant illustrations are needed.

- A lake is a body / mass of water contained in hallow / basin / depression on the earth's surface.
  - Lakes are characteristics by being large / small, deep / shallow, salty/fresh water etc.
  - Diastrophism is an endogenic process involving vertical & lateral movement / instabilities within the crust.
  - They involve modification of the landscape without necessarily bringing in new materials.
  - They originate in the mantle / core due to geophysical, geochemical and radioactivity.
  - Diastrophic movements include faulting and warping.
  - Lakes resulting from faulting
  - Faults is the fracturing of the land of the earth's crust hence their displacement relative to one another.

- Rift valley lakes/Graben lakes. It is a mass of water contained in a graben hallow at the floor of the rift valley.
  - They are characterized by being salty, deep, narrow, elongated and have steep banks.
  - Examples include L.George, L.Edward, L.Albert on the western arm. L.TurkanaL.Nakuru, L.Natron on the Eastern arm.
    Formation.
  - Graben formation by tension forces.
  - Radioactivity, geophysical and geochemical reactions resulted into tensional forces.
  - The tensional forces acted on the East African block hence pulled leading to normal fault line.

- The central block sunk to form adepression called a riftvalley.
- Secondary / further / multiple faults resulted into a secondary depression called a graben.
- It was filled by water hence a graben lake.
  Illustrations.
- Graben formation by compressional forces.
- Radioactivity and connectivity led to compressional forces.
- These pushed the block of land in the same direction hence reversed fault lines.
- The side blocks were uplifted to form a rift valley with sharpe edges.
- Further faulting at the rift valley floor led to a graben.
- It was later filled with water hence a graben lake.

- Tilt block lakes.
  - These are lakes found in depressions separated by ridge or uplands in a tilt block landscape.
  - Faultlines due to tension and compression forces developed.
  - The blocks either rose/sunk and the middle block was uplifted higher than the side to form a depression.
  - It was later filled with water to form a tilt block lake.
  - Examples include L. Olbolossat in the Aberdare ranges of Kenya.

- Lakes resulting from warping / down warping.
  - Warping is the general uplift (upwarping) and sinking (down warping) of the earth's crust.
  - Down warping led to the formulation of down warped lakes / depressional lakes e.g. L.Victoria and Kyoga.
  - They are characterized by being shallow, saucer shaped, fresh water, irregular in shape etc.
  - Before warping and faultings, rivers Kafu, Kagera&Katonga were flowing to the Congo.
  - After warping and faults, western Uganda was uplifted, central Uganda & S.Western Uganda was down warpedhence sinking of the earth's crust to form basins and depressions.
  - Reversal of drainage occurred on R.Kafu, Katonga and Kagera and filled up the basins hence L.Victoria& Kyoga.
    Illustrations are required.

Impressional marking 25marks

***5. Examine the influence of coral polyps on the development of local forms along the East African coast.***

- Candidates are expected to;
- Define coral polyps.
- Explain the process of the formation of coral landforms.
- Explain atleast two theories of coral reef formation.

Coral polyps are tiny or small organisms found in the sea. They are rich in calcium carbonate. When they die, their skeletons or shells are deposited at the sea-bed hence accumulate to form coral landforms.

- Coral landforms are limestone rocks made up of skeletons of small marine sea animals called coral polyps. These animalshave skeletons made of calcium carbonate that are seen on the East African coast.
- Process of formation, coral landforms are formed from small marine animals called coral polyps. When they die and their skeletons accumulate at the sea bed coral reefs develop.
- As more coral polyps die, they pile over those deposited earlier.
- They accumulate in layers called strata.
- They are compressed by the overlying weight of the materials.
- There is compaction of the layers and consolidation of materials into rocks.
- The dead coral polyps are then cemented together by organism called calcareous algae, into hard rocks known as coral landforms or coral reefs.

Conditions of coral landforms development include;
- Hot temperatures of about $20^0C - 30^0C$ as a result they tend to grow the tropics. They grow on the Eastern sides of continents affected by warm ocean currents. E.African coast is washed by warm Mozambique currents.
- Shallow waters of not more than 60m deep due to sufficient sun light which support the growth of planktons.
- Salt waters with salinity conditions of 27 to 40 per 1000 salinity. That is why they do not grow at the mouth of rivers.
- Clean, clear and oxygenated water that is why they do not grow in muddy water.
- Calm water where the wave currents are not strong to prevent accumulation.
- Grow in areas with a variation in water level between high and low tide levels.

The types of coral landforms include;
- Fringing reefs – These are coral platforms connected to coast or formed near the coast they are located 1km away from the coast.
  The outer edge falls steeply sea ward. Fringing reefs usually encloses a shallow and narrow lagoon. They are common along this E.African coast near Tanga, Mtwara, Tiwi, Kilifi and Mombasa
  Illustrate with diagram.

- Barrier reefs – these coral platforms that form several kilometers away from the coast. These coral platform leave a relatively flat surface. They are separated by a much deeper and relatively wider lagoon. The can be seen at Mayotte islands between Mozambique and Madagascar
  Illustrate.

- An atoll is a circular, ehptical and horse shoe shaped coral reef that encloses a central lagoon whose floor is flat shaped. Examples are found at Aldabara in the Indian ocean.

The formation of coral landform is related to the following theories;
- **Darwin's subsidence theory** – According to Darwin, coral landform formed on sub marine volcanic island that was subsiding. Coral reefs began to grow at the edge of the Island. As the Island was slowly subsiding coral reef given upwards and outwards leaping pale with the subsidence. They started growing as fringing reefs enclosing shallow lagoon, Barrier reefs enclosing a deep lagoon and finally atoll enclosing a very deep lagoon.

- **Daly's glacialcontrol theory**. According to Daly the formation of coral landform was on changes in sea – level due to change in climate. During glacial times there was a fall in sea – level due to glaciation. All the pre-glacial coral reefs, marine islands and volcanic peaks were eroded to the sea-level of the time to produce nearly flat surfaces which acted as platforms for the upward and outward growth of coral reefs.
  When temperatures increased during de-glaciation times, the ice that melted releasing water to the sea that led to an increase in sea-level.
  As the water level was slowly rising, the coral reefs grew upwards and outwards keeping pace with the rise forming a fringing reef, then barrier reef and atoll.

- **Murray's theory of pelagic deposit.** He explained the formation of barrier reefs and atoll. According to Murray. There was the existence of a submarine hill. These hills were volcanic peaks with accumulated pelagic deposits receiving with in 60m from sea level.
  He proposed that coral reefs started growing from these flat platforms with pelagic deposits upwards and outward forming barrier reefs and atolls. Murray suggested that as fringing reefs grew, they were pound by waves and masses coral fragments accumulated sea wards and connected. The corals of the inner side died and much of the dead corals dissolved in water to form a deep lagoon.
  Illustrate.

Any two theories required
(Impressional marking 25marks)

***6. (a) What is sunshine?***

A candidate is expected to define sunshine as;

The heat energy received on the earth surface from the sun through this atmosphere as abeam of rays. The amount of heat that is incident on the earth surface vary from one place to another and from time to time.

Hot deserts receive the largest amount of heat energy from the sun due to less cloud cover which would reflect solar energy. Sun shine is received at a place only during day time in form of light.

The amount of sunshine reaching the earth surface is measured using an instrument called a Camp bell sunshine stoke recorder.

It is measured in hours.

6marks

***(b) Explain the factors that affects the amount of sunshine incident on the earth surface.***

- Candidates are expected to explain the following conditions;

- Latitudinal location of a place. Areas within the low-latitudes especially those in the tropics receive more sun's energy because the sun's energy incident is almost at right angle on surface. On contrary areas with in the high latitudes receives less sun's energy because they are far away from the sun.

- Altitude of the area. Altitude refers to the height above sea-level. Areas in lower altitude receive more sun's energy because of the earth's reflective capacity while areas in higher altitude receives less sun's energy because much of it scattered and some absorbed by the impurities of the atmosphere.

- Influence of cloud cover receive less sun's energy because clouds absorb it. Areas with less cloud cover receive more sun's energy because the sun's energy is directly emitted to the ground.

- Influence of impurities of the at atmosphere such as smoke, dust particles, carbon dioxide, water vapour absorb part of the sun's energy and reflect some preventing it from reaching the earth's surface while the atmosphere that is clear of impurities allow sun's energy to reach the surface and a lot is received.

- The revolution of the earth around the sun results into different seasons. During summer seasons more sunshine incident on the earth surface and limited during winter season.

- Aspect which is the position of a places in relation to the sun's rays. Areas in the mid and low latitudes receive more sun's energy compared to areas scattered from the sun's rays.In the mid-latitude of the Northern hemisphere, the south facing shores receive more sun's energy as compared to the north facing slopes.

- Nature of the receiving surface/colour/Albedo

Impressional marking = 19marks

***7. Examine the conditions for the growth and distribution of natural forest vegetation in E. Africa.***

Candidates are expected to;
- Identify the different types of forests.
- Their location, characteristics and factors.

**Tropical rain forests.**
- Found in Mabira, Bundongo, Maramagambo, kibale, Kissi and Kakamega.

**They are characterized by;**
- They have tall trees of about 60m.
- They are hard wood in nature.
- The trees are ever green.
- Trees have dense canopies of three layers.
- Trees hare broad leaves.
- Trees have little / no undergrowth.
- Trees have along gestation period.
- Trees have large buttress routs.

**Conditions.**
- Heavy rain forest received throughout the year of over 1000mm.
- Hot temperatures of between 22-28$^0$C.
- High humidity of about 80%.
- Presence of sunlight for plants to manufacture their own food.
- Presence of a gently sloping relief and sometimes lowlands.
- An altitudinal range of between 1000-2000m above sea level.

- Favourable government policy of gazettes forests.
- Limited human activities.
- Fertile, deep, well drained loam / volcanic soils.

**Montane / temperate forests.**
- Are found on mountains Rwenzori, Kenya, Elgon, Kilimanjaro,Bwindi etc.

**Characterised by;**
- They have tall trees.
- Trees are ever green.
- Trees are cone shaped.
- Trees are soft wood in nature.
- Trees grow in pure stands.
- Trees have a short gestation period.

**Conditions.**
- Cool temperatures of about $10^0$C due to high altitude.
- Moderate rainfall of about 760mm.
- Low humidity of about 30% due to cool temperatures.
- Moderately fertile, thin soils that support growth of light trees.
- A high altitude of between 3000-4000m above sealevel.
- Favourable government policy of conservation.

**Mangrove forests.**
- Are found along the East African coast at Mombasa, Dar-es-salaam, Lamu, Tanga, the lower valleys of rivers Rufigi and Ruvuma.

**Characterized by;**
- Trees are ever green.
- Trees have aerial / stilt / breathing roots.
- Trees are hard wood in nature.
- Trees have dense bushy stands.
- Trees grow in pure stands.
- Trees have grey leathery foliage.
- Trees are medium in height.
- Trees have short trunks.

**Conditions.**
- Heavy rainfall of over 1000mm.
- High humidity of about 80%.
- Hot temperatures of between 24-$30^0$C.
- Coral soils, impervious clay, peat soils, mud flat, alluvial, deep saline soils.
- Low altitude of below 200m above sea level.
- Found in coastal lowlands and broad valleys.
- Mangrove forests forms in poorly drained, soggy water logged and saline water conditions.
- Presence of barrier reefs along the coast.
- A low tidal range of water.
- Government policy of gazettes mangrove forests.
- Human activities like cultivation reduces the mangrove forests.

Impressional marking = 25marks

8. (a) Distinguish between pedocals and pedalfers.
- Pedocals are zonal soils rich in calcium carbonate content.
- They develop in areas of seasonal rainfall with less leaching.
- Examples of pedocals include chernozerms and chestnut coloured soils.

***while***

Pedalfers are zonal soils rich in iron and aluminum; they develop under condition of high rain fall which facilitates the process of leaching that leaves behind iron and Aluminium in high concentration in humid climatic regions.
- Examples include the latosols and tropical black earth soils.

Impressional marking = 6marks

(b) Account for the development of zonal soils.

Zonal soils are soil types classified according to climatic factors.
- They are mature soils with well-developed profiles.
- They are well drained soils that develop under conditions of good drainage.
- They develop on gentle slopes and relatively flat areas.
- They divided into pedocals rich in calcium carbonate and Redalfers rich in iron and aluminium.

**Types of zonal soils depending on climatic zones include;**
- In humid tropic regions under hot and wet climate give rise to latosols due to leaching of silica while iron and Aluminum are left in high concentration in top layers.
- In mid latitudes there are grey Podsolsor Tropical brown earth soils.
- In areas of seasonal rainfall there are chernozerm soils or prairries soils have developed.
- In semi-arid and arid areas there are chestrutnut coloured soils that have developed.
- In very cold and cold areas, there is development of Tundra soils and artic brown soils.

**Factors influencing the development of zonal soils include;**
- Climatic hot and wet areas heavy rainfall leads to leaching of silica while iron and aluminum accumulate leading to formation of reddish brown soils called laterites.
- Humid subtropical and temperate areas there formation of brown earth soils or podsols due to leaching that results from humid conditions, humification due to thick vegetation.
- Seasonal rainfall lead to chernozerm soils which tend to be black with a lot of humus due to limited leaching.
- In semi-arid areas there are chestnut coloured soils due to limited humus.
- Under cold conditions tundra and arctic brown soils develop.
- Nature of the parent rock – mineral composition where rocks with calcium carbonate will give rise to development of pedocals which form in dry areas.
- Rock permeability allows leaching resulting into removal of silica while iron and aluminum are deposited in the top layers leading to formation of laterites.
- Relief laterites soils form on gentle slopes and low land where there is percolation of water leading to leaching, elluviation. The gentle slopes are well drained.
- Drainage- zonal soils form in areas which are well drained allowing leaching elluviation, and illuviation leading to the formation of laterites. The good drainage under hot conditions allow accumulation of salts and calcium carbonate in the top layers leading to formation of pedocals.

- Biotic factors. Thick vegetation under hot and wet condition leading to decay of tropical litter and dissolving and leaching of silica.
- Brown earth soils are found in deciduous and coniferous forested areas.
- Thick vegetation cover holds soil particles together and encourage infiltration of water leading to leaching and formation of zonal soils.
- Time zonal soils form over a long period of time which leads to the formation of mature soils.

Impressional marking = 6marks

**END**