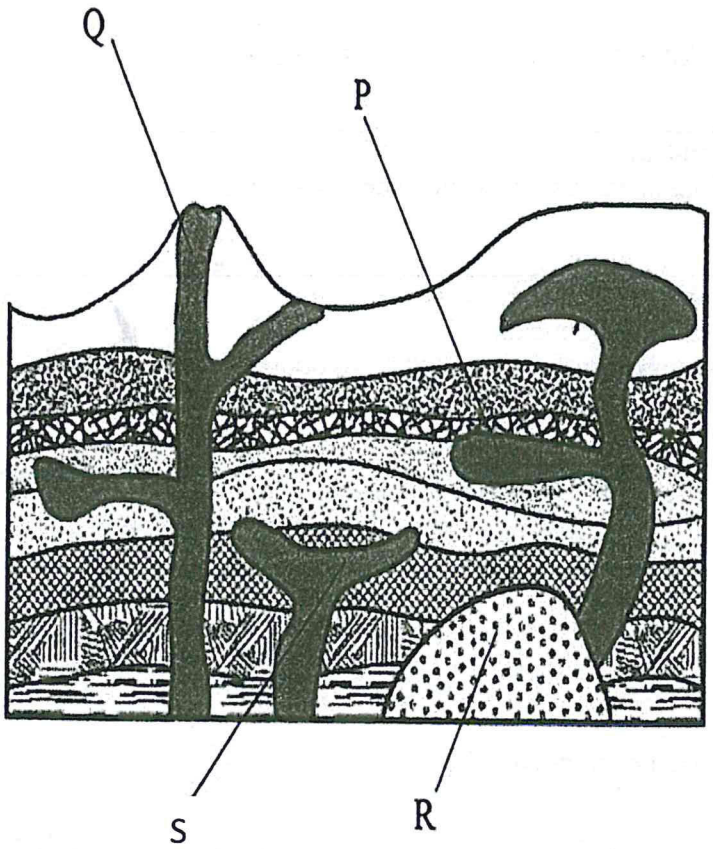
4.10 GEOGRAPHY (312)

4.10.1 Geography Paper 1 (312/1)

Answer **all** questions this section.

1. (a)	**Define the term atmosphere.** This is the layer of gases and vapour which surrounds the earth.	2 marks
(b)	**State the composition of the inner core** - It is composed of iron and nickel. - It has very high temperature/ about 5000°C to 6000°C, - The average density is 13-17gm/cc./very high density - It is solid in nature.	Any 3x1=3 marks
2. (a)	**Name three types of folds** - Simple / symmetrical fold. - Asymmetrical fold. - Over fold. - Recumbent fold. - Nappe fold./overthrust - Isoclinal fold. - Anticlinorium/synclinorium complex - Monoclinal fold	Any 3 x 1 = 3 marks
(b)	**State three factors that determine the folding of crustal rocks** - Crustal rocks should be in layers/sedimentary. - The rocks should be young in order to bend. - The forces operating on the crustal rocks should be compressional. - The amount of pressure applied should be high.	Any 3 x 1 = 3 marks

3.	**The diagram below represents some volcanic features. Use it to answer the questions below.**  Name the features marked P, Q, R and S. - P – Sill (1 mark) - Q – Vent (1 mark) - R – Batholith (1 mark) - S – Lopolith (1 mark)	
4. (a)	**Identify the main characteristics of the ocean water** - Ocean water is saline/salty. - The temperature of ocean water varies horizontally and vertically. - Varies in density - It is in constant movement	2 marks
(b)	**Give three factors that influence wave deposition** - The depth of the water should be shallow along the coast - Configuration of the coastline/change in the alignment of coastline. - The shore should have a gentle gradient. - The breaking waves should have strong swash and a weak backwash./constructive waves. - Ample materials to be deposits	Any 3 x 1 = 3 marks

5. (a)	**List the three types of dunes** - Barchans - Seif dunes/longitudinal/linear - Transverse/wave dunes. - Star dunes - Draas	Any 3 x 1 = 3 marks
(b)	**Identify two processes through which wind transports materials in arid areas.** - Suspension - Saltation - Surface creep/traction.	Any 2 x 1 = 2 marks

SECTION B

Answer **question 6** and **any other two questions** from this section.

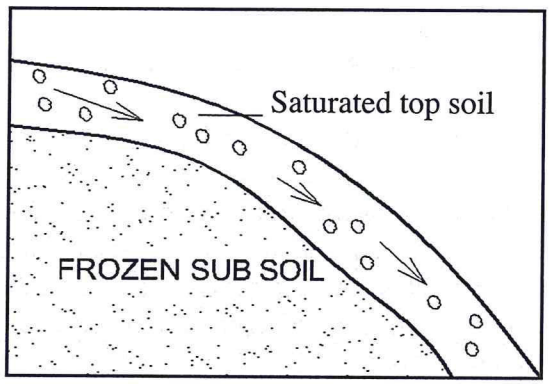
6. (a) (i)	**Study the map of Taita Hills 1 : 50,000 (Sheet 189/4) provided and answer the following questions:** **Give the four figure grid reference of trigonometrical station (2208m)** 2122	1 mark
(ii)	**What is the general direction of the flow of River Voi (Goshi)?** Eastwards/south eastwards	1 mark
(b) (i)	**Measure the length of the road labelled A23. Give your answer in kilometres.** - 14.6km (∓ 0.1)	2 marks
(ii)	**Citing evidence from the map, identify three social services offered in the area covered by the map** - Social service - Evidence - Health services - Dispensary/Health centre. - Religious services - Church/Mosques. - Educational services - polytechnics/Schools. - Administration services - chiefs/DC's. Office. - Rehabilitation services -Rehabilitation center/prison. - Security - police post. - Water supply - pump house	Any 3 x 2 = 6 marks
(c)	**Describe the relief of the area covered by the map** - The land slopes from West to East. - The western part is a highland while the eastern is a lowland. - There are many hills in the area covered by the map. Example Mgange Hills/Mragua Hills.	

	- The area has several river valleys. - The Eastern part of the area is generally gently sloping. - The highest point is 2208 metres. - The lowest point is 620 metres. - There is rugged landscape in the Western part/there are many ridges. - There are bluffs/cliffs. - The North Western part of the Map has steep slopes. - There are outcrop rocks. - There are many Cols.	7 x 1 = 7 marks
(d)	**Citing evidence from the map, explain four factors that may have influenced agricultural activities in the area.** - Presence of road network to provide transport facilities. - The South Eastern part receives low rainfall as evidenced by scrub vegetation suitable for sisal growth. - There is availability of labour due to dense settlement at on the Western part around Mgange, Mragua and ,Mwangea - The Eastern part is sparsely settled/ widely spaced contours hence mechanization. - The Western part receives high rainfall as evidenced by forests and permanent rivers which has influenced farming. - Availability of vertinary services evidenced by cattle dips favour livestock farming. - Availability of advisory services evidenced by farmers training center favour farming in the area.	Any 4 x 2 = 8 marks
7. (a) (i)	**What is a rock?** A rock is a naturally occurring aggregate of mineral particles forming part of the earth's crust	2 marks
(ii)	**Give two examples of plutonic igneous rocks.** - Granite - Diorite - Peridotite - Gabbro - Syenite. - Nepheline - Diabase.	Any 2 x 1 = 2 marks
(b) (i)	**Describe the processes of formation of the following types of sedimentary rocks.** Mechanically formed - Sediments used to form the rocks are derived from weathering of existing rocks. - The weathered materials are transported by wind/ice/water. - The weathered materials are deposited in layers on land or sea. - They are then compacted, and cemented into sedimentary rocks.	Any 4 x 1 = 4 marks

(ii)	Organically formed - These rocks are formed from remains of dead plants and animals./fossils - These remains accumulate in the oceans/basins/land, in layers. - The materials are deposited in layers/strata. - The accumulated materials are compressed, compacted and cemented into sedimentary rocks.	Any 4 x 1 = 4 marks
(c)	**State the characteristics of rocks.** - Some rocks have joints. - Rocks have varied degree of hardness. - Rocks have cleavage. - Rocks have varied texture. - Rocks have different colours - Some rocks have lustre - Rocks have varied specific density. - Rocks have streak. - Rocks have different minerals. - Rocks have varied mineral structures.	Any 5 x 1 = 5 marks
(d) (i)	You are planning to carry out a field study on rocks within the local environment. **List three methods you would use to record data.** - Photographing/video recording. - Labelling samples. - Note taking/recording observations. - Filling in questionnaires. - Drawing diagrams/sketches. - Tape recording.	Any 3 x 1 = 3 marks
(ii)	**State three problems you are likely to encounter.** - Accidents may occur. - Inaccessibility of some areas with rocks. - Fatigue due to difficult terrain. - Unfavourable weather conditions that is heavy rains, high temperatures. - Attack by wild animals/snake bites. - Difficulty identifying some rocks. - Difficulty breaking some rocks	Any 3 x 1 = 3 marks
(iii)	**Give two economic uses of rocks you are likely to identify.** - Some rocks are used for construction. - Some rocks are a Source of fossil fuel. - Some are used for making carvings. - Some are sources of valuable minerals. - Some are tourist's attractions. - Some rocks store underground water/for irrigation. - Rocks weather to form soils for agriculture. - Some rocks for example limestone is a raw material/ cement manufacture.	Any 2 x 1 = 2 marks

8. (a) (i)	**Identify the two types of earthquake waves.** - Body waves/primary/secondary - Surface waves/love/Rayleigh	Any 2 x 1 = 2 marks
(ii)	**Describe the two ways through which the strength of an earthquake is measured.** - The strength of an earthquake is measured by its intensity. - Intensity measures how strong and hard the earthquake shakes the ground. - It is measured on Mercalli scale. - The strength of an earthquake is measured by its magnitude. - Magnitude measures the amount of energy released by an earthquake. - It is measured on Richter scale correct method 1 mark Description 1 mark Identification of scale 1 mark	Any 2 x 3 = 6 marks
(b) (i)	**Explain how vulcanicity causes earthquakes.** - Sudden displacement of crustal rocks during vulcanicity causes tremors. - Violent volcanic eruptions/violent emissions of the volcanic gases can shake/shatter the rocks/tremors. - After volcanic eruption, a large void is created below the crust which causes the crustal rocks to sink due to gravity this causes the earth's surface to shake. - Magma movement within the crust can cause tremors. - A sudden eruption of molten magma under the oceans can cause earth tremors as the water on the sea floor violently expands.	Any 3 x 2 = 6 marks
(ii)	**Name three major earthquake zones of the world** - The Great Rift Valley belt. - The Mediterranean – Himalayan belt. - The circum- Pacific belt. /ring of fire. - Mid-Atlantic Ocean belt.	Any 3 x 1 = 3 marks
(c)	**Explain four effects of earthquakes on human environment** - Earthquakes lead to shaking/crumbling of buildings leading to their destruction. - Earthquakes may lead to the falling of objects which may lead to loss of life. - Earthquakes may damage transport networks making movement difficult. - It may lead to destruction of electric lines/pipelines resulting to blackouts/fire incidences.	

	- A large-scale sea wave caused by an undersea earthquake/Tsunami may flood the coastal lowlands leading to destruction of agricultural land. - Disturbances caused by earthquakes lead to landslides which crush and bury people/property. - Earthquakes may lead to collapsing of underground mines which may lead to burying of miners. - Earthquakes cause panic/anxiety/emotional shock. - Destruction of property leads to evacuation/displacement of people. - Strong earthquakes cause damage to nuclear plants/sewerage systems which pollute the human environment.	Any 4 x 2 = 8 marks
9. (a)	**Name two types of landslides.** - Slump - Debris slide - Rock slide - Debris fall - Avalanche - Rock fall.	Any 2 x 1 = 2 marks
(b)	**Explain how the following factors influence mass wasting**	
(i)	**Climate** - Areas that receive high rainfall experience massive landslides on steep slopes/ areas that receive low rainfall have slow movement of rock materials down the slope. - In areas with large diurnal range of temperature there is expansion and contraction of soil particles which leads to movement of the soil particles. - Alternate freezing and thawing encourage mass movement of rock and soil materials.	Any 3 x 2 = 6 marks
(ii)	**Slope** - Steep slopes encourage faster movement of material down the slope. / Gentle slopes have slow movement of materials down the slope.	Any 1 x 2 = 2 marks
(c) (i)	**State four causes of soil creep** - Ploughing on a slope loosening the soil particles. - Wetting and drying of soil particles. - External forces such as earthquakes/ explosives/eruptions/heavy vehicles movements. - Frost heaving beneath the soil. - Alternate heating and cooling of the soil particles. - Undercutting of the base of the slope through road construction/mining.	Any 4 x 1 = 4 marks

(ii)	Using a diagram, describe the process of solifluction.  - In moderately/gentle sloping areas during winter water in the soil freezes thus freezing the soil. - When the weather becomes warm the top soil thaws. - Overtime the top soil becomes saturated with water while the sub-soil remains frozen (permafrost). - The saturated mass of top soil creeps over the frozen ground (permafrost).	Any 5 x 1 = 5 marks
(d)	**You intend to carry out a field study on the effects of mass wasting within the local environment**	
(i)	**Give two methods of data collection that you would use for the study.** - Observing. - Administering questionnaires. - Photographing/video recording. - Reading from secondary sources/viewing films/video clips.	Any 2 x 1 = 2 marks
(ii)	**State two negative effects of mass wasting on the physical environment that you are likely to identify.** - Destruction of vegetation. - Dereliction of land /scars - Blockage of rivers. - Exposure of land to soil erosion.	Any 2 x 1 = 2 marks
(iii)	**Give two follow-up activities you would be involved in after the field study.** - Data analysis/discussion about findings. - Report writing. - Data presentation. - Consulting geography teachers. - Display photographs taken. - Drawing conclusions. - Reading more on the topic.	Any 2x 2 = 2 marks
10. (a) (i)	**Name the three types of river erosion** - Head ward erosion /spring sapping. - Vertical erosion. - Lateral erosion.	3 marks

(ii)	**Describe the following processes of river erosion.** • **Abrasion** - The river transports the materials downstream. - The materials are used by the river as tools for scouring, - The load is hurled by the water against the banks and dragged along the river bed. - The load chips off the rocks on the bank and river bed. - The load being dragged smoothens the river bed. - The eddy currents rotate the load in the hollows on the river bed grinding the rocks widening into potholes. • **Solution** - River water contains both organic and weak inorganic acids. - It reacts with some minerals in some rocks in the river bed to form soluble minerals. - The soluble minerals are carried downstream in solution form. OR - River water flows over rocks with soluble minerals. - The water dissolves soluble minerals to a solution. - The minerals are carried away in solution.	Any 4x1= 4 marks Any 3 x 1 = 3 marks
(c)	**Describe the characteristics of the upper stage of a river.** - The gradient is steep. - The river has a small load. - The flow of the river is fast. - Vertical erosion is dominant. - The cross profile of the valley is v-shaped. - It has interlocking spurs. - The river valley is deep. - The river channel is narrow. - Some parts of the river course have rapids/waterfalls/cataracts. - The river volume is low. - The river channel is winding.	Any 6 x 1 = 6 marks
(d) (i)	**What is river rejuvenation/** This is the renewal of a rivers erosive ability/activity/power.	2 marks
(ii)	Give four causes of river rejuvenation. - Increase in river discharge. - Change in rock resistance. - Unequal regional subsidence. - Regional/local uplift of the land. - Fall in sea level/drop in sea level.	Any 4 x 1 = 4 marks
(iii)	Identify three features that result from river rejuvenation. - Knick points. - Rejuvenation terraces/paired terraces. - Incised meanders/in grown/entrenched meanders. - Rejuvenation gorges/valley within a valley.	Any 3 x 1 = 3 marks