KENYA NATIONAL EXAMINATION COUNCIL
REVISION MOCK EXAMS 2016
TOP NATIONAL SCHOOLS

FRIENDS SCHOOL KAMUSINGA HIGH

GEOGRAPHY

Paper 1

MARKING SCHEME

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FRIENDS SCHOOL KAMUSINGA KCSE TRIAL AND PRACTICE EXAM 2016

Paper 1

Marking Scheme

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1 a) Differentiate between vent eruption and fissure eruption. (2 marks)

- Vent eruption involves magma comes out through one vent or pipe and pile up ; while fissure eruption involves magma coming out through many cracks of fissures and spread over a wide area.√√

b) Name three intrusive volcanic features (3marks)

- Batholith - lopolith
- Laccolith - phacolith
- Dyke - Bismalith
- Sill

2 a) What is longitude?

- This is the angular distance showing how far a place is west or east of the prime meridian
- An imaginary line on the map /globe running from north pole to south pole showing how far a place is west or east of the prime meridian (2 x1 = 2 marks)

b) What is the longitude of station X when it is 8.00 am .where in Nairobi at longitude 37^0 E is 12.00 noon?

Time difference = 12.00 – 8.00√

= 4 hrs = 4x15√

= 60^o

Longitudinal difference = 60 – 37

= 13^0 W

(3 x1 = 3 marks)

3 a) *State <u>three</u> causes of earth movements*

- Istatic adjustment√
- Gravitative pressure √
- Magma movement within the crust√
- Convectional currents in the mantle√ *(any 3x1 = 3 marks)*

b) Name two main earthquake zones in Kenya

- The curcum pacific belt√
- The mid Atlantic ridge√
- Mediterranean – Himalayan belt√
- Rift Valley√ (any 2x1 = 2 marks)

4) a) State <u>three</u> conditions necessary for the formation or development of a karst scenery

- Thick limestone which is well jointed√
- Soluble rocks√
- Deeply situated water table√
- Hot and humid high rainfall and high temperature√ *(5 marks*

b) Give <u>two</u> reasons why there are a few settlements in karst landscape

- Bare rugged rocks or outcrops√
- Several steep sided dry valleys√
- Absence drainage or rivers√
- Soils are thin thus not suitable for agriculture√
- Construction of roads are difficult √ *(any 2 marks)*

5 *a) Name three types of coral reefs*

- Barrier reef
- Fringing reef
- Atolls *reef* *(3x1 = 3 marks)*

b) What are the benefits of coral reefs in the areas they have developed ?

Sheltered water encourages growth of plankton /fish food√

Shallow corals are a tourist attraction earning a country foreign exchange√

Corals form a base of mining of limestone used in cement manufacture*1 = 2 marks)*

6. Study the map of Karatina sheet 121/3, scale 1: 50,000 provided and answer the following questions

a) i) What is the magnetic declination of the map as at January 1992?

- $O1^{o}\ 09^{1}$ (1x1 = 1mk)

ii) Give the latidunal and longitudinal extent of the mapped area

- Between latitude $0^{0}\ 15^{1}$ and $0^{0}\ 30^{1}$ South
- Between longitude $37^{00}\ \ 00^{1}$ East and $37^{0}\ 15^{1}$ East√

b) ii) Apart from contours , name <u>one</u> other method used to show relief in the mapped area

- Trigonometrical stations√ (1mk)
- Spot heights√

ii) Calculate the area of Mt Kenya forest reserve within the Kirinyaga District shown in the map . Give your answer in square kilometers.

- Complete squares = 19
- Incomplete squares = 35
- Area = 19 + (35/2) = 36.65km^{2} + 1 i.e. 35.5 km *(1x2 mks = 2mks)*

c) *Apart from houses, name <u>two</u> human made features in grid squares 8755*

- Road / all-weather loose surface road
- Track/footpath
- Abridge

ii) *Assume that four people live in each house in the grid square 8755, calculate population density.*

- Population Density = 14x14/1km^{2}√
- 56/7 =56 persons per square kilometer√

d) *Describe the flow river Sagana* .

- From Mt .Kenya forest ,river Sagana flows south-westwards to Chieni area.√
- From Chieni , the river flows south wards through the remaining parts of the mapped area√
- From the Northern parts to Chieni, the river course is fairly straight√
- From Chieni southwards , it flows through a meandering course√ *(3x1 = 3* e) i*)* *Using evidence from the map , identify <u>two</u> farming activities taking place in the mapped area.*
- Cattle rearing /livestock keeping evidenced by cattle dips slaughter house and Matuto salt lick√

  -Fish farming shown by existence of fish research center in GS 8560 and fisheries department in Karatina town√

  -Plantation farming plantations within Mt Kenya√

  -Coffee growing shown by presence of coffee factories√

  -Tea growing evidenced by tea centres√

  ii*) Explain the three factors which have influenced any one of the farming activities identified in (e) (i) above*

  <u>cattle /livestock rearing</u>
- Thicket scrub, scattered trees indicate the availability of pasture√
- Numerous rivers or streams and dams provide water for the animals√

- Provision of vertinary services evidenced by cattle dips /vertinary station in Karatina town ensure the cattle are kept healthy√
- Cool temperatures due to high altitude make the area conducive for rearing exotic/cross breed animals√
- High demand likely suggested by dense settlements provides market for the livestock products√ (3x2 = 6 marks)

Coffee / Tea growing

- High rainfall evidenced by forest vegetation high density of permanent rivers enables growing of tea or coffee√
- Cool temperatures due to high altitude provides ideal conditions for growing coffee / tea √
- High density of settlements likely suggests availability of labor in the coffee / farms
- Many coffee factories /tea centers provide markets to the tea / coffee farmers
- Good network of tea leaves enables harvested tea leaves /coffee berries to reach the markets or tea processing centers

Fish farming

- Numerous rivers and steams provide water for the fish ponds√
- Fisheries department in Karatina town provide extension services/ technical advice√
- Cool temperatures evidenced by forests / high altitude provide suitable conditions for rearing fish especially tilapia and trout√
- High population likely suggested by high density of settlements provide market for the fish√

f) *Briefly explain how the following factors have influenced the distribution of settlements in the mapped area*

i) *Forest Reserve*

- Vast areas in the northern /north –western parts of the mapped area have no settlements√
- There are few /scattered settlement around Kirimamburi and Hombe areas√
  (1x2 = 2 *ii) Rivers*

- Many rivers valleys have no /few settlements – they are steep / deep / narrow construction of houses difficult/roads.√

7. a) i) *Name two components of soil*

- Soil water√
- Soil air√
- Soil organic matter/ humus√
- Living organisms√
- Soil organic/mineral matter√

ii) Give two ways in which soils are formed

- Through weathering
- Through decomposition of organic matter
- Through leaching Any (2 x 1 = 2mks)

b) *Explain how the following factors influence soil formation*

i) Climate

- Climatic conditions affect the rate of weathering taking place on a given rock through seasonal variation in rainfall and temperature√
- Areas with high precipitation (rainfall) are heavily leached and weathered compared to drier areas , they therefore have deep soils√

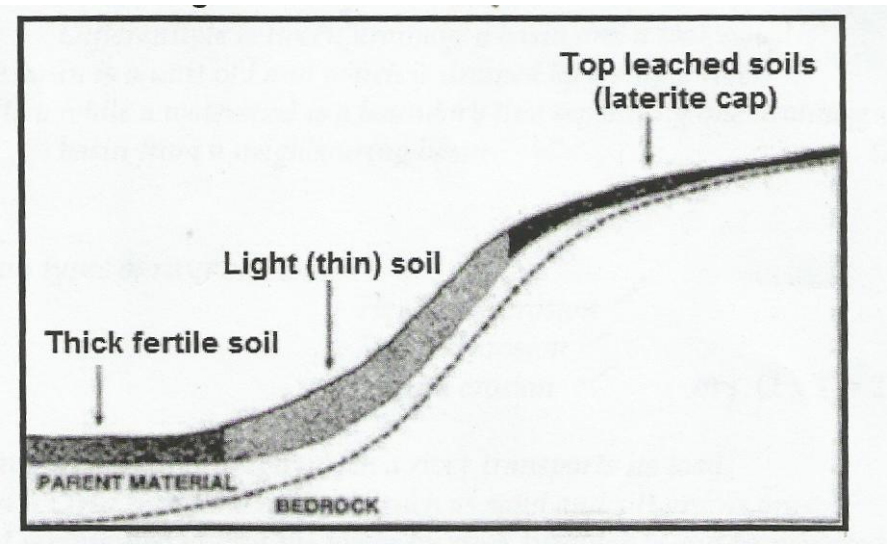
- High temperatures promote rapid or faster weathering and chemical changes in the soil (cold temperatures slow these processes).√
- Rainfall and temperature determine the vegetation cover which determines the organic matter content of the soil √
- Running water and winds act as agents of soil erosion , blowing fine sand and dust depositing them far way forming rich fertile soils√
- ii) Topography
- Soils on mountains slopes are heavily eroded hence have thin soils√
- Plateau soils in areas of gentle slopes are deep and have well developed profiles√
- Plains and valley bottoms have deep soils due to deposition of weathered and eroded materials√

c) i) Other than soil erosion ,state <u>two</u> other ways in which soils may be degenerated.

- Soil water logging√
- Burning of land /shifting cultivation /slash /burn√
- Deforestation√
- Over cropping√
- Overgrazing√
- Monoculture√
- Wrong fertilizer application√
- Excessive leaching due to over application of fertilizers.√
- Overgrazing /overstocking.√
- ii) *Briefly explain two effects of soils erosion to human activities*

- Sand eroded from steep slopes is deposited on the river beds and can be harvested for building and construction√
- Soil erosion loosens productive top soils thus lowers agriculture potential of land.√
- During soil erosion ,rich soils may deposited eg alluvium agriculture production.√
- Destruction of vegetation cover during soil erosion may lead to aridity and desertification.√
- Eroded sediments from farmlands and dumping sites may contain pollutants /agrochemicals that may kill aquatic life if it reaches oceans /seas/lakes/and river. They may also make water unfit for human consumption.√
- Eroded sediments may fill water reservoirs constructed for HEP generation /irrigation thus requiring dredging which is expensive.√
- Also erode alluvial deposits on river beds make the river channel shallower resulting into frequent flooding.√
- Soil erosion may destroy structures e.g. buildings,bridges,roads as it weakens their foundations√ Any (2x 2 = 4mks)

d) Draw a labeled diagram of the soil catena



e) Your class members intend to conduct a field study on an area under the effect of soil erosion within their district

i) Name <u>two</u> types of soil erosion they are likely to identify during the field study

- Gulley √
- Sheet√
- Splash√ Any (2 x 1 = 2mks)

Ii) State four conservation measures you are likely to recommend to the residents of the study area.

- Crop rotation involves alternate of different crops on a given piece of land to prevent /minimize soil exhaustion.√
- Mixed farming √involves integrating animal and crop husbandry. It improves soil fertility as animal waste and plant remains assist in retaining soil fertility.√
- Cover cropping forms a bumper that reduces the impact of raindrops: the roots bind the soil firmly.√
- Mulching√: involves the use of plant remains are used to cover cultivated ground
- Contour ploughing i.e. ploughing across the slopes helps to check surface runoff
- Strip cropping involves√ planting of different crops in narrow alternate belts of land especially on slopes which are too steep to be terraced.
- Afforestation√ : planting tress where none existed before and reforestation – planting trees to produce the cut ones.
- Regulation of livestock numbers to reduce overgrazing.√
- Bush fallowing√ – cultivating land for a period of time then allowing it to remain idle without cultivation for some time to help improve the soil quality
- Controlling bush fires that exposes the agents of soil erosion √
- Intercropping /mixed cropping i.e. growing two or more crops concurrently on the same piece of land to help improve the soil's nitrogen content. Any 8. *a) i) Differentiate between a drainage , basin and a watershed*

- A drainage basin is a unit of land which is drained by a single river system while a watershed is a boundary line separating one drainage basin from a neighbouring basin.√ (2x1 = 2mks)

ii)Identify two types of river erosion

- Headword erosion√
- Vertical erosion√
- Lateral erosion√

b*) Describe two processes through which a river transports its load.*

- Suspension – light insoluble minerals such as sand and silt grains are carried within the water by river turbulence and transported downstream.√

- Solution process – the soluble minerals are dissolved in the river water and carried away.√

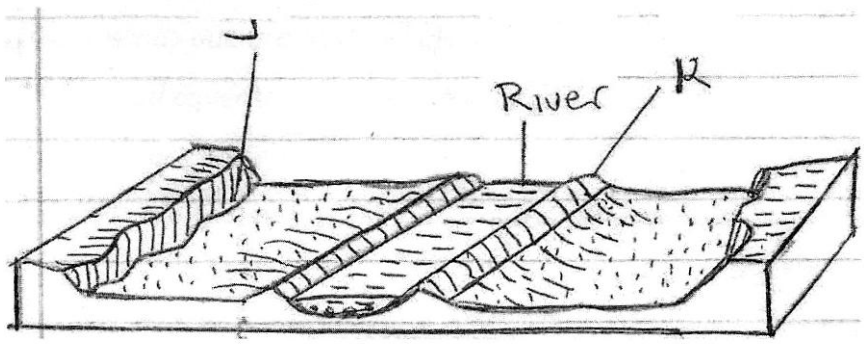
- Siltation process- Large materials that can not remain suspended in the water are momentarily lifted and dropped by water turbulence, the series of heaps and hops move the load down the river.√

- Traction river – the large and heavy loads of river are dragged / rolled along the river bed by force of the moving water.√ c) *i) Explain two cause of river rejuvenation.*

- A fall in the sea level which increase the velocity of the river thus increasing the erosive power of the river.

- Regional uplift which increases the gradient along the rivers course and makes the river renews its erosive activity.√
- Vertical erosion by the river may expose resistant rock which creates a knick point thus renewing the rivers erosive power.√
- Increase in a rivers discharge due to increased precipitation / river capture causes the river to renew its erosive power.√
- Unequal regional subsidence of the land along the river course increase the gradient power and thus the power of the river to erode.√
- Presence of a lake along the river course leads to deposition of alluvial in the lake as the river flows out of the lake , its erosive power increase. Any (2 x 2 *ii) Describe how an ox- bow lake is formed.*
- A river starts to meander√ on a flood plain.
- Lateral erosion√ occurs on the outer side of the bend while deposition takes place on the inner bank.
- Lateral erosion in the reduction of the neck of land between adjacent bends.√
- The neck of land is eventually worn away.√
- Deposition of the meander side especially during the floods blocks off the meander.√
- The river abandons the meander√ and follows the new shortcut that was the neck of the land.
- The abandoned meander with its the water forms an ox-bow lake.√ sequence necessary

d) i) *The diagram given below shows a flood plain , identify the features marked J and K (2marks)*



J - Bluff
K - Natural level

ii) *Explain three positive effects of floodplains to human activities.*
- Some alluvial sediments deposited on the flood plains contain valuable minerals √eg. gold diamonds which are mined.
- Alluvial on the flood plains form fertile which are exploited for agriculture.√
- Some flood plains are source of building materials such as gravel, pebbles and sand.√
- Features found on the flood plains attract tourists thus earning foreign exchange.√

(*3x2) = 6 mks*

9 a)(i) Name the climatic regions marked A, B and D.

A- Tropical monsoon climate. B- Mediterranean climate
C- Equatorial climate D- Tundra climate (1 X 4 =
D-

ii) *State any four characteristics of the climate marked C.*
- Experience high temperatures (24 – 27 ^{0} C)√
- Experience the small annual range of temperatures of 3^0 C.√

- Mean annual rainfall exceeds 1500 mm and is evenly distributed through out the year√
- It receives double maxima rainfall regime after the equinox.√
- Low diurnal range of temps . of approx. 6^0C√
- High humidity due to high rainfall and high evaporation rates√
- Major winds due are trade winds√
- rainfall mainly conventional but orographic is common in Mt areas√
- Thick cloud cover throughout the year.√ *(4x1 = 4 mks)*

b*) i) Identify any three types of cold climates.*

- Tundra climate√
- Cold temperature eastern margin√
- Cold temperature continental√
- Polar climate√ (1 X 3 = 3mks)

ii) *Briefly explain microclimate.*

Micro climate is climate which is experienced within a small or localized area√ and slightly modified or different from the general climate of a region

c*) i) What is the climate change?*

- It is long time response to average variations in the conditions of the atmosphere.

ii) a)Calculating the mean annual temperature

M.A.T = (<u>total monthly temperature</u>)√ = $^{297}/_{12}$ = 24.75^0c √√ unit important
12 month

b) Mean annual rainfall =(<u>Total monthly Rainfall</u>) = $^{1552}/_{12}$ =126.83mm√√ units to score maximum.
12 months

c) S*tate any one characteristic of the type of climate in the station.*

- It experiences high amount of rain fall pa over 1500mm√
- It experiences high temperatures i.e. mean annual temperatures of over *24^OC*√

(1x1) = 1mk

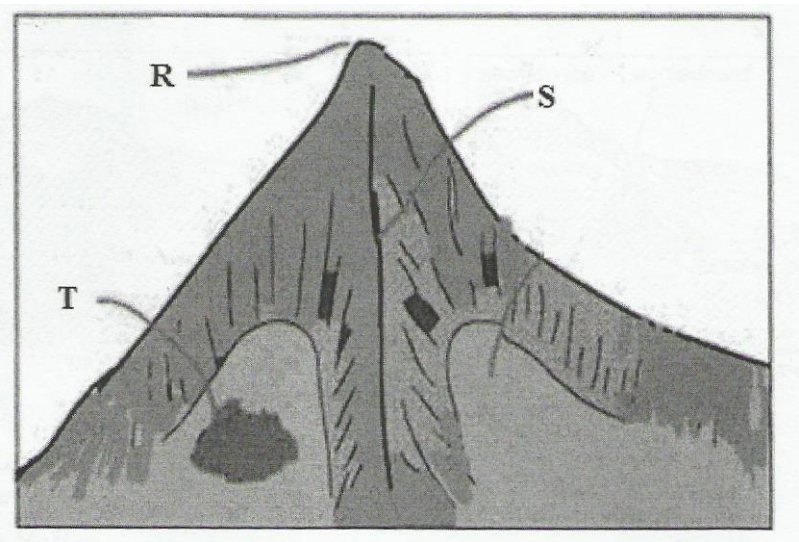
d) *i) Explain any two causes of Global warming.*

- Depletion of ozone layer exposing the earth to short energy radiation rays√ eg ultra violet
- Deforestation √ (*2x2 = 4 mks)*

ii*)* *Name any one Greenhouses gases.*

- Emission - Carbon dioxide into the atmosphere.
- Discharge -Chloro fluorocarbon in the atmosphere. Any(1 x 1 = 1mk)

10 a***) The diagram below shows a glaciated area .Study it and answer the questions.***



i) *Name the features marked R ,S and* T

R- pyramid peak√

S- Arête√

T –Tarn√/ Corrie Lake (*3x1 = 3mks)*

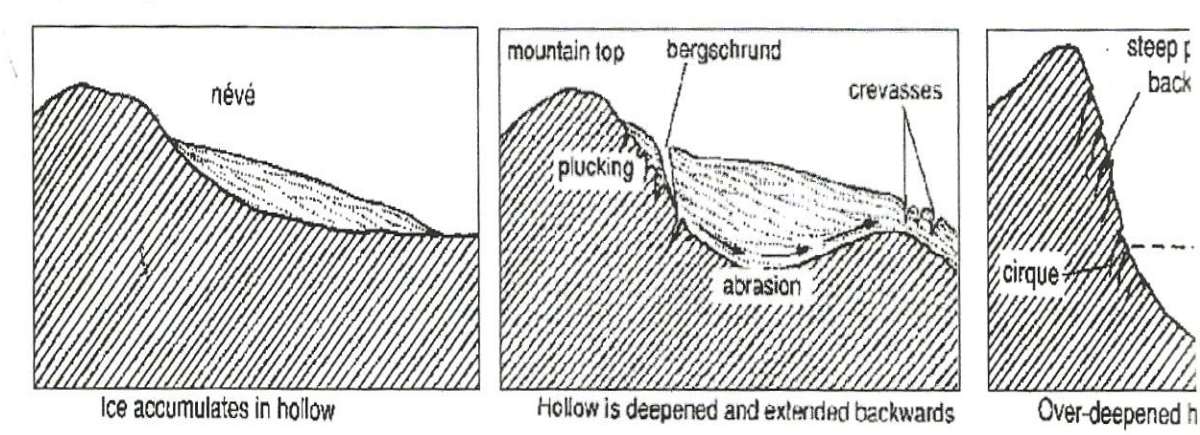
ii) Describe t<u>wo</u> distinctive characteristics of a fiord.

- It has steep walls.√
- It has narrow /constricted sea inlet√
- It is shallower seawards√ and deeper inland.
- It is U-shaped.√
- It has a hanging valley.√ *(2x1mk = 2mks)*

b*) i) With the aid of a well labeled diagram , describe how the following features are formed.*

i) cirque

- Snow accumulates in a shallow pre- existing depression on a mountain side
- The snow gets compacts into ice to form a cirque glacier
- The ice erodes the bottom of the hollow by abrasion , making it deeper
- Frost action and plucking operates on the sides of the hollow√ ,making it steeper.
- Eventually a deep and arm chair shaped called a **cirque** is formed. Text sequence. Maximum MOST end with the feature formed. ***(4x1mk) 4mks***



(2marks)

iii) Hanging valley

- Initially, there exists a main valley and tributary valleys√ / may be of pre – existing rivers.
- Ice occupies these valleys.
- The valleys get eroded by ice through abrasion and plucking .
- The main valley is eroded more because it contains more ice than the tributary valleys.√
- When the ice finally retreats by melting and the tributary valleys are left at a higher √level
-
- than the main valley to form a hanging valley. ***(Text 3x1mk= 3 mks) Maximum MOST end with the feature formed.***

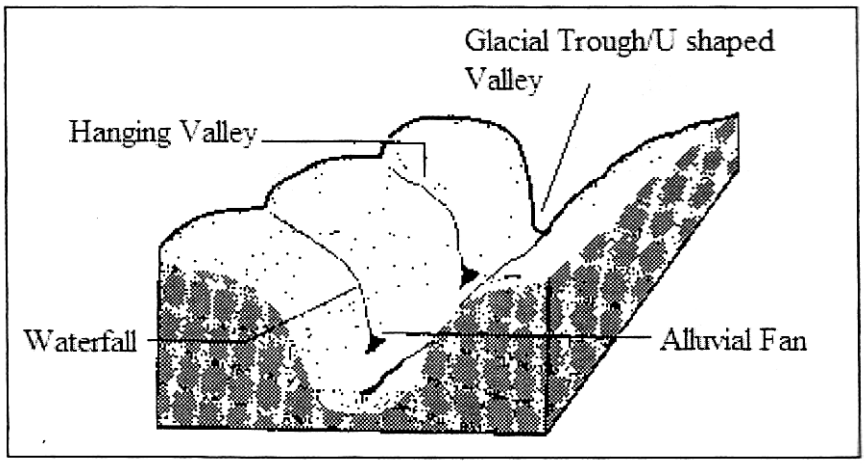
c) 

diagram 1mk

Explain <u>two</u> factors hat may influence glacial erosion in uplands.

- Nature of underlying rocks – well jointed /faulted rocks facilitate plucking / abrasion is more effective on less resistant rocks compared to resistant rocks.√√
- Speed of glaciers – a fast flowing glacier erodes more has greater energy to erode
- Availability of debris – the more that are embedded in the ice, the more effective the erosion/√ abrasion
- Thickness weight of glacier- the rock debris bends the ice scraps he ground by abrasion when the ice is heavy.√√ (2x2 mks = 4mks)

d) Your class intends to carry out a field study on glaciated lowland.

i) Name <u>one</u> type of moraine you are likely to identify during the field study.

- Terminal moraine√ (*1x1mk = 1mk)*

i *Give <u>two</u> reasons why you would need the map of the area.*

- To show the extent of the size /area of the landscape to be studied.√
- To show the distribution of depositional features in the study area√.
- To show the variations of relief in the study area. √
- To help in estimating distances to be covered during the study. √
- To assist in preparing working schedule.√

  To help on deciding techniques /tools of data collection√. *(2x1) = 2mks*

State three importance of glacial features you are likely to identify.

- Outwash plains ,old glacial beds and tills are at times thus leading to development of agriculture√ eg wheat producing regions within the Canadian prairies.
- Some glacial lakes provide natural waterways thus facilitate transport and communication.√
- Lowland glaciated features eg crag and tail , rock mountonee and drumlins attract tourist thus earning foreign exchange√
- Numerous rock basin lakes water for domestic√ and irrigation/industrial use.
- Sand for building and construction can be harvested√from outwash plains,kames and eskers.
- Some glaciated lakes are important for fishing grounds.√
- Sheltered waters in the fiords provide suitable breeding grounds for fish√ and sites for construction of natural harbours.

  Any (3 x 1 mk=3mks