Class 10th Geography

Chapter :1

Physical Geography

Textual Questions And Answers:

Q1. What is landform?

Ans: The varied features on the surface of the earth are known as landforms. Examples of landforms includes mountains, hills, plateaus, plains, valleys, rivers, sand dunes, glaciers, oceans, etc.

Q2. Define geomorphology.

Ans: The particular branch of geography which studies the origin, evolution, morphology and distribution of the various landforms over the earth's surface is known as geomorphology.

Q3. Write down the meaning of the geomorphic processes.

Ans: The processes by which landforms are developed on the surface of the earth as a result of the interaction of certain exogenic and endogenic factors are known as geomorphic processes. For example, the works of winds and glaciers are two geomorphic pro

Q4. Mention the exogenic processes or factors.

Ans: The external factors or processes which bring about various types of changes on the surface of the earth are known as exogenic processes or factors. The important exogenic factors are sunshine, wind, rainfall, rivers, glaciers, ocean waves, currents, temperature, etc.

Q5. What do you mean by the term 'deflation'?

Ans: Deflation is the process of forming lowlands in the desert as a result of the transportation of loose sand, dust particles and other materials from the surface level of the desert, by the erosion activity of wind.

Q6. What is Inselburg? Explain with diagram.

Ans: Inselburg refers to a prominent steep-sided low hillock of solid rock, rising abruptly from a plain of low relief, formed by the abration action of wind erosion. Inselbergs have a dome-shaped cap. The upper part of inselberg is steeper due to higher intensity of the wind here than at its lower part. Inselburgs are seen in deserts noted for high velocity winds.

Inselberg resulting from Abrasion

Q7. What is oasis? What is its significance?

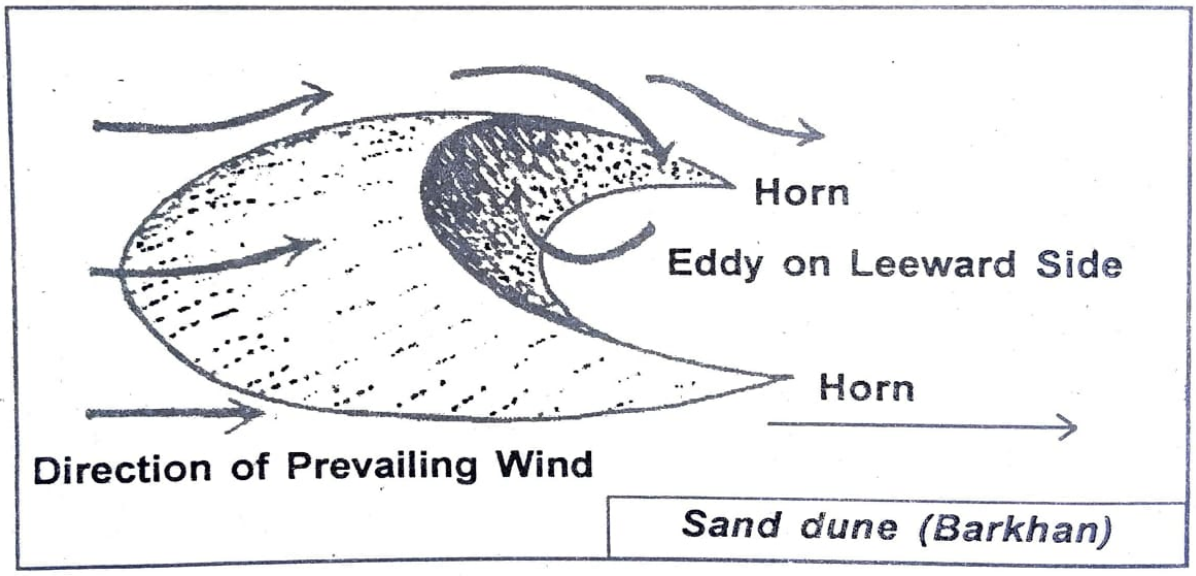
Ans: Oasis is a fertile area in the desert region usually having small isolated spring and little vegetation. With the transportation of materials to other parts of deserts by wind, some areas may be lowered down almost to the level of underground water giving rise to some depressions; this area is termed as oasis.

Oasis are patches of water and vegetation in arid and sandy land. Hence their presence is very significant in providing a place for settlement, scope for agriculture and development of economic activities. People can also travel through deserts as the occational oasis gives them the required water, shade, etc.

Q8. What are sand dunes? How are they formed?

Ans: Sand dunes refer to a mound or ridge of wind-blown sand. The dunes are generally mobile as they move with the wind. There is a wide range of variation in the shape, size and structure of different

types of sand dunes, which depend on various factors like properties of wind, wind direction and energy, vegetative cover, surface structure, etc.



Formation of sand dunes :

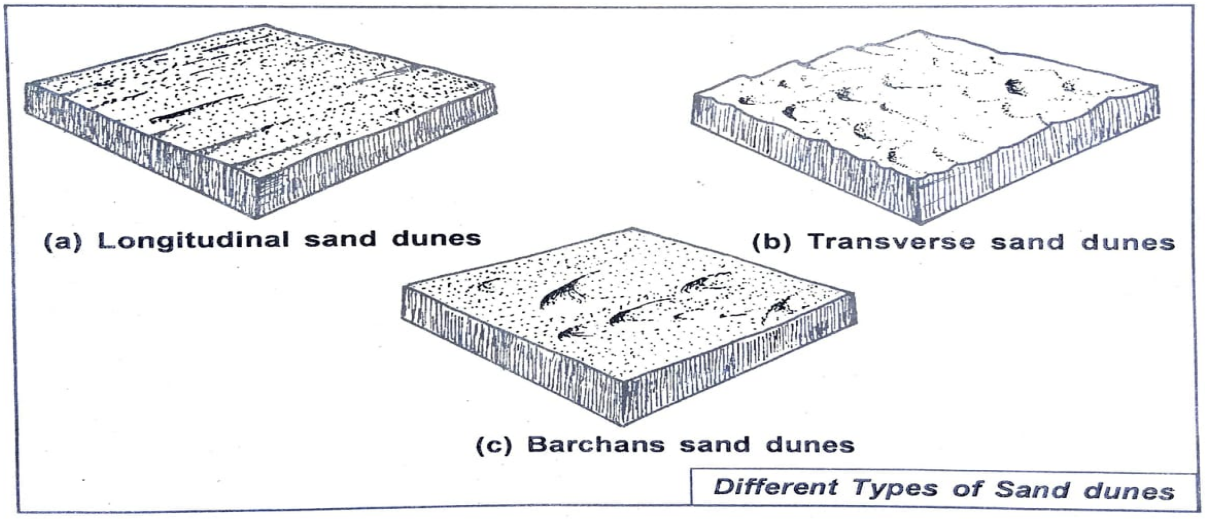
There are three categories of sand dunes in deserts. These are :

(a) Longitudinal sand dunes : These sand dunes are formed longitudinally along the direction of wind.

(b) Transverse sand dunes : These sand dunes are formed transverse to the wind direction.

(c) Barkhans sand dunes : Some sand dunes are formed having a shape of crescent. These sand dunes are called barkhans sand dunes.
Sand dunes are formed due to the depositional activities of wind in the desert areas.Due to deflation, the dust, sand and clay particles are carried away by the wind. In the desert areas, the wind blows with greater velocity due to the absence of any high raised landforms. But,

when such wind meets an obstruction, viz. bush, a fence-post of a large rock, the speed of the winds get reduced and it starts depositing the sand and dust fragments on the leeward side of such obstacles. The initial deposition then acts as an obstruction which facilitates subsequent deposition. In due course of time, the area starts gaining height which results in the formation of sand dunes. Sand dunes are predominantly found in deserts with sandstones.



Different Types of Sand dunes

Q9. What is abrasion? What are the features formed due to abration?

Ans: The desert winds may sometimes be very forceful. When such forceful winds blow, the sharp-edged sands and dust particles carried by them may erode the rock surfaces found in the way, by sheer friction. This is known as abrasion.

As a result of abrasion, various features are formed in the desert and semi-desert areas. Due to continued abration over a considerable long period, the soft and least resistant rocks get eroded and are entirely worn

away. But, the hard rocks with high resistance become smooth and polished to a great extent and assume many shapes. The process of abration is responsible for the formation of inselberg, yardang and other kinds of erosional features in the deserts.

Q10. Define attrition.

Ans: Attrition is one of the processes of wind erosion in the desert. In this process, the sand and rock particles are broken into smaller pieces through their mutual collision while being carried by high velocity winds in deserts.

Q11. What are glaciers? What is the reason for their slow movement?

Ans: The extensive masses of ice which move very slow over the land surface as sheets or move linearly through the mountain valleys downwards due to the gravitational force of the earth are known as glaciers. In general, glaciers mean the large masses of ice and snow on mountains, that move very slowly down a valley.
One of the chief characteristics of glaciers is that they move very slowly mainly due to their vast size. In fact, the speed of glaciers is affected by their size, the nature of the slope and configuration of the surface of the mountain and the atmospheric temperature. Therefore, huge blocks of ice move very slowly while smaller pieces of ice move at a faster rate.

Q12. What are the different types of glaciers? Write briefly about each of them.

Ans: Glaciers are huge blocks of ice and snow which move very slowly over the land surface or move along the mountain slopes downwards due to the gravitational force of the earth. On the basis of location and nature, glaciers are mainly classified into three types :

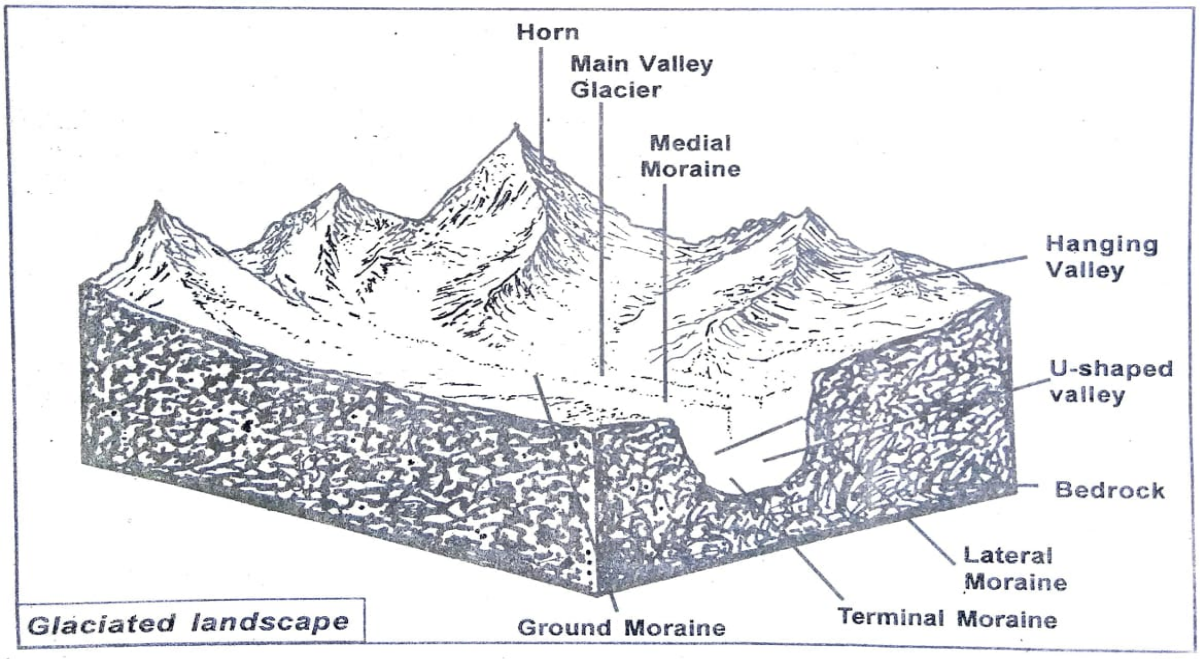
(i) Continental glaciers : Continental glaciers are extensive ice sheets size and low surface gradient of the polar regions. The continental glaciers can be seen in Northern Canada, Greenland, Scandinavia, Antarctic region, etc.

(ii) Mountain glaciers : Mountain glaciers originate in the high altitude regions of the mountains. They are also called Alpine or Valley glaciers. This type of glaciers are found in the Alps of Europe, the Rockies of North America and in the Himalayas of Asia. Such glaciers move comparatively faster than the continental glaciers.

(iii) Piedmont glaciers : The glaciers that are formed due to convergence of several mountain glaciers at the foothill zone are known as piedmont glaciers. Since these glaciers originate in the piedmont zone of the mountains, they are called piedmont glaciers. Such glaciers are common in Alaska of North America.

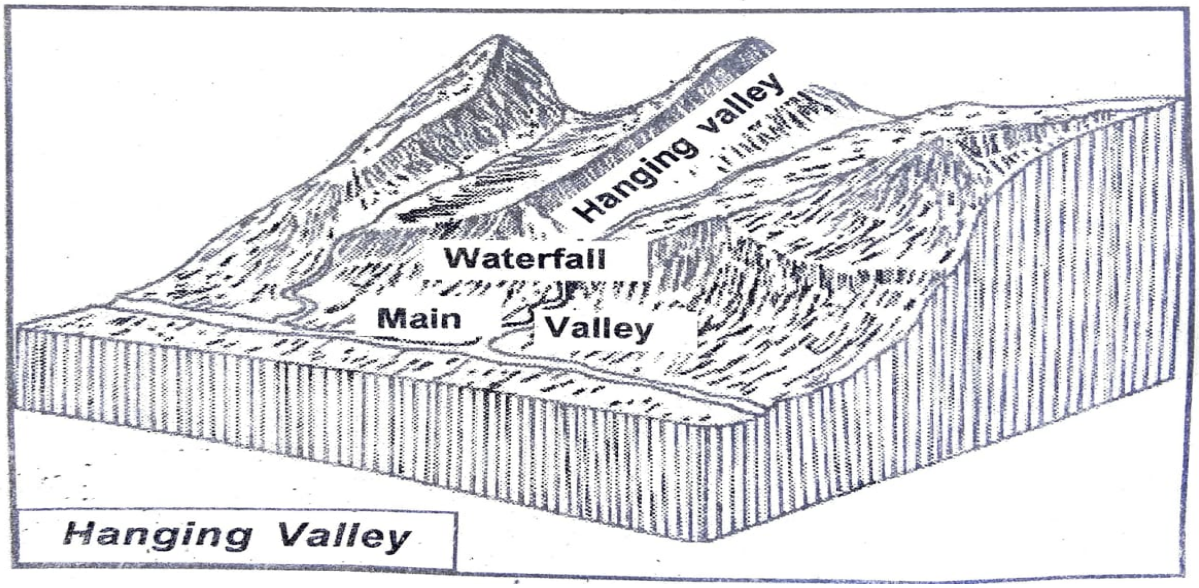
Q13. Draw a figure to show the shape of a glacier valley.

Ans:



Q14. Write what is a hanging valley.

Ans: Hanging valley is one of the erosional features created by glaciers. When a huge glaciar moves down a mountainous region, it creates a large, wide and deep valley in the process. But, the region may have smaller glaciers which contribute to the main glacier. Such tributary glaciers also create smaller, narrower and less deep valleys. When the tributary glaciers meet the main glacier they appear to be hanging over the main glacier. Therefore, the valleys created by the tributary glaciers also appear to be hanging. Hence, such valleys are called hanging valleys. When water falls vertically from the hanging valley to the main glaciers, waterfalls are formed.



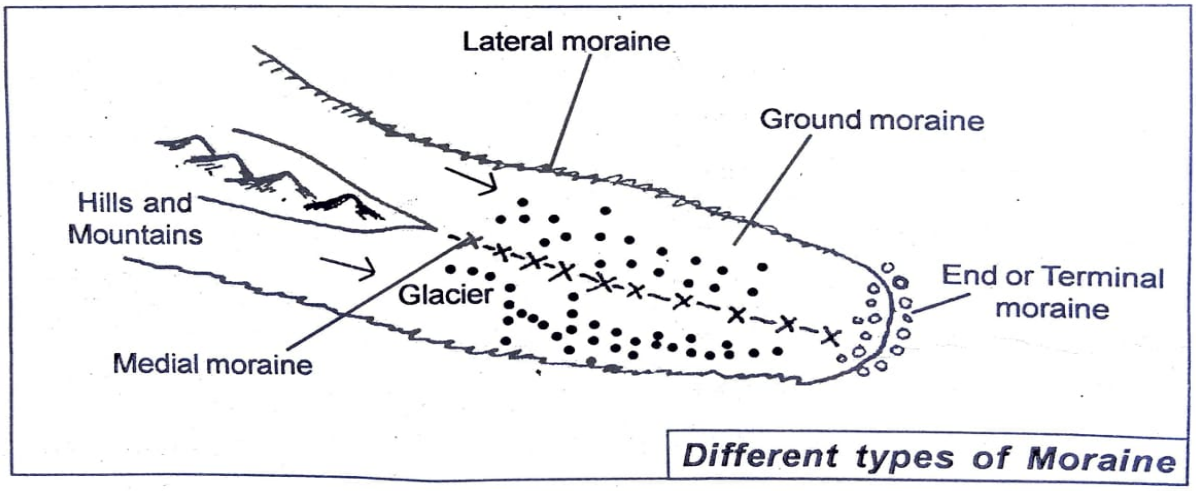
Q15. What are moraines? What are their different types? Show the location of different moraines with the help of a figure.

Ans: Moraines are the long ridges of deposit or till of glacier debris or sediments such as rock pieces, clay, sand and boulders which have been transport by a valley glacier along with the ice. The moraines are the depositional features of a glacier which bring about major changes on the earth's surface.
Moraines are basically of the following four types :

(i) Lateral moraine : Lateral moraine is a ridge of glacial debris which are formed along the sides parallel to the glacial valleys, i.e. these moraines lie on either side of a glacier valley between the ice and steep sides of a glacier.

(ii) Ground moraine : The moraines which move along the bottom bed of the glacier valley are known as ground moraines. These are formed as a result of the

deposition of sediments by a valley glacier which while moving rapidly fails to carry the sediment load and begins to leave an irregular sheet or till over the channel bed.



(iii) Medial moraine : When two glaciers join at a particular spot in the valley, their lateral moraines also unite together and start flowing downward in the centre of the glacier valley. The moraines that move along the middle course of the glacier are known as medial moraines.

(iv) Terminal moraine : Terminal moraine or end moraine marks the ultimate limit of an ice sheet or glacier and is formed at the snout of the glacier, from where it starts melting. Terminal moraine is actually a ridge formed by the deposition of sediments carried down by a glacier which gets accumulated at the end of a valley glacier. It consists of large angular boulders.

Q16. Based on your general knowledge, state how global warming may have its various effects on glaciers.

Ans: The increase in global temperatures brought about by the increased emission of greenhouse gases such as

carbon dioxide, methane, nitrous oxide, chlorofluorocarbons (CFCs) water vapour, etc. into the atmosphere is known as global warming. Global warming means an increase over a period of the average temperature of earth's atmosphere and oceans. The greenhouse effect is attributed to be the main reason for this phenomenon.

One of the negative impacts of global warming is that it may greatly affect glaciers of the polar regions as well as those of the high mountain ranges of the world. It may lead to the unnatural melting of glaciers resulting in several changes in the landforms of the polar and mountainous regions. It has been proved that the polar ice is beginning to melt mainly due to the high rate of global warming leading to rising level of sea water. This can cause floods, destruction of marine life and thus upset the existing ecological balance.

Similarly, currently there is a view that the Himalayan snow may also melt sooner than expected. Such a situation in the near future will have serious repercussions particularly in the Indian subcontinent leading to the drying of perennial rivers which water the northern and northern-eastern plains of India. The melting of such ideal sources of fresh water will have disastrous consequences. Glaciers are the best sources of fresh water and therefore their melting can deplete fresh water resources in the world to a great extent and thereby effect the very existence of terrestrial life on earth.