NCERT MOST IMPORTANT QUESTIONS CLASS – 11 GEOGRAPHY CHAPTER- 6 LANDFORMS AND THEIR EVOLUTION

Question 1.
How does wind forms geomorphic landforms or how does wind performs its tasks in the desert areas.
Answer:

- Wind move along the desert floors with great speed and the obstructions in their path create turbulence. Wind causes deflations, abrasion and impact.
- Deflation includes lifting and removal of dust and smaller particles from the surface of rocks. In the transportation process sand and silt act as effective tools to abrade the land surface. The impact is simply sheer force of momentum which occurs when sand is blown into or against a rock surface.

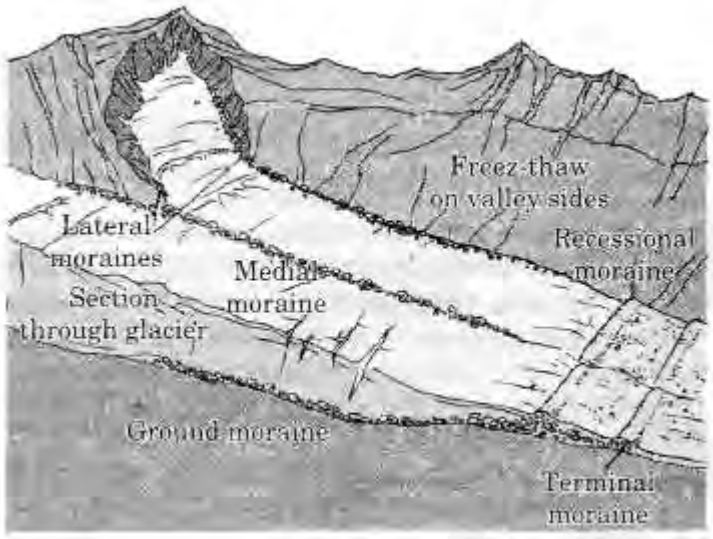
Question 2.
Explain the depositional landforms formed by glaciers.
Answer:
The depositional landforms formed by glaciers are:

- Moraines: When valley glaciers retreating rapidly leave an irregular sheet of till over their valley floor. Such deposits varying greatly in thickness and in surface topography are called Moraines
- Esker: When glaciers melt, the water flows on the surface of the ice or seeps down along the margins or even moves through the holes in the ice. Very minor coarse materials settle in valley of ice beneath the glacier and when ice melts it can be found as sinuous ridge called Esker.
- Drumlins: Drumlins are smooth oral shaped ridge-like features composed mainly of glacial till with some masses of gravel and sand.

Question 3.
What are Moraines? Explain different types of Moraines with diagram.
Answer:
Moraines are long ridges of deposits of glacial till.
Different types of moraines are:

- The lateral moraines: They form along the sides parallel to glacial valleys. These moraines partly or fully owe their origin to glacio- fluvial waters pushing up materials to the sides of glaciers.

- Ground moraines: Many valley glaciers retreating rapidly leave an irregular sheet of till over their valley floors. Such deposits varying greatly in thickness and in surface topography are called Ground moraines.
- Medial moraines: The moraines in the centre of the glacial valley flanked by lateral moraines is called medial moraines.



Question 4.
Differentiate between:
1. Stalactites and Stalagmites
2. Sinkholes and Urallas
3. Gorge and Canyon
Answer:
1. Stalactites and Stalagmites

S.No.	Stalactites	Stalagmites
1.	Stalactites hang as icicles of different diameters.	Stalagmites rise up from the floor of the caves.
2.	They are broad at their bases and taper towards the free ends showing up in a variety of forms.	It may take the shape of a disc, a column with either a smooth, rounded bulging end.

2. Sinkholes and Urallas

Sinkholes	Urallas
A sinkholes is an opening more or less circular at the top and funnel-shaped towards the bottom.	When sink holes and dolines join together because of slumping of material along their margins the Urallas are formed.

3. Gorge and Canyon

- A gorge is a deep valley with very steep to straight sides and a canyon is characterized by steep step-like side slopes and may be as deep as a gorge.
- A gorge is almost equal in width at its top as well as its bottom. In contrast, a canyon is wider at its top than at its bottom. In fact, canyon is a variant of gorge.
- Example, canyons commonly form in horizontal bedded sedimentary rocks and gorge form in hard rocks.

Question 5.
Explain the landforms that are seen in upper part of the river.
Answer:
In upper part of the river, many beautiful and attractive landforms are formed. Some of them are as follows:

- V-shaped valleys: Valleys start as small and narrow rills; the rills will gradually develop into long and wide gullies; the gullies will further deepen, widen and lengthen to give rise to valleys. Depending upon dimensions and shape, many types of valleys like V-shaped valley, gorge, canyon, etc. can be recognised.
- Gorge: A gorge is a deep valley with very steep to straight sides.
- Canyon: A canyon is characterised by steep step-like side slopes and may be as deep as a gorge. A gorge is almost equal in width at its top as well as its bottom. In contrast, a canyon is wider at its top than at its bottom. In fact, a canyon is a variant of gorge.
- Waterfall: When the rivers start falling in pits in mountainous regions, it makes waterfall.
- Plunge pools: Once a small and shallow depression forms, pebbles and boulders get collected in those depressions and get rotated by flowing water and consequently the depressions grow in dimensions. A series of such depressions eventually join and the stream valley gets deepened. At the foot of waterfalls also, large potholes, quite deep and wide, form because of the sheer impact of water and rotation of boulders. Such large and deep holes at the base of waterfalls are called plunge pools.

Question 6.
Explain the landforms made by erosion caused by groundwater.
Answer:
Important landforms made by erosion are as follows:

1. Pools: These are conical shaped pits whose depth is three to nine metres. The width of the mouth is more than one metre. Due to solubility in water, when cracks in limestone increase, then pools take birth.

2.Swallow holes: Small to medium sized round to sub-rounded shallow depressions called swallow holes form on the surface of limestones through soil.

3. Sinkholes: A sinkhole is an opening more or less circular at the top and funnel -shaped towards the bottom with sizes varying in area from a few square metre to a hectare and with depth from a less than half a metre to thirty metres or more.

4. Uvalas: When sinkholes and dolines join together because of slumping of materials along their margins or due to roof collapse of caves, long, narrow to wide trenches called uvalas are formed.

5. Collapse sinks: If the bottom of the sinkholes forms the roof of a void or cave underground it might collapse leaving a large hole opening into a cave or a collapse sinks.

6. Lapies: Gradually, most of the surface of the limestone is eaten away by these pits and trenches, leaving it extremely irregular with a maze of points, grooves and ridges or lapies. Especially, these
ridges or lapies form due to differential solution activity along parallel to sub¬parallel joints. The lapie field may eventually turn into somewhat smooth limestone pavements.

7. Caves: In areas where there are alternating beds of rocks (shales, sandstones, quartzites) with limestones or dolomites in between or in areas where limestones are dense, massive and occurring as thick beds, cave formation is prominent. Water percolates down either through the materials or through cracks and joints and moves horizontally along bedding planes. It is along these bedding planes that the limestone dissolves and long and narrow to wide gaps called caves result. There can be a maze of caves at different elevations depending upon the limestone beds and intervening rocks. Caves normally have an opening through which cave streams are discharged. Caves having openings at both the ends are called tunnels.

Question 7.
Explain the depositional landforms made by rivers.
Answer:
Depositional Landfoi, made by rivers:

1. Alluvial Fans: Alluvia ms are formed when streams flowing from higher levels break into foot slope plains of low gradient. Normally very coarse load is carried by streams flowing over mountain slopes. This load becomes too heavy for the streams to be carried over gentler gradients and gets dumped and spread as a broad low to high cone shaped deposit called alluvial fan. Usually, the streams which flow over fans are not confined to their original channels for long and shift their position across the fan forming many channels called distributaries. Alluvial fans in humid areas show normally low cones with gentle slope from head to toe.

2. Deltas: Delta is like alluvial fans but develop at a different location. The load carried by the rivers is dumped and spread into the sea. If this load is not carried away far into the sea or distributed along the coast, it spreads and accumulates. Such areas over flood plains built up by abandoned or cut-off channels contain coarse deposits. The flood deposits of spilled waters carry relatively finer materials like silt and clay. The flood plains in a delta are called delta plains.

3. Floodplains: Floodplain is a major landform of river deposition. Large sized materials are deposited first when stream channel breaks into a gentle slope. Thus, normally, fine sized materials like sand, silt and clay are carried by relatively slow moving waters in

gentler channels usually found in the plains and deposited over the bed and when the waters spill over the banks during flooding above the bed.

4. Natural Levees: Natural levees are found along the banks of large rivers. They are low, linear and parallel ridges of coarse deposits along the banks of rivers, quite often cut into individual mounds. During flooding as the water spills over the bank, the velocity of the water comes down and large sized and high specific gravity materials get dumped in the immediate vicinity of the bank as ridges. They are high nearer the banks and slope gently away from the river. The levee deposits are coarser than the deposits spread by flood waters away from the river. When rivers shift laterally, a series of natural levees can form.

5. Point Bars: Point bars are also known as meander bars. They are found on the convex side of meanders of large rivers and are sediments deposited in a linear fashion by flowing waters along the bank. They are almost uniform in profile and in width and contain mixed sizes of sediments. If there more than one ridge, narrow and elongated depressions are found in between the point bars.

Question 8.
Explain the erosional landforms created by waves and currents.
Answer:
Cliffs, Terraces, Caves and Stacks are important landforms created by erosion caused by waves and currents.

- Wave-cut cliffs: Almost all sea cliffs are steep and may range from a few m to 30 m or even more. At the foot of such cliffs there may be a flat or gently sloping platform covered by rock debris derived from the sea cliff behind. Such platforms occurring at elevations above the average height of waves is called a wave-cut terrace.
- Terraces: The lashing of waves against the base of the cliff and the rock debris that gets smashed against the cliff along with lashing waves create hollows and these hollows get widened and deepened to form sea caves. The roofs of caves collapse and the sea cliffs recede further inland.
- Sea stacks: Retreat of the cliff may leave some remnants of rock standing isolated as small islands just off the shore. Such resistant masses of rock, originally parts of a cliff or hill are called sea stacks.

Like all other features, sea stacks are also temporary and eventually coastal hills and cliffs will disappear because of wave erosion giving rise to narrow coastal plains, and with onrush of deposits from over the land behind m ay get covered up by alluvium or may get covered up by shingle or sand to form a wide beach.

Question 9.
Explain the different stages of a river.
Answer:
A river passes through three stages like a human being: youth, mature and old.

1. Youth Stage: Youth streams are less in number. In this stage with poor integration and flow over original slopes showing shallow V-shaped valleys with no floodplains or with very narrow floodplains along trunk streams. Streams divides are broad and flat with marshes, swrnmp and lakes. If meanders are present, they develop over these broad upland surfaces. These meanders may eventually entrench themselves into the uplands. Waterfalls and rapids may exist where local hard rock bodies are exposed.

2. Mature Stage: During this stage streams are plenty with good integration. The valleys are still V-shaped but deep; trunk streams are broad enough to have wider floodplains within which streams may flow in meanders confined within the valley. The flat and broad inter stream areas and swamps and marshes of youth disappear and the stream divides turn sharp. Waterfalls and rapids disappear.

3. Old Stage: Smaller tributaries during old age are few with gentle gradients. Streams meander freely over vast floodplains showing natural levees, oxbow lakes, etc. Divides are broad and flat with lakes, swamps and marshes. Most of the landscape is at or slightly above sea level.

Question 10.
Distinguish between river alluvial plains and glacial outwash plains.
Answer:
River Alluvial Plains: The alluvial plain is an erosional plain that occurs from weathering caused by water currents in the sea, river or stream. Fluvial (water) movement comes from higher land regions and wear away landmasses to produce low relief plains. This is known as the alluvial plain. These landforms are made up of the deposition of sediment over a long period of time from the fluvial movement to form alluvial soil.

An alluvial plain is characterized by its relatively flat -and gently sloping landform and is normally formed at the base of a range of hills. Continuous fluvial weathering of these hills is what causes sediments to move and spread across lower levels to produce this type of plain. These plains are formed mostly by slow running rivers, as slower fluvial movement picks up less sediment off the river floor causing more particles to settle and develop into an alluvial plain. Areas where more particles are dropped off are sometimes referred to as flood plains, and the particles that settle are called alluvium.

Glacial Outwash Deposits: The large quantities of water that flowed from the melting ice deposited is called glacial outwash. Outwash plains made up of outwash deposits are characteristically flat and consist of layers of sand and other fine sediments. Such plains with their sandy soils are often used for specialized kinds of agriculture, such as the potato production in Montcalm County.

As the margins of the ice lobes retreated, glacial meltwater and precipitation drained southward to the Gulf of Mexico because higher land or glacial ice blocked flow in other directions. Ice-marginal lakes (or proglacial lakes) form when the land in front of the ice margin slopes toward the ice, allowing meltwater to pond directly in contact with the ice.