Streams

Que.1. A river that does not return to the main stream after leaving it is a .....(i)..... whereas a river that flow into larger rivers is called a..... (ii)..... [Marks :(1)]

a. (i) distributary (ii) tributary

b. (i) distributary (ii) braided stream

c. (i) tributary (ii) distributary

d. (i) tributary (i) braided stream

Ans. a. (i) distributary (ii) tributary

Que.2. Complete the table of fluvial process. [Marks :(3)]

Landform	**Process**	**Stage**
Waterfalls	**Erosion**	**.....**
Delta	**.....**	**Old stage**
	Deposition	**Mature**

Ans. Waterfalls- Erosion- Youth stage

Delta- Deposition- Old stage

Natural levees-Deposition-Mature stage

Que.3. Stream valleys in mountainous regions are deep, compared to their lower reaches. Why? [Marks :(2)]

Ans. Because of the greater slope, high gradient, higher velocity of water, active erosion and downcutting.

Que.4. Which of the following features or processes is NOT associated with a[Marks :(1)] meandering stream?

a. Erosion at one curve.

b. Point bars

c. Oxbow lakes

d. Pot holes

Ans. d. Pot holes

Que.5. What are the characteristic features developed in youth, mature and old stages in the development of stream valleys? [Marks :(3)]

Ans. The youthful stage-At this stage, a stream will be flowing through valleys with characteristically vertical or nearly vertical sides (canyons or gorges) and the stream will be moving in turbulence and torrents often with roaring noise and with very high velocity.The associated channels will be either rocky with numerous potholes or consist of coarser rock fragments such as boulders, cobbles etc. and the long profile of youthful valleys will be characterized by the presence of irregularities in the form of waterfalls, rapids and cascades.

The mature stage-Stream valleys associated with stream reaches that have attained a graded condition, will be described as attained a mature stage. Stream channels of mature stream valleys will commence the process of meandering and associated lateral planation - the processes that create wider valleys. The mature stream valleys in advanced stage will be characterized with a wide plain with meanders, oxbow lakes, and natural levees.

The old stage-During the old age stage, a stream valley will be acquiring the widest flood plain possible. The intervening divides will be slowly reduced by a variety of slope processes and the channel floor will be almost at or close to the controlling regional base level. Increased number of oxbow lakes, and meander bends will be common features at this stage.

Que.6. What is meant by the term 'load of a stream'? Briefly describe the various types of stream loads. [Marks :(3)]

Ans. The material other than water transported by a stream is described as its load.

Generally, the load carried by a stream consists of three types:

a) Suspended load-It is the visible cloud of sediments a stream carries and is made up of fine sand, silt and clay sediments that are light enough to be transported in the stream water in a state of suspension.

b) Bed load-It is that part of a stream's load transported along its bottom or bed of its channel. This part of load is made up of particles too large or too heavier to be carried in suspension.

c) Dissolved load-The portion of the load carried by a stream as ions in solution.

Que.7. Name the following [Marks :(1)]

a.the lowest limit that any stream can erode its channel.

b.triangular shaped deposits found on the mouth of a river

Que.8. Rivers are the important sculpturing agent of the earth'. Name any four landforms associated with stream erosion. Expalin. [Marks :(4)]

Ans. Erosional landforms of streams a) Stream valleys(gorges /canyons),b) Potholes and c) Waterfalls.

River valleys;- More or less V-shaped low land in mountainous regions bounded by steep or inclined walls.

Pot holes: Cylindrical depressions formed on river beds by stream erosion.

Gorges and canyons: Very deep cut narrow valleys

Waterfalls:- Manificient fall of water due to erosion of the riverbeds by diffferential erosion.

Que.9. What happens to the channel width, channel length, channel depth, velocity and discharge of stream from the higher reaches to its lower reaches? [Marks :(3)]

Ans. Changes in valley length,width,depth,velocity of water and discharge- increases in discharge and volume of water-

Widens the valley width,deepens the valley depth and lengthens the valley length.

Que.10. Have you heard about Grand Canyon? What is its peculiarity? Which natural agent is responsible for the formation of this feature? [Marks :(3)]

Ans. Yes. It is the largest and deepest down cut river valley/canyon in the world.

Erosional activity of the river Colarado is responsible for it's formation.

Que.11. Distinguish between the following: [Marks :(4)]

a. hydraulic action and stream abrasion

b.alluvial fan and delta

Ans. a). Hydraulic action is a form of erosion that is mostly caused by the force inherent in moving water to dislodge and transport rock particles.

Stream abrasion is the process of mechanical erosion of the rocks of the Earth’s surface caused when rock materials are transported across it by running water

b).When a steep mountain stream enters a flat valley, there is a sudden decrease in gradient in stream channel.Consequently, a major share of the sediments transported by the stream will suddenly become deposited in front the valley. These deposits generally resemble an open Japanese fan, when viewed from above, and are therefore known as alluvial fans.

Deposits of this type with significant height and steepness of slope are termed alluvial cones.

Que.12. Each of the following statements refers to a particular drainage pattern, identify them. [Marks :(3)]

a. branching tree like pattern

b. streams diverging from a central high area such as a dome

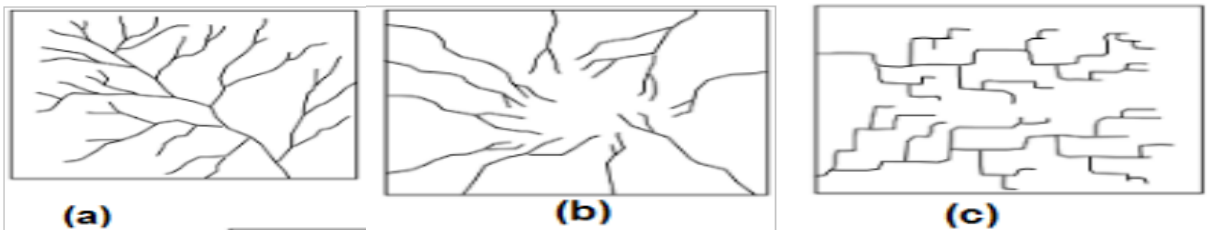
c. a pattern that is characterised by tributaries joining larger streams at almost right angles

Ans. a. dentritic pattern

b. radial pattern

c. rectangular pattern

Que.13. Identify and comment on the drainage patterns given below [Marks :(3)]



Ans. a).dentritic-branching tree like pattern

b).radial pattern-streams diverging from a central high area such as a dome

c).rectangular pattern-a pattern that is characterised by tributaries joining larger streams at almost right angles

Que.14. Why does a river slow down as it gets to the mouth? [Marks :(2)]

Ans. The volume of water doesn't matter. The speed changes because the slope of the riverbed decreases. The flow slows down at lower elevations where the slope of the land becomes less steep. Slower flow allows the sediment to settle out. The deposit of sediments builds up the riverbed, making it flatter and slowing the flow further. Usually, as the river approaches sea level, the river bed gets so flat that the flow is barely noticeable.

Que.15. What is the difference between a meander and an ox bow lake? [Marks :(2)]

Ans. A meander is a bend in the river. A slow flowing river tends to meander (form bends) when flowing over a flat valley floor.

An oxbow lake is an old river bend that has been naturally cut off.

Que.16. Two streams begin at the same elevation and have equal volumes. Which statement best explains why one stream could be flowing faster than the other stream?

a.the faster stream contains more dissolved minerals [Marks :(1)]

b.the faster stream has a much steeper gradient

c.the streams are flowing in different directions

d.the faster stream has a lower temperature than the slower stream

Ans. b.the faster stream has a much steeper gradient

Que.17. A river flowing across a wide flood plain begins to form loop-like bends called ..... [Marks :(1)]

a.rills

b.meanders

c.cascade

d.deltas

Ans. b.meanders

Que.18. How does a stream channel become deeper and wider? [Marks :(3)]

Ans. Valley deepening is achieved by down-cutting of the stream bed or stream floor. Corrasion is largely responsible for the ability of the streams to deepen their channels and associated valleys. In the early stages of valley development almost the entire energy of the stream will be used for down-cutting of its channel.

As the down-cutting process progresses and the stream channel approaches the base level, the process of valley widening begins. The valley widening is achieved by the combined action of the processes, such as weathering and slope processes.

Que.19. A delta is created when _____. [Marks :(1)]

a.sediments are deposited as water empties into an ocean

b.a rill or gully empties into a stream

c.sediments are deposited as water empties into a river

d.river water empties from a mountain valley onto an open plain

Ans. a.sediments are deposited as water empties into an ocean

Que.20. What are the factors that affects runoff? [Marks :(2)]

Ans. The factors affecting the runoff are as follows: 1. Precipitation 2. Size and Shape of the Catchment Area 3. Geological Characteristics 4. Meteorological Characteristics 5. Drainage Net etc