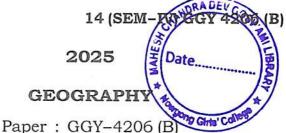
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Paper: GGY-4206 (B)

(Spl. Paper)

(Fluvial Geomorphology)

Full Marks: 80

Time: Three Hours

The figures in the margin indicate full marks for the questions.

Unit-I

Marks: 40

Answer Q. No. 1 and any three questions from the rest.

 Describe the flow types and explain the factors affecting the velocity of flow in a channel with citing examples. 6+10=16 Discuss the impact of sediment transport mechanics and processes on sediment discharge and deposition in a channel. 16

- Describe how water discharge effects channel variables with appropriate examples.
- Discuss the processes of channel erosion and deposition and their impact on river morphology with citing examples from the Brahmaputra River.
- 4. Explain *any two* methods of water discharge estimation with necessary illustrations.

4+4=8

- 5. Write short notes on **any two** of the following: $4 \times 2 = 8$
 - (a) Velocity distribution pattern in a channel
 - (b) Types of sediment load
 - (c) Channel aggradation and degradation

Part-II

Marks: 40

Answer Q. No. 6 and any three questions from the rest.

 Discuss the impact of land use/land cover changes on river channel hydrology and catchment ecosystem.

Or

Present a systematic description of the fluvial geomorphology of the Brahmaputra river with a special focus on floodplain characteristics.

- Critically discuss the sedimentation process and its effect on the river channel and the sorrounding ecosystem.
- 8. Describe the formation process and significance of wetlands of the Brahmaputra floodplain from ecological perspectives.

4+4=8

9. Discuss how climate change affects the frequency and intensity of extreme hydrological events in a river basin. 8

- 10. Write short notes on **any two** of the following: $4\times2=8$
 - (a) River basin planning and development
 - (b) Fluvio-geomorphological characteristics of Majuli island
 - (c) Bank erosion as a fluvio geomorphic hazard.