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14 (GGY-4) 4206 (FG) (OP)

2023

GEOGRAPHY

Paper : GGY-4206

(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* from the rest.

1. Discuss the effects of water discharge on channel variables with suitable examples.

16

Or

Explain the velocity distribution patterns as observed in a channel and state the factors affecting velocity.

10+6=16

Contd.

2. What are the different types of sediment load ? State the factors that bring out variations in sediment discharge rate. 8
3. Explain the pattern and processes of aggradation and degradation occurring in a river channel. 4+4=8
4. Describe *any two* methods of water discharge estimation with necessary illustrations. 4+4=8
5. Write short notes on *any two* of the following : 4×2=8
 - (a) Significance of the continuity equation
 - (b) Effects of sediment discharge on channel morphology
 - (c) Types of flow in a channel

UNIT-II

(Marks : 40)

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

6. Critically discuss flood and bank erosion as important fluvial-geomorphic hazards in alluvial rivers. 8+8=16

Or

Explain the salient dimensions of human impacts on river basins and fluvial regimes with necessary examples. 16

7. Describe the characteristics of Brahmaputra floodplain with special reference to lower Brahmaputra floodplain in Assam. 8
8. State the significance and necessity of river basin planning and development with examples. 8
9. Analyse the possible impacts of basin land use land cover changes on hydrology and morphology of a river. 8
10. Write short notes on **any two** of the following: 4×2=8
 - (a) Landslides as geomorphic hazards
 - (b) Fluvio-geomorphic characteristics of Majuli island
 - (c) Impact of climate change in river processes.