

**M.Sc. 4<sup>th</sup> Semester Examination, 2021**  
**GEOGRAPHY**

**Course Title: (Fluvial Geomorphology)**

**Paper: 403EA**

**Course ID: 41953**

**Full Marks: 40**

**Time: 2 Hours**

The figures in the right hand side margin indicate full marks.  
Candidates are required to give their answers in their own words  
as far as practicable.  
Answer any four questions selecting at least one from each unit.

**Unit-I**

(Concepts and Models in Geomorphology)

1. Discuss the importance of *uniformitarianism* concept for studying the past geomorphic environment. What is the relation between feedbacks and maintenance of equilibrium in geomorphic system? 8+2 = 10
2. Explain briefly the topologic and geometric properties of drainage network. What do you mean by *topologically distinct channel networks* (TDCN)? 8+2 = 10

**Unit-II**

(Geomorphological Regions and Processes)

3. Divide Lower Ganga plains into major geomorphic units. Specify the major geomorphic characteristics of the Sub-Himalayan Fan zone in West Bengal. 3+7 =10
4. What is meant by boundary layer in fluvial hydraulics? Explain with suitable diagrams how turbulence is generated within the boundary layer of a gravel-bed river. 2+8=10

**Unit-III**

(Applied Geomorphology)

5. Discuss the concept of *cataclysmic event* in the context of geomorphic hazard. What is the significance of geomorphic knowledge to mitigate the urban hazards? 7+3 =10
6. What are the different terrain attributes which can be extracted from a typical digital elevation model (DEM)? How can slope stability analyses be conducted using Remote Sensing and GIS techniques? 4+6=10

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