



‘समानो मन्त्रः समितिः समानी’

**UNIVERSITY OF NORTH BENGAL**

B.Sc. Honours 3rd Semester Examination, 2023

**CC6-GEOLOGY**

**SEDIMENTOLOGY**

Time Allotted: 2 Hours

Full Marks: 40

*The figures in the margin indicate full marks.*

1. Answer any **five** of the following: 1×5 = 5
  - (a) Between ‘mean’ and ‘median’ grain size — Which one is more significant in grain size analysis and why?
  - (b) A limestone contains 50% bioclast, 30% intraclasts and 20% peloids with sparite as binding materials — Name the rock as per Folk.
  - (c) Differentiate laminar flows from turbulent flows.
  - (d) Explain the occurrence of calcite vein in greywacke.
  - (e) ‘Well sorted and well rounded sand grains are found in a matrix rich sandstone’ — Explain the possible reason for such texture.
  - (f) What are the differences between terrigenous and clastic rocks?
  - (g) Which statistical parameter is used for sorting of grains in grain size analysis and why?
  - (h) ‘Spherical grains not necessarily be well rounded’ — Explain.
  
2. Answer any **three** of the following: 5×3 = 15
  - (a) Describe how quartz grains can be used as provenance indicator.
  - (b) Define bimodality in grain size distribution. Explain different reasons for bimodality in sandstone. 2+3
  - (c) What are the different types of contact found in sandstone framework? Explain how matrix/grain inter-relationship can be used for broad depositional condition. 3+2
  - (d) Explain Hjulstrom diagram with suitable diagram.
  - (e) ‘Particle size distribution of modern sands and sandstone always follow a lognormal distribution’ — Accept or reject the statement with suitable reasons.
  
3. Answer any **two** of the following: 10×2 = 20
  - (a) What is diagenesis? What are the different stages of diagenesis and the major processes involved in each stage in sandstone? 2+8
  - (b) What do you understand by the term ‘grading’? How reverse grading formed? Describe how massive bedding formed? 2+4+4
  - (c) How do you differentiate lower flow regime plane beds from upper flow regime plane beds? Describe the classification scheme of limestone by Dunham. 2+8
  - (d) How the granulometric parameters does help us to distinguish between beach sand and glaciofluvial sands? How can the correlation between grain size and transport mechanisms be distinguished using a CM diagram? 5+5

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