

**Ex/SC/GEOL/UG/CORE/TH/05/2025(OLD)**

**BACHELOR OF SCIENCE EXAMINATION, 2025**

**(2nd Year, 1st Semester)**

**GEOLOGICAL SCIENCE**

**PAPER : CORE/TH/05**

**( SEDIMENTOLOGY)**

*Time : Two Hours*

*Full Marks : 40*

*Use a separate Answer-Script for each Part.*

**PART—I (20 Marks)**

Answer question (1) and *any three* from the remaining :

1. What is an antidune? Describe, with suitable sketches, different erosional primary structures observed in nature.

1+7=8

**( OR )**

Write a detailed note on grain shapes in sedimentary rocks and their geological significance. What factor primarily control the sphericity of a grain?

7+1=8

2. Why are primary structures not usually environment-specific? How do herringbone cross-strata suggest particular depositional environment?

2+2=4

**GEOL-1020**

*[ Turn Over ]*

**( 2 )**

3. Define ripple climbing. Discuss different kinds of ripple climbs and their geologic significance.  $1+3=4$
4. Describe different stages of textural maturities in sandstone. What is the significance of textural inversion?  $3+1=4$
5. Briefly describe different biogenic structures found in sedimentary rocks. 4
6. Justify the following statements : 4
- (i) Reverse grading is more common in aeolian than aqueous regime-Justify the statement.
- (ii) Distinguish between wave and current ripples.

**PART—II (20 Marks)**

Answer question No. 1 and *any two* from the rest :

1. What are the differences between :  $2 \times 2 = 4$
- (a) Bioparite and Biomicrite
- (b) Grainstone and Wackestone [CO1]
2. (a) Briefly discuss Pettijohn's classification of sandstone.
- (b) How do you define greywacke?
- (c) What are the provenance and tectonic settings of arkosic sedimentary rocks? [CO1 & CO2]  $4+1+3=8$

**( 3 )**

3. (a) Why is cement not considered in genetic classification of sandstone?
- (b) How many types of grain contact are there in clastic sedimentary rocks?
- (c) What are the different modes of clastic sediments transport? [CO1 & CO2]  $3+2+3=8$
4. (a) How do you identify unidirectional and bi-directional currents in sedimentary rocks?
- (b) What do you mean by allochemical and orthochemical sedimentary rocks?
- (c) What is 'Bouma Sequence'? [CO2 & CO3]  $3+3+2=8$

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