

B. SC. GEOLOGICAL SCIENCE EXAMINATION, 2023

(2nd Year, 1st Semester)

SEDIMENTOLOGY

PAPER – CORE/TH/05

Time : Two hours

Full Marks : 40

(Use a separate Answer script for each Part)

PART – I (20 Marks)

Answer any two questions

2X5=10

1. (a) What is the genetic significance of ooidal limestone?
(b) Why is particle shape in shale geologically important?
(c) Discuss the geological significance of stromatolite.
(d) How does microfabric within shale reflect diagenetic trend?
(e) Why is matrix, instead of cement, considered for sandstone classification?
2. (i) How does siliciclastic supply affect carbonate sedimentation?
(ii) Why are primary sedimentary structures less common in limestone?
(iii) What are the differences between
A. Biosparite and Biomicrite
B. Grainstone and Wackestone **4+4+2**
3. (a) What is arenite? What are the geological significances of Arkose?
(b) What are the geological significances of feldspars in sandstone?
(c) Are mineralogically mature sandstones always texturally mature? **4+4+2**
4. (a) Why is the combination of quartz, feldspar and rock fragments considered for the Sandstone classification?
(b) What is the difference between oligomictic and polymictic conglomerates? What are their respective geological significances? **5+5**

PART-II (20 Marks)

Answer Question No. **5a** and any **THREE** from the rest (**5b to 5g**) **4x5=20**

5. (a) What is bedform? Briefly discuss different kinds of bedforms that may arise under unidirectional flow conditions. **1+4**
- (b) How does the shape of particles affect the lift force during their entrainment in a flow? **5**
- (c) Justify the following statements: **2.5X2**
 - (i) High roundness always is accompanied by high sphericity.

[Turn over

- (ii) Laminar flows are generally absent in natural subaqueous environments.
- (e) i) Discuss the Flow Regime concept considering Reynold's and Froude numbers.
ii) What are the erosional sole features? Describe their respective formative processes.
Do they always indicate the sense of palaeocurrent direction? **2+3**
- (f) What is the difference between flaser and lenticular bedding? Discuss their respective formative processes. **2+3**
- (g) What is the geological significance of textural inversion in clastic sediments? How do you infer the bimodality of grain-size within sandstone? **2+3**