(e) Justify the following statements : 5

(i) Adhesion ripples are not ripples in proper sense.

(ii) Reverse grading is more common in eolian environments, as compared to aqueous regime.

(f) Distinguish between 5

(i) Load cast and Flute cast.

(ii) Swaley cross-strata and through cross-strata.

—— X ——

Ex./UG/Sc/CORE 5/25/2019

INTER BACHELOR OF SCIENCE EXAMINATION, 2019

(2nd Year, 1st Semester)

GEOLOGICAL SCIENCES

Sedimentology

Paper - CORE/TH/05

Time : Two hours Full Marks : 50

Use a separate answer script for each group.

GROUP - A (25 marks)

Answer ***q.no. 1*** and any ***three*** from the rest.

1. What is the geological significance of : 5x2=10

(a) (i) Broken quartz overgrowth

(ii) Mineralogical maturity of sandstone without textural maturity.

(iii) Inclined Stromatolite.

(iv) Oligomictic and polymictic conglomerate

(v) Arkose.

OR

Discuss the mineralogical classification of limestone. Discuss the difference in depositional conditions between oosparite and oomicrite. 8+2

2. (a) Why are angularities of the constituting particles high in shale ?
   (b) What are the processes that help to develop microfabric in shale ? 1+4

3. (a) Why are primary sedimentary structures less frequent in occurrences within limestones, as compared to sandstones ?
   (b) Why does siliciclastic supply at high rates hinder carbonate sedimentation ? 2+3

4. (a) Why is quartz the most abundant mineral in sedimentary rocks ?
   (b) Can matrix in greywacke be of secondary origin ? Explain. 2+3

5. What are ooids ? Discuss the origin of ooids. 5

6. How do you define qaurtz arenite ? What are the conditions that favour deposition of quartz arenite ? What is the geological significance of quartz arenite ? 1+3+1

GROUP - B (25 marks)

7. Answer ***q.no. (a)*** and any ***three*** from the rest : 5x5=25

   (a) What are the factors controlling the formation of bedforms ? Describe (with suitable sketches) different types of erosional primary structures in sedimentary environments. 2+8

   OR

   Write a detailed note on shape of sedimentary rocks and their geological significance. Why are 'b' axis imbricatons of pebbles more common in fluvial conglomerates ? 8+2

   (b) Are primary structures usually environment-specific ? Explain. Describe one environment-specific primary structure, highlighting how it signifies the environment. 2+3

   (c) How do sediment gravity flows differ from fluid gravity flows ? Why are turbidity currents always subaqueous ? 1+4

   (d) Describe the different stages of textural maturities in sandstone. What is the significance of textural inversion ? 4+1