Total number of printed pages–4

3 (Sem–3/CBCS) GLG HC 2

2021

(Held in 2022)

GEOLOGY

(Honours)

Paper : GLG–HC–3026

(Sedimentary Petrology)

Full Marks : 60

Time : Three hours

The figures in the margin indicate full marks for the questions.

1. Answer the following questions : 1×7=7

   (a) What is detrital material ?

   (b) What is the grain size range of silt in ϕ (phi) scale ?

   (c) What causes the marine beach environment's sediments to become negatively skewed ?

Contd.

(d) What is attrition ?

(e) Define packing in sediments.

(f) What is the relation between bed and bedding plane ?

(g) What is the difference between mud and clay ?

2. Answer the following in brief : 2×4=8

(a) Explain how 'facies map' can be used as palaeocurrent analysis tool.

(b) What are 'upper flow' and 'lower flow' regimes ?

(c) Differentiate between laminar flow and turbulent flow.

(d) Write on the stages of diagenesis.

3. Answers the following in short : ***(any three)*** 5×3=15

(a) Write on petrographic evidences of diagenetic changes in sandstones using representative sketches.

(b) Give a genetic classification of limestones in brief.

(c) Write about the environmental significance of conglomerate on the basis of their framework structure and composition of pebbles.

(d) Write on the modes of sediment transport.

(e) Write about a method of roundness measurement of sediment grain. Also brief on the significance of roundness parameter.

4. Answer the following : 10×3=30

(a) Discuss the syn-depositional deformation structures in sediments giving emphasis on their genetic aspects and geometry. Draw representative sketches. 10

Or

(b) Elaborate the grain size parameters that are in use for granulometric study. Also write briefly on their usefulness. 10

(c) Give a classification of arenites. Explain under what conditions of weathering, transportation and deposition these arenite classes are formed. 5+5=10

Or

(d) What is dolomite ? Explain how dolomite can be differentiated from calcite under petrological microscope. Discuss the process of dolomitization of limestones with a focus on sources of magnesium for the process. What causes abundance of dolomite in ancient carbonate deposits ?

1+4+3+2=10

(e) Write on the fabrics of sandstones with representative sketches and explain what causes the fabrics. 10

Or

(f) What is cement ? Discuss cementation process in clastic sedimentary rocks. Also name the most common cements of sandstones. 2+8=10
