(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 1114 Roll No. | | | | | | | | | | |

B.Tech.

(SEM. I) ODD SEMESTER THEORY EXAMINATION 2013-14

GEOLOGICAL SCIENCES

Time : 3 Hours *Total Marks : 80*

Note :–Attempt **all** Sections.

SECTION–A

1. Attempt all questions in brief : (2×8=16)

(a) Define a Rock. How are the rocks classified ?

(b) Write the role of streak in mineral identification.

(c) Why faults are more dangerous than other geological structures from civil engineering point of view ?

(d) What is the importance of porosity and permeability with reference to ground water ?

(e) What is Exploration Geophysics ?

(f) Write about the current bedding.

(g) How the folds are classified on the basis of uniformity of thickness ?

(h) What is the origin of Under Ground Water ?

SECTION–B

2. Attempt any **four** of the following : **(6×4=24)**

(a) Explain the following :

(i) *Flow structure*

(ii) *Pillow structure*

(iii) *Vesicular structure.*

(b) Write notes on composition, occurrence and physical properties of any two of the following minerals : Quartz, Chlorite, Biotite and Kyanite.

(c) Describe the relevance of study of faults with reference to dams and tunnels.

(d) What is an Unconformity ? How it occurs ? What are the different types of unconformities ?

(e) Explain the importance of geological investigation for Dam Construction.

SECTION–C

Note :– Attempt **all** questions.

3. Attempt any **two** parts of the following : **(5×2=10)**

(a) Define "Weathering of rocks". What is its importance with reference to dams and reservoirs ?

(b) For success, what is the role of strike and dip associating with sedimentary rocks at dam site ?

(c) Explain the following :

(i) Stratification

(ii) Graded Bedding.

4. Attempt any **two** parts of the following : **(5×2=10)**

(a) What is Puzzolana ? How is it classified ? Also mention properties of puzzolana.

(b) What do you mean by the alkali aggregate reaction ? How this reaction plays a bad role with the rocks ?

(c) How do you distinguish the following pairs of minerals based on their physical properties ?

(i) Magnetite and Magnesite

(ii) Olivine and Feldspars.

5. Attempt any **two** parts of the following : **(5×2=10)**

(a) How the joints differ from cracks in rocks ? Compare joints and faults. Why joints are less harmful than faults from civil engineering point of view ?

(b) How the folds are classified based on symmetrical character, upward or downward bend ? Draw suitable sketches.

(c) Discuss the causes for landslides. Write in brief the classification of landslides. Explain briefly the preventive measures to control the landslides.

6. Attempt any **one** part of the following : **(10×1=10)**

(a) Describe the various geographical explorations methods for sub surface structures. Describe various geological factors that may cause trouble in the construction of a dam.

(b) Discuss the sources of underground water along with their characteristics. Differentiate between the aquifer, aquiclude and artesian wells. What are the differences between confined and unconfined aquifers for steady flow condition ?