

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

PAPER ID : 199243 Roll No.

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B.Tech.

(SEM. I) THEORY EXAMINATION 2013-14

GEOLOGICAL SCIENCE

(Time : 3 Hours

Total Marks : 80

Note : The question paper contains three sections; Section-A, Section-B and Section-C with the weightage of 16, 24 and 40 marks respectively. Follow the instructions as given in each section. Illustrate the answers with suitable sketches, wherever applicable.

SECTION-A

1. Attempt **all** eight parts of this question : **(2×8=16)**
- (a) Define a mineral and a rock.
 - (b) What is the difference between 'Cleavage' and 'Fracture' ?
 - (c) Define stratification of rocks.
 - (d) Define 'birefringence'.
 - (e) What is solifluction ?
 - (f) Define the term unconformity.
 - (g) Discuss Aquifer and Aquiclude.
 - (h) What are Gravity Dams ?

SECTION-B

2. Attempt any **four** parts of the following : (6×4=24)
- (a) What do you understand by the term structure of rocks ? Discuss structures of Igneous rocks.
 - (b) Write an explanatory note on grouting.
 - (c) Give a general account of geological characters that have to be known for location of a dam.
 - (d) Describe role of geological conditions that influence the design and stability of a traffic tunnel.
 - (e) Describe the Electrical Resistivity Method for Geo-physical Investigation of sub-surface.

SECTION-C

Note :- This section contains **five** questions, having **three** parts each. Attempt any **two** parts of every question:

(8×5=40)

3. (a) Write short notes on :
- (i) Crust
 - (ii) Mantle.
- (b) Define Metamorphic rocks. How are they formed ?
- (c) Elucidate about the Dip and Strike of an exposed bed.
4. (a) Enumerate important physical properties of minerals that are commonly studied for their identification and describe any one of them in detail.
- (b) Write an explanatory note on Hydrological cycle.
- (c) Describe briefly about the essential qualities of a good building stone.

5. (a) Explain the following parts of a fold with a neat sketch.
- (i) Limbs
 - (ii) Crest
 - (iii) Trough
 - (iv) Axis of fold
- (b) Write a brief note on the causes of folding.
- (c) Describe briefly about the essential qualities of a good building stone.
6. (a) Describe Engineering considerations for Joints.
- (b) Illustrate Horst and Graben with neat sketches.
- (c) Describe in brief the preventive measures for landslides.
7. (a) What is Artesian well ?
- (b) Write a note on the geological conditions necessary for proper location of a reservoir.
- (c) Give an account of the structural disposition of foundation rocks for bridges.