

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

**PAPER ID : 0024**

Roll No.

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**B. Tech.****(SEMESTER-IV) THEORY EXAMINATION, 2011-12****ENGINEERING GEOLOGY****Time : 2 Hours ]****[ Total Marks : 50**

- Note :**
- (i) This question paper has **THREE** sections A, B and C.
  - (ii) Attempt all questions.
  - (iii) Marks and number of questions to be attempted from each section is mentioned before the section.
  - (iv) Assume missing data suitably. Illustrate the answers with suitable sketches.

**SECTION - A**

1. This section has **ten** parts of short answer type questions. Attempt all parts. **10 × 1 = 10**
- (a) Define mineral. Briefly describe the physical properties of minerals with typical examples.
  - (b) Write a note on the importance of industrial minerals.
  - (c) What are rocks ? How can they be broadly grouped ?
  - (d) Discuss the importance of rocks in civil and mining engineering.
  - (e) Explain the following :
    - (i) Flow structure
    - (ii) Pillow structure
    - (iii) Vesicular structure
  - (f) How can you distinguish between true dip and apparent dip ?
  - (g) Discuss the importance of strike and dip of the formations in engineering practice.
  - (h) Describe with a neat sketch the different parts of normal fault.
  - (i) Write a brief note on the recognition of faults in the field.
  - (j) What are unconformities ? How are they classified ?

## SECTION – B

2. Attempt any **five** parts of the following : **5 × 3 = 15**
- (a) What is an aquifer ? How are they formed and classified ?
  - (b) Write a detailed note on the depletion of ground water in our country.
  - (c) What are seismic waves ? Describe the origin, characteristics of seismic waves.
  - (d) Discuss how seismic study will help us to understand the seismicity of the region.
  - (e) Write a note on the development of geophysics in our country.
  - (f) Describe with neat sketches the various types of landslides.
  - (g) What are the various causes of landslides ? Also write their preventive measures.

## SECTION – C

Question No. 3 to 7 has **three** parts each. Attempt any **two** parts from each question.

**5 × 5 = 25**

3. (a) What are deleterious minerals in rocks ?  
(b) Discuss the causes and impact of chemical reactions in construction rock/concrete aggregates in major civil engineering works.  
(c) What are the standard guidelines suggested by the experts in investigating the site for dam or reservoir ?
4. (a) Describe various methods used in investigating sites for bridges and highways.  
(b) Describe the various geophysical explorations methods for sub surface structures. Discuss in detail any one of them.  
(c) What are folds ? How are they formed ?
5. (a) Write short notes on  
(i) Dome and Basin  
(ii) Syncline and Anticline  
(b) Distinguish between aquifer and aquicludes.  
(c) Describe the properties and requirements of quality road metal.
6. (a) What are joints ? Briefly classify the various types of joints.  
(b) Enumerate the requirements of stones utilized for railway ballast.  
(c) Discuss in detail how flexibility of buildings affects their earthquake response.
7. (a) Write a short note on pazzolonic materials.  
(b) Describe seismic zoning pattern in India.  
(c) Enumerate the salient features of rock behaviour.