

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

**SECTION – A**

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