

Code No: 09A50103

R09

Set No. 2

**III B.Tech I Semester Examinations, December 2011
ENGINEERING GEOLOGY
Civil Engineering**

Time: 3 hours

Max Marks: 75

**Answer any FIVE Questions
All Questions carry equal marks**

1. Give a brief account of applied importance of Geology in the fields of metallurgy, mining, ground water investigation etc, apart from civil engineering. [15]
2. Define a rock. How are the rocks classified? Where do they occur? What do you know about the shell structure of the earth? [15]
3. Give an account of various indirect causes for the occurrence of landslides. [15]
4. Write short notes on:
 - (a) Mohr's scale of hardness
 - (b) Cleavage sets
 - (c) Cleavage angle. [15]
5. Write short notes on:
 - (a) Foot wall and Hanging wall
 - (b) Heave and throw
 - (c) Transverse and rotational faults. [15]
6. For success, what is the role of strike and dip associating with sedimentary rocks at dam site. Explain with suitable sketches. [15]
7. What are seismic methods of prospecting? Explain its principle with a neat sketch. What are its uses? [15]
8. What is meant by lining in tunnels? Discuss the lithological and structural reasons that necessitate lining. [15]

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Set No. 4

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Time: 3 hours

Max Marks: 75

Answer any FIVE Questions
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1. (a) What is the importance of geophysical anomaly?
(b) With suitable sketches explain how geophysical anomalies reveal subsurface lithology, ore bodies or salt domes. [4+11]
2. Write short notes on:
(a) Groups of minerals
(b) Polymorphism
(c) Isomorphism. [5+5+5]
3. River is the most important geological agent, why? What are the limitations of other geological agents like wind, glacial and ocean? [15]
4. What are joints? How they differ from cracks in rocks? Compare joints and faults. Why joints are less harmful than faults from civil engineering point of view? Which types of joints occur commonly in igneous rocks. [15]
5. (a) What are Tectonic earthquakes? What is their importance?
(b) With a suitable sketch explain "Elastic Rebound Hypothesis". [8+7]
6. Discuss the suitability of occurrence of following rocks at dam site:
(a) Limestones
(b) Laterites
(c) Basalts. [15]
7. With the geological background you have discuss the suitability or unsuitability of common igneous, sedimentary and metamorphic rocks for tunnelling. [15]
8. What are metamorphic rocks? Why and how do they form? What are the characters of metamorphic rocks? [15]

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1. (a) What is the importance of porosity and permeability with reference to ground water?
(b) Give an account of classification of rocks based on porosity and permeability quoting suitable rock examples. [4+11]
2. (a) What is General Geophysics? How it differs from Exploration Geophysics?
(b) Explain the necessity of geophysical investigations.
(c) What is the importance of geophysical investigations? [4+5+6]
3. Give an account of three fold geological classification of rocks. [15]
4. What is the role of ground water in the success of tunnelling. Explain the bearing of lithology and structure in this context. [15]
5. (a) What is the importance of faults with reference to slope stability?
(b) What is the importance of alignment of tunnels along or across the strike direction of faults? [7+8]
6. Discuss the reasons for the predominant occurrence of quartz as sand and rare occurrence of feldspars as sand. [15]
7. (a) What are "Reservoirs"? What are the requirements for a successful reservoir?
(b) Halesbar dam was considered as a failure, though it was stable. Why?
(c) What is the nature of evaporational losses at a reservoir. [6+5+4]
8. Explain the consequences of disintegration and decomposition of rocks. How they deteriorate the virtues of rocks from civil engineering point of view? [15]

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Set No. 3

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Civil Engineering

Time: 3 hours

Max Marks: 75

Answer any FIVE Questions
All Questions carry equal marks

1. Write short notes on:
 - (a) Exfoliation of rocks
 - (b) Frost wedging in rocks. [8+7]
2. How are the folds classified based on symmetrical character, upward or downward bend, plunge and uniformity of thickness. Draw suitable sketches. [15]
3. (a) What are tunnels?
 - (b) What are the different purposes for which they are made?
 - (c) Explain how tunnels differ from dams and reservoirs from construction point of view. [2+7+6]
4. (a) With suitable sketches explain the importance of occurrence of folds at dam site.
 - (b) Describe the geological requirements at dam site for arch dam. [9+6]
5. Write short notes on:
 - (a) Perched water
 - (b) Unconfined ground water
 - (c) Soil water. [15]
6. How do you distinguish the following pairs of minerals based on their physical properties:
 - (a) Magnetite and Magnesite
 - (b) Olivine and Feldspars
 - (c) Talc and Biotite. [15]
7. How do you carry out geophysical physical investigation in ground water prospecting? Add a note on interpretation. [15]
8. Give an account of classification of sedimentary rocks? [15]
