

III B.Tech I Semester Regular Examinations, November 2005
ENGINEERING GEOLOGY
(Civil Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. (a) What is meant by “meandering of a river”?
(b) Explain the development of a meander with neat sketches. [4+12]
2. (a) What are the requirements to be fulfilled by a Mineral.
(b) Discuss the characteristics of crystal.
(c) What are the common rock forming minerals. [6+6+4]
3. Briefly describe the classifications of igneous rocks based on silica percentage, silica saturation and depth of formation. Quote suitable examples. [4+4+4+4]
4. Compare and contrast the following pairs:
(a) Lava and Magma
(b) Sills and Dykes
(c) Plutonic and Volcanic rocks. [5 $\frac{1}{3}$ x3=16]
5. Describe with illustrations the different **parts of faults**. Describe Horst Graben, step, bedding faults. [4+4+4+4]
6. (a) Write an essay on the **Geological time scale**.
(b) Explain the principles of stratigraphy. [8+8]
7. Write Short Notes on:
(a) Seismic Zones in India
(b) Safety Factor in Seismic Areas
(c) Magnitude of Earthquakes
(d) Intensity of Earthquakes [4x4=16]
8. Write Short Notes on :
(a) Different purposes of tunnels
(b) Tunnels faulted strata
(c) Tunnels in folded strata. [5 $\frac{1}{3}$ x3=16]

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1. (a) Write short notes on:
 - i. Cavitation
 - ii. Corrasion
 - iii. Corrosion
 as applied to weathering of rocks.
 (b) What are the factors make river more effective geological agent. Explain. [9+7]
2. (a) Write short notes on the following:
 - i. Isomorphism and Pseudomorphism. [2+2]
 - ii. Effect of Weathering on physical properties of minerals. [4]
 (b) What are undesirable mineral from CIVIL Engineering point of view, why? [8]
3. Describe the common structures/textures found in metamorphic rocks. Draw simple sketches. [16]
4. "Shales, Schists and Lime stones are in general unsuitable from civil engineering point of view" - Explain why? [5 $\frac{1}{3}$ x3=16]
5. Explain the following terms with neat sketches.
 - (a) Limbs, Axial plane , Axis, Crest and Trough of folds
 - (b) Fault plane , Foot wall , Hanging wall , Throw and Heave
 - (c) Joint plane ,Dip of joints and Strike of joints
 - (d) Conformable beds and unconformable beds . [4x4=16]
6. (a) Write an essay on the **Geological time scale**.
 (b) Explain the principles of stratigraphy. [8+8]
7. What are Landslides? Describe the Causes and effects of Landslides. Add a note on their preventative measures.. [2+6+8]
8. Write Short Notes on :
 - (a) Different purposes of tunnels
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1. (a) Explain the terms weathering, erosion and denudation. [4]
(b) Write short notes on:
 - i. exfoliation
 - ii. frost WEDGING. [6+6]
2. Differentiate the following:
 - (a) Mineral and rock
 - (b) Colour and Streak of Mineral
 - (c) Cleavage and Fracture
 - (d) Hardness and Density of Mineral. [4x4=16]
3. Write short notes on the following:
 - (a) Graphic texture
 - (b) Porphyritic texture
 - (c) Progressive metamorphism
 - (d) Ripple marks. [4x4=16]
4. Compare and contrast the following pairs of igneous rocks:
 - (a) Granite and Pegmatite
 - (b) Granite and Basalt
 - (c) Charnockite and Dolerite. [5 $\frac{1}{3}$ x3=16]
5. Describe the various **types of folds** with neat sketches. [16]
6. Describe the chief Geological divisions of India with reference to Physiographic, Stratigraphic and structural features. [16]
7. Describe the Groundwater Exploration? [16]
8. What are the Geological Considerations necessary in the selection of a Dam Site? [16]

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1. (a) Explain the terms weathering, erosion and denudation. [4]
(b) Write short notes on:
 - i. exfoliation
 - ii. frost WEDGING. [6+6]
2. (a) Discuss briefly on mode of formation of Minerals.
(b) Define the following:
 - i. Isomorphism
 - ii. Polymorphism
 - iii. Pseudomorphism. [7+9]
3. Write short notes on the following:
 - (a) Fossils
 - (b) Fault breccia
 - (c) Index minerals(metamorphism)
 - (d) Distinguishing the common types of cementing material in sandstones.[4x4=16]
4. Compare and contrast the following pairs of sedimentary rocks.
 - (a) Sandstone and Shale
 - (b) Shale and Limestone
 - (c) Conglomerate and Breccia. [5 $\frac{1}{3}$ x3=16]
5. Describe the different types of **unconformities** encountered in the structural Geology? Draw neat sketches. [16]
6. (a) Write an essay on the **Geological time scale**.
(b) Explain the principles of stratigraphy. [8+8]
7. Define the term Earthquake. Describe the different types of Seismic Waves, Describe isoseismals and coseismals [2+8+3+3]
8. Write Short Notes on :
 - (a) Different purposes of tunnels
 - (b) Tunnels faulted strata

(c) Tunnels in folded strata.

$[5\frac{1}{3} \times 3 = 16]$
