

Total No. of Questions—6]

[Total No. of Printed Pages—4 + 2 Designs Attached

[4062]-104

S.E. (Civil Engg.) (I Sem.) EXAMINATION, 2011

ENGINEERING GEOLOGY

(2008 PATTERN)

Time : Three Hours

Maximum Marks : 100

N.B. :— (i) Answers to the two Sections should be written in separate answer-books.

(ii) Neat diagrams must be drawn wherever necessary.

(iii) Figures to the right indicate full marks.

(iv) Assume suitable data, if necessary.

SECTION I

1. (a) Explain the process of formation of Laterite and Bauxite. [5]
(b) Describe the Hardness and Cleavage physical properties of minerals. [6]
(c) Explain the process of decomposition of rocks in detail. [5]

Or

- (a) How does variation in length of transportation lead to the development of the secondary rocks ? Explain in detail. [8]
(b) Write a note on Gneissose and Schistose. [4]
(c) Write on Primary and Secondary Minerals. [4]

P.T.O.

2. Write on the following :

- (a) Stages of rivers. [6]
- (b) Field characters of Deccan Trap Basalt. [6]
- (c) Vindhyan building stone. [4]

Or

- (a) Write on graded profile and base level of erosion. [4]
- (b) Write on utility of remote sensing techniques in Civil Engg. [4]
- (c) Write a comparative account of Peninsular and Extra Peninsular divisions of India. [8]

- 3.**
- (a) How are rocks folded ? Describe various parts and different types of fold with neat sketches. [12]
 - (b) Describe various types of unconformities with neat sketches. [6]

Or

- (a) Write on orogenic and epierogenic processes. [4]
- (b) What different features are developed due to tensional type of tectonic forces ? Explain with suitable examples and diagrams. [10]
- (c) Explain Sill and Phaccolith as Igneous Intrusions. [4]

SECTION II

4. (a) What observations and precautions are necessary during drilling ? [8]
- (b) Describe in detail geological activity of groundwater. [8]

Or

- (a) Discuss in detail drilling as a method of subsurface geological exploration. Give its limitations. [10]
- (b) Write a note on confined aquifer and perched aquifer. [6]
5. (a) What are Landslides ? Discuss the factors responsible for landslide in Konkan region. [8]
- (b) Write a note on any *four* Indian Building Stones. [8]

Or

- (a) What are Earthquakes ? What are the Hazards associated with the Earthquake ? [8]
- (b) Discuss engineering characteristic of varieties of Deccan Trap Basalt. [8]

6. Geological Investigation for a tunnel project was carried out. The following data is made available by the site geologists. Based on the information provided give your comments and discuss suitability of alignment $x-y$ for a tunnel or road along contour 360 m from x to y . (as shown in Fig. 1)

Description of Lithology :

Bed A — Unjointed Sandstone

Bed B — Unjointed Limestone

Bed C — Jointed Shelly Limestone

Bed D — Calcareous Shell (Joints are dipping towards south with 25° dip amount)

Bed E — Jointed Sandstone (2 sets joints at perpendicular)

Doleritic dyke shows sharp contact with adjacent rock with 3 sets of joints at 90°. Joints are found to be leaky. [18]

Or

Subsufacial investigations have revealed the following description of rocks :

Bed B — 2 sets of joints roughly at 75° composition of bed is Sandstone with shale laminations

Bed C — Unjointed Porous Limestone

Bed N — Unjointed Siliceous Sandstone

Bed O — Unjointed Dolomitic Limestone

Bed P — Thin Laminated Shale

Bed Q — Jointed Calcareous Sandstone

From the given data discuss the suitability of Dam along x to y (Fig. 2). [18]

