Total No. of Questions—6] [Total No. of Printed Pages—4

[3662]-104

S.E. (Civil) (I Sem.) EXAMINATION, 2009

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.

SECTION I

1. (*a*) Classify Igneous rocks on the basic of mode of occurrence, mineral composition and percentage of SiO_2. [8]

(*b*) Describe Rock Weathering. [8]

Or

(*a*) Explain Mineralogical, textural and structural changes during formation of slate, schist and gneiss. [8]

(*b*) Write a note on primary and secondary minerals by giving examples. [6]

(*c*) Write a short note on accessory minerals. [2]

2. (*a*) Describe river rejuvenation and land forms resulted by the rejuvenation. [10]

(*b*) Describe general principles of stratigraphy. [6]

P.T.O.

Or

(*a*) Describe Land forms resulted by River deposition. [4]

(*b*) Write a note on Physiographic divisions of India. [4]

(*c*) Write a note on Orogenic and Epeirogenic mountains. [4]

(*d*) Distinguish between joint and fracture. [4]

3. (*a*) Explain with neat sketches different types of folds. How fold passes into fault ? [10]

(*b*) Write a detailed note on Concordant and Discordant Igneous Intrusions. [8]

Or

(*a*) Define a fault. Describe different types with neat sketches. [12]

(*b*) Describe conformable series and unconformity. [6]

SECTION II

4. (*a*) "GIS is an important tool for Civil engineering project." Discuss in brief. [5]

(*b*) Explain in brief Preliminary Geological Investigation using :

Remote sensing,

Surface survey and

Sub-surface survey. [13]

Or

(*a*) Discuss drilling activity using the following aspects :

(1) Coring and indexing of cores

(2) Observations during drilling

(3) Preservation of cores

(4) Limitations of drilling

(5) Angle holes. [12]

(*b*) What is the significance of a joints and fractures pertaining to a tunnel and a percolation tank ? [6]

5. (*a*) The following rocks are to choose for Railway ballast, Temple foundation of a dam. Choose the most suitable amongst them :

(1) Vindhyan sandstone

(2) Compact aphanitic basalt

(3) Makarana Marble.

[Distance from the source is not the criteria under consideration.] [8]

(*b*) Describe in detail the geological activity of ground water. [8]

Or

What are the mass movements ? What are the reasons of mass movements ? Classify the mass movements. Discuss the preventive measures to deal with landslides. [16]

6. Describe with justification the following conditions : [16]

(*a*) The fault zone crossing a dam alignment and the necessary treatment to be given.

(*b*) Porous and permeable foundation material for dam.

(*c*) Occurrence of joints and fractures in a tunnel through Deccan Trap basalt.

Or

(*a*) In the surface and sub-surface investigations for a tunnel project, the following observations were noted :

(*i*) Tunnel alignment is East-West.

(*ii*) The hill is cut by numerous joints.

(*iii*) Joints have strike NE-SW.

(*iv*) Joints are persistent and open for considerable length along tunnel alignment.

(*v*) Presence of columnar basalt in the crown section of the tunnel.

Discuss the suitability of the projects with merits and demerits of the proposal. [8]

(*b*) For two different dam projects schists and slates are observed as a foundation material. Discuss the difficulties faced during the projects. Both of these rocks show moderate to highly weathered profiles on surface. [8]