(12)

207009

Seat No.	

S.E. (Civil) (Semester – I) Examination, 2014
ENGINEERING GEOLOGY
(2008 Course)

Time : 3 Hours Max. Marks : 100

Instructions : *1) Answers to the **two** Sections should be written in **separate** answer book.*
*2) Answer **any three** questions from **each** Section.*
*3) **Neat** diagrams must be drawn **wherever** necessary.*
*4) Figures to the **right** side indicate **full** marks.*
*5) **Use** of calculator is **allowed**.*
*6) Assume suitable data **if** necessary.*

SECTION – I

1. a) Describe the following : **8**
   i) Textures of Igneous rocks
   ii) Intrusive Igneous Rocks.

   b) Discuss the following : **8**
   i) Agents of metamorphism
   ii) Rock forming minerals.

   OR

2. b) Write in brief with suitable diagram **8**
   i) Weight percent and Volume percent of Rocks in the crust of the earth
   ii) Rock cycle.

   b) Explain in brief with suitable examples and diagram **8**
   i) Grain size classification of sedimentary rocks
   ii) Flow chart showing steps involved in the formation of sedimentary rock.

3. a) Which type of rock will develop karst topography ? Explain role of groundwater in the development of karst topography. What are features associated with karst topography ? **8**

   b) What is an unconformity ? Describe various types of unconformities with neat sketches. **8**

   OR

P.T.O.

4. a) Explain Gondwana rocks in terms of their distribution, age, climate variation, mineral resources in them. 8

   b) What are the different causes of river rejuvenation ? Explain in brief different features associated with river rejuvenation. 8

5. a) What are folds ? What are the parts of fold ? Draw and explain major types of folds. How anticlines are recognized in the field from synclines ? 12

   b) Distinguish between dyke and batholith using neat sketches. 6

OR

6. a) What are Normal Fault, Reverse Fault and Thrust ? Explain with suitable diagrams. 12

   b) Describe geometrical classification of joints with suitable sketches. 6

SECTION – II

7. a) Write a note on : 8
   i) Preservation of cores of tachylitic basalts.
   ii) Loss of drilling mud.

   b) Describe in brief : 8
   i) Angle hole
   ii) Application of Remote sensing techniques in engineering projects.

OR

8. a) Write a note on water bearing characters of Deccan Trap Basalts. 8

   b) Write a note on subsurface exploration method. 8

9. a) What are the landslides ? How to classify the various mass movements ? 8

   b) Explain how weathering and textural variation affect the durability of dimension stones with suitable example. 8

OR

10. a) Explain how earthquake waves are used to understand the internal structure of the earth. 6

    b) Discuss the various measures to prevent the landslide along the Western Escarpment of Deccan Trap. 6

    c) What are different earthquake hazards ? 4

11. a) What are the geological constraints for a tunnel to be constructed in a terrain with following geological data : Folded rocks with interlimb angle of 30° to 33°, tunnel passes through crest and limb of a fold. The bed through which the tunnel passes is a quartzite. **8**

b) Explain the feasibility of dam in following conditions **10**

i) Catchment area has dip-slope conditions with one of the slope towards catchment.

ii) Dam axis passes through a percolating dyke

iii) Bed rock is faulted with a wide fault zone

iv) Beds are dipping in the downstream direction.

OR

12. a) Discuss the suitability of tunnel in following geological conditions. To make a safe and stable portal what preventive measures are required in these conditions ?

i) Slightly to moderately weathered compact aphanitic basalt with moderately spaced 2 sets of joints, one parallel to axis of tunnel and other being oblique to it. **12**

ii) Fresh Amygdaloidal basalt,

iii) Volcanic breccia.

b) Compare the geological conditions required for a dam and a percolation tank. **6**
