

(3Hours)

Total Marks :80

- N.B. (1) Question No. 1 is compulsory. QP-10067045
(2) Attempt any three questions form remaining five questions.
(3) Draw neat sketches wherever necessary.
(4) Figures to the right indicate full marks.
(5) Answer each and every question combined manner in order.
1. (a) Write the identifying properties of the following minerals. 5
(i) Talc
(ii) Smoky Quartz
(iii) Gypsum
(iv) Hematite
(v) Biotite Mica
- (b) Write two examples of the following 5
(i) Clastic Sedimentary rock
(ii) Igneous Intrusion
(iii) Inequigranular Texture
(iv) Luster of the Mineral
(v) Metamorphic Rock
- (c) Draw the labeled diagram 10
(i) Parts of the Fold
(ii) Normal Fault
(iii) Perched water table
(iv) Angular unconformity
(v) Parts of Dam
2. (a) Describe various types of weathering with examples. Explain the 10
significance of weathering.
(b) Explain the geological action of wind with different landforms. 10
3. (a) State the different types of classification of igneous rock. Explain 10
the importance of any two igneous rock.
(b) Explain major structures of Sedimentary rock with diagram. 10
4. (a) Explain the factors of metamorphism and the type of 10
metamorphism associated with each factor ?
(b) Differentiate between Horst and Gräben. 4
(c) A coal seam is exposed on a level ground. It dips northward. Its 6
width of outcrop is 180m. A borehole sunk from its upper bedding
plane touches the lower bedding plane at a depth of 105m.
Determine its true thickness and amount of inclination. (Scale
1cm = 50 m)

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- 5 (a) Write short notes on (any 2) 10
 (i) Types of plate boundaries
 (ii) Meander and Oxbow Lake
 (iii) Confined aquifer
 (iv) Suitable Geological Structures for Dam construction
 (v) Principles of stratigraphy

(b) Classify the rocks according to Geomechanics classification for a Rock having UCS of 180 Mpa and RQD of 65 % with average spacing of discontinuity of 1000 mm which is slightly rough in nature and highly weathered. The strike is perpendicular to the tunnel axis and drive with dips at an angle of 35° . Also 8 lit/min groundwater inflows the tunnel length per 10 m. State the condition of rocks for tunnel construction. (Note: Table containing RMR parameters should be provided to solve the question). 10

6. (a) State precautionary measures in earthquake prone area while construction of a building. 5
 (b) What is central and fissure type of eruption? 5

(c) What is Run, core recovery and RQD? Calculate the value of Core Recovery and RQD from the following data. Mention your opinion. 10
 Total Run = 2 m.

Sr.No.	Length of core sample (in cm)	Nature of joints at lower end of core sample
1	9	N
2	11	N
3	8	N
4	9	M
5	12	N
6	7	M
7	20	N
8	5	N
9	8	M
10	6	N
11	40	N
12	30	N
13	5	N
14	3	M
15	9	N

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