

IM.Sc. App. Geo Sem.-6 Examination

AGL-308

Engineering Geology

April-2025

Time : 2-30 Hours]

[Max. Marks : 70

QUESTION – 1 Write the following

(14)

(I) What is engineering geology, and how does geology have a significant role in planning and design man-made structure.

OR

(II) Write down the importance of site investigation and highlight the objective and goals for site investigation.

(III) (i) Discuss the key components of site investigation and common challenges and how to overcome those challenges

OR

(IV) (ii) What are the causes and contributing factors of earthquakes, and what corrective and preventive measures can be taken to mitigate the damage they cause?

QUESTION –2 Write the following

(14)

Discuss any one of the following foundation treatment methods. Also, outline the need for foundation treatment.

(I) Cable anchorage and shotcrete or guniting

OR

(II) Rock Bolting

(I) Discuss grouting support mechanism method. Also write down the types of grouting and grout. Mention the methods and application of grouting.

OR

(ii) What are the rock aggregates and write down their significance as construction material.

QUESTION – 3 Write the following

(14)

(I) What is the Rock Mass Classification. Write down the functions and objective of this classification system.

OR

(II) What is the Rock Load Classification. Write down parameters for Rock Mass Classification.

(I) Define the rock mass parameter Rock Quality Designation (RQD), Rock Mass Rating (RMR) System and Rock Structure Rating (RSR) of the rock mass classification.

(P.T.O)

OR (II) Write down the Geological, Geotechnical and Environmental considerations for Dams and Reservoirs.	
QUESTION – 4 Write the following	(14)
(I) What are the Tunnels and types of tunnels. Also write down the advantages of tunneling OR (II) What are tunnel lining and types of tunnel lining. Write down the different shapes of tunnels and their use.	
(III) Write down the different types of Landslides. Mention the causes for the landslide and give any Indian example of landslide. OR (IV) Write down the factor and preventive measures that should to be taken for the Landslides.	
QUESTION –5* Attempt any seven out of twelve.	(14)
* MCQ /Short question (One or Two line answer)/Fill in the blanks/TrueorFalse etc.	
(i) Which geological boundary associated with the most destructive earthquakes	
(ii) Calculate the RQD of the core sample of total size 300cm with the intact pieces 15 cm, 25cm, 5cm, 30cm and 40cm.	
(iii) Which of the following is NOT one of the six basic parameters used in the RMR system?	
A) Uniaxial compressive strength of intact rock	
B) Rock Quality Designation (RQD)	
C) Mineral composition	
D) Groundwater conditions	
(iv) How is the RMR value determined?	
A) By averaging the values of all parameters	
B) By summing the values of the six basic parameters	
C) By multiplying the values of the parameters	
D) By selecting the highest parameter value	
(v) In the RMR system, what does the term "discontinuity" refer to?	
A) The chemical properties of the rock	
B) The physical breaks or separations in the rock mass	
C) The age of the rock	

(vi) Which factors are considered in the RSR system?

- A) Only geological parameters
- B) Only construction parameters
- C) Both geological and construction parameters
- D) Environmental parameters only

(vii) Which is the unstable dip and strike setting for the dam construction.

- A) Horizontal beds
- B) Vertical beds
- C) Dipping upstream
- D) Dipping downstream

(viii) Write an example of earth dam. _____

(ix) Write down the different types of dams.

(x) Which tectonic plate margin accounts for most the earthquake occurs on earth.

(xi) Briefly explain Wadati-Benioff zone.

(xii) Write down the factors influencing crushing strength of a rock.
