

B.E. / B.Tech. - DEGREE EXAMINATIONS, NOV / DEC 2024

Third Semester

Civil Engineering**20CEPC305 - ENGINEERING GEOLOGY**

Regulations - 2020

Duration: 3 Hours

Max. Marks: 100

PART - A (MCQ) (20 × 1 = 20 Marks)

Answer ALL Questions

	Marks	K-Level	CO
1. The major component in chemical composition of Atmosphere is _____. (a) Nitrogen (b) Oxygen (c) Argon (d) Carbon dioxide	1	K2	CO1
2. In erosion process _____ is similar to a hammer chipping the rock. (a) Hydraulic action (b) Abrasion (c) Solution (d) Attrition	1	K2	CO1
3. Sea water trapped in process of rocks called as _____. (a) Meteoric water (b) Connate water (c) Rain water (d) Sea water	1	K2	CO1
4. When the broken surface of a mineral is smooth, the fracture is _____. (a) Even (b) uneven (c) Conchoidal (d) Earthy	1	K2	CO2
5. Gypsum streak is in _____ colour. (a) Black (b) white (c) Yellow (d) Red	1	K2	CO2
6. Hornblende group of minerals is present in _____. (a) Acidic Igneous rock (b) Base Igneous rock (c) Acidic Sedimentary rock (d) Base Sedimentary rock	1	K2	CO2
7. Sandstone is an example of _____. (a) Non-foliated rock (b) Sedimentary rock (c) Igneous rock (d) Metamorphic rock	1	K2	CO3
8. Which of the following is NOT a metamorphic rock? (a) Marble (b) Sandstone (c) Quartzite (d) Slate	1	K2	CO3
9. Which type of rock can be considered as a biological sedimentary rock? (a) Bauxite (b) Marble (c) Granite (d) Limestone	1	K2	CO3
10. What is fault in geology? (a) A break in the Earths crust where rocks have moved (b) A layer of sedimentary rock (c) A type of mineral deposit (d) A volcanic eruption	1	K1	CO4
11. Which of the following terms refers to the point where a fold bends? (a) Hinge line (b) Limb (c) Axis (d) Thrust	1	K1	CO4
12. What does the "Q" in the Q – system stand for? (a) quality (b) Quantity (c) Quartz (d) Quarried	1	K1	CO4
13. What is the primary purpose of a reconnaissance surface investigation? (a) To determine soil fertility (b) To assess geological hazards (c) To gather preliminary information about the geology of an area (d) To conduct detailed laboratory analysis	1	K1	CO5
14. Which of the following platforms is NOT typically used for remote sensing? (a) Satellites (b) Airplanes (c) Drones (d) Ground-based sensors	1	K1	CO5
15. What is the primary purpose of a borehole in geology? (a) To collect surface samples (b) To obtain subsurface geological information (c) To map geological features (d) To measure ground water levels.	1	K1	CO5

- | | | | |
|--|---|----|-----|
| 16. What does RMR stand for in geological engineering? | 1 | K1 | CO5 |
| (a) Rock Mass Resistance | | | |
| (b) Rock Mass Rating | | | |
| (c) Rock Material Report | | | |
| (d) Rock Material Rating | | | |
| 17. Which rock type is considered the best foundation material for constructing dam? | 1 | K1 | CO6 |
| (a) Sandstone | | | |
| (b) Granite | | | |
| (c) Shale | | | |
| (d) Limestone | | | |
| 18. Which seismic zone in India is considered the most vulnerable to earthquakes? | 1 | K2 | CO6 |
| (a) Zone II | | | |
| (b) Zone III | | | |
| (c) Zone IV | | | |
| (d) Zone V | | | |
| 19. What type of slope failure is most common in road cuttings? | 1 | K1 | CO6 |
| (a) Rotational slide | | | |
| (b) Rockfall | | | |
| (c) Creep | | | |
| (d) Debris flow | | | |
| 20. A major geological hazard associated with tunneling in mountainous areas is: | 1 | K2 | CO6 |
| (a) Flooding | | | |
| (b) Landslides | | | |
| (c) Soil erosion | | | |
| (d) Desertification | | | |

PART - B (10 × 2 = 20 Marks)

Answer ALL Questions

- | | | | |
|---|---|----|-----|
| 21. Outline the significance of geology in Civil Engineering. | 2 | K2 | CO1 |
| 22. What do you understand by Geomorphology? | 2 | K1 | CO1 |
| 23. List any two chemical properties of minerals. | 2 | K2 | CO2 |
| 24. Write short note on luster and streak of Pyroxene group of minerals. | 2 | K2 | CO2 |
| 25. Compare Hard and Soft rocks. | 2 | K2 | CO3 |
| 26. Summarize any two properties of slate. | 2 | K2 | CO3 |
| 27. What do you understand by GSI? | 2 | K1 | CO4 |
| 28. Differentiate physical and chemical weathering. | 2 | K2 | CO4 |
| 29. List the various factors to be considered in construction of tunnels. | 2 | K2 | CO5 |
| 30. Define Tunneling. | 2 | K2 | CO6 |

PART - C (6 × 10 = 60 Marks)

Answer ALL Questions

- | | | | |
|---|----|----|-----|
| 31. a) Explain internal structure of Earth with neat sketch. | 10 | K2 | CO1 |
| OR | | | |
| b) Explain the geologic process in coastal and desert regions. | 10 | K2 | CO1 |
| 32. a) Describe the physical properties of any two minerals in detail. | 10 | K2 | CO2 |
| OR | | | |
| b) Summarize Quartz and Feldspar group of minerals in detail. | 10 | K2 | CO2 |
| 33. a) Explain the origin, classification, texture, structure of Igneous rocks. | 10 | K2 | CO3 |
| OR | | | |
| b) Explain the origin, classification, texture, structure of Metamorphic rocks. | 10 | K2 | CO3 |
| 34. a) Explain faults in rock in detail. | 10 | K2 | CO4 |
| OR | | | |
| b) Explain folds in rock in detail. | 10 | K2 | CO4 |
| 35. a) Summarize Geophysical method of subsurface investigation. | 10 | K2 | CO5 |
| OR | | | |
| b) Describe the types of field survey for geological mapping. | 10 | K2 | CO5 |
| 36. a) Discuss the various coastal protection methods. | 10 | K2 | CO6 |
| OR | | | |
| b) Explain Tsunami with a case study. | 10 | K2 | CO6 |