UNIT 1

1. Define mineralogy.
2. Define hexagonal, isometric, tetragonal, orthorhombic, triclinic, monoclinic system of crystals.
3. Write the physical properties of mica.
4. Define mineral.
5. What are the different physical properties of minerals?
6. Give the physical properties and uses of quartz, augite.
7. What is moh's scale of hardness?
8. Give the physical properties and uses of hornblende, biotite.
9. Name at least 4 clay minerals and their important engineering properties.
10. Give the physical properties of muscovite, calcite.
11. Define ore minerals.
12. Define isometric system of crystals.
13. Define tetragonal system of crystals.
14. Define orthorhombic system of crystals.
15. Define triclinic system of crystals.
16. Define monoclinic system of crystals.
17. Define colour.
18. Define lusture.
19. Define form,streak.
20. Define hardness, fracture and specific gravity.
21. Elaborate the various physical properties which help in identification of minerals.
22. Explain the physical properties of Feldspar group of minerals.
23. Explain the physical properties of Quartz group of minerals.
24. Explain the physical properties of Augite, hornblende.
25. Explain the physical properties of Mica group of minerals.
26. Give a detailed account on chemical composition, physical properties, origin, occurrence, engineering behaviour and uses of clay minerals.
27. Explain the physical properties biotite, calcite.

ASSIGNMENT

1. What are the different physical properties of minerals?
2. Give the physical properties and uses of quartz, augite.
3. What is moh's scale of hardness?

4. Give the physical properties and uses of hornblende, biotite.
5. Name at least 4 clay minerals and their important engineering properties.
6.Give the physical properties of muscovite, calcite.
7. Explain the physical properties of Quartz group of minerals.
8. Explain the physical properties of Augite, hornblende.
9. Explain the physical properties of Mica group of minerals.
10. Give a detailed account on chemical composition, physical properties, origin, occurrence, engineering behaviour and uses of clay minerals.
11. Define hardness, fracture and specific gravity.
12. Elaborate the various physical properties which help in identification of minerals.

UNIT 2

1. Define petrology.
2. Write the classification of petrology.
3. What are metamorphic rocks?
4. What are igneous rocks?
5. What are sedimentary rocks?
6. Write about the occurrence of granite.
7. Write about the occurrence of basalt.
8. Classify igneous rocks.
9. Classify metamorphic rocks.
10. Write the composition uses of shale, slate and marble.
11. Write about the structure of igneous rocks.

12. Write about the occurrence of sandstone.

13. What are the factors controlling the specific gravity, porosity and strength of rocks?

14. List out the tests to be carried out to determine the strength of building stones.

15. What is black granite? List its uses.

16. Bring out the differences between granite and slate.

17. What is ductility of rocks?

18. Describe the uses of black granite.

19. How igneous rocks are classified according to their occurrences?

20. What is ductility of rocks?

21. What are sedimentary rocks? Explain the properties of any 4 sedimentary rocks.

22. What are metamorphic rocks? Explain the properties of any 4 metamorphic rocks.

23. What are igneous rocks? Explain the properties of any 4 igneous rocks.

24. Describe the engineering properties of rocks.

25. Describe the different types of rocks. Give the classification, texture and structure of igneous, sedimentary and metamorphic rocks.

26. List the various field and laboratory tests to determine the engineering properties of rocks.

27. Describe in detail about the mineral composition, structure, texture, origin, engineering properties and uses of basalt, dolerite, sandstone and slate.

28. Describe the composition, texture, characteristics, occurrence and uses of black granite and basalt

29. Describe the composition, texture, characteristics, occurrence and uses of limestone and slate. Describe the engineering properties of igneous rocks.

ASSIGNMENT

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2. What are metamorphic rocks? Explain the properties of any 4 metamorphic rocks.

3. What are igneous rocks? Explain the properties of any 4 igneous rocks.

4. Describe the engineering properties of rocks.

5. Describe the different types of rocks. Give the classification, texture and structure of igneous, sedimentary and metamorphic rocks.

6. List the various field and laboratory tests to determine the engineering properties of rocks.

7. Describe in detail about the mineral composition, structure, textur Write about the structure of igneous rocks.

8. Write about the occurrence of sandstone.

9. What are the factors controlling the specific gravity, porosity and strength of rocks?

10. List out the tests to be carried out to determine the strength of building stones.

UNIT 3

1. Define engineering geology.
2. Describe briefly the layers of interior of earth.
3. Define weathering.
4. What is physical weathering?
5. What is chemical weathering?
6. What is spheroidal weathering?
7. Define mohorovicic and Guttenburg discontinuity.
8. What is Unconformity?
9. What are the types of unconformity?
10. Explain the causes of folding and faulting.
11. Explain Lamination, Stratification and Cross Beddings
12. Define fault. Describe various parts and types of fault with neat sketches.
14. Discuss affects of faulting in relation to various civil engineering works.
15. What are landslides? Describe various types of lanslides.
16. How are landslides caused? Describe various types of landslides and suggest remedial measures.

17. Explain with the help of neat sketches, principal types of faults as recognized on the basis of (i) apparent movement (ii) mode of occurrence
18. Write a brief note on Joints in rocks, their causes and effects on the engineering quality of rocks.
19. What are broadly accepted causes of faulting of rocks?
20. Give an outline of classification of folds.

ASSIGNMENT

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UNIT 4

1. Define plate tectonics.
2. Define exfoliation.
3. Differentiate between water table and perched water table.
4. Define aquifer and mention its types.

5. What is meant by subduction zone? Mention its importance.
6. Differentiate aquifer and aquiclude.
7. Write about Mercalli scale.
8. Describe the interior of the earth.
9. Define confined aquifer.
10. Define unconfined aquifer.
11. Mention the seismic zones of India.
12. Write in detail about the structure of the earth and its composition with a neat diagram.
13. Give an account on mode of occurrence and prospecting of ground water.
14. Describe in detail about plate tectonics.
15. Explain in detail about weathering of rocks and its engineering importance.
16.Explain in detail about the earthquake belts of India.
17. Write in detail about the scope of geology and importance of geology in Civil Engineering.
18. Explain physical and chemical weathering process in detail. Add a note on weathering grade and its engineering significance.
19. Explain the process associated with river. Write their engineering significance.
20. Explain the process associated with winds. Write their engineering significance.
21. Explain the process associated with sea. Write their engineering significance.
22. Write Short notes on i) Groundwater ii)Aquifer iii)Specific yield
23. Discuss mode of occurrence and methods of flow of subsurface water.
24. What is the difference between free groundwater and artesian water?

25. Give an account of the various properties and functions of an aquifer. Classify different rocks as aquifers.

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1. Differentiate aquifer and aquiclude.
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UNIT 5

1. 'Discuss the objects and general methods of geological investigations for major engineering projects.
2. Discuss the statement critically " planning and designing engineering projects without due consideration to geological details of the area would be like gropping in the dark" ?

3. Give a comparative account of Electrical and Seismic Methods of Investigations for geological details of an area. Which method would you apply for
   (i) Selecting a site for a dam
   (ii) Selecting an area for a reservoir
   (iii) Exploring ground water reserves

   Give reasons.
4. Write short notes:
   (i) Core Logs
   (ii) Fan shooting
   (iii) Magnetic anomaly
   (iv) Refraction surveys
   (v) Acoustic methods
5. Discuss the objects of dams and various types of dams suitable for achieving different objects.
6. Explain various types of reservoirs and geological conditions necessary for their proper location.
7. What are general geological characteristics of the area that must be known before a tunnel project is decided in that area?
8. Discuss critically role of geological conditions that influence the design, cost and stability of a traffic tunnel.
9. Geological Structures are of paramount importance in defining the design, stability and cost of a traffic tunnel in a hilly region. Discuss the statement critically.
10. Give a broad account of geological conditions that influence the stability of a road cut.

11. In long bridge construction the condition of and depth to bed rock play a great role in the design and stability of the structure. Discuss the general statement critically.
12. Compare the relative merits of road/tunnel alignments which are made
    (i) Parallel to dip direction
    (ii) Parallel to strike direction
    (iii) Inclined to both these directions
13. How is geology related to Civil Engineering? Discuss the scope of application of geological knowledge in planning and execution of civil engineering work.
14. Give a broad account of geological conditions that influence the stability of a road cut.
15. What are general geological characteristics of the area that must be known before a tunnel project is decided in that area?
16. Describe various geological investigations to be carried out in the selection of a dam site.

ASSIGNMENT

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