ARYA COLLEGE OF ENGINEERING

CIVIL ENGINEERING DEPARTMENT

III Semester, B.Tech. (II Year), 2025-26

3CE4-08: ENGINEERING GEOLOGY

GUESS PAPER

UNIT 1 – GENERAL GEOLOGY

Short Question (2 to 4 marks)

1. Define geology. Mention any two branches of geology.

2. What is the scope of geology in civil engineering?

3. What is weathering? Classify types of weathering.

4. Define physical weathering with examples.

5. Define chemical weathering with examples.

6. What is geological time scale?

7. What are natural geological agents?

8. What is the geological work of a river?

9. What do you mean by attrition and abrasion?

10. Write two geological works of wind.

11. Define mineral.

12. Write physical properties used for identification of minerals.

13. State any four properties of minerals.

14. What is erosion?

15. What is deposition?

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Long Questions (10 marks)

1. Explain in detail the scope and importance of geology in civil engineering.

2. Describe the physical and chemical weathering processes in detail.

3. Explain the geological work of rivers with neat sketches.

4. Explain the geological work of wind and its landforms.

5. What is the Geological Time Scale? Describe its major divisions.

6. Discuss the physical properties of minerals and methods of mineral identification.

7. Describe the role of natural agencies (river, wind) in shaping the earth's surface.

UNIT 2 – PETROLOGY

Short Question (2 to 4 marks)

1. What is petrology?

2. What is texture of igneous rock?

3. Classify igneous rocks.

4. Define sedimentary rock.

5. Name any two metamorphic rocks.

6. What is bedding?

7. Define foliation.

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8. Give engineering uses of granite/basalt/sandstone.

9. What is a dyke?

10. What are field tests for rock quality?

Long Questions (10 marks)

1. Describe the formation, texture, structure and classification of igneous rocks.

2. Explain the classification of sedimentary rocks and their engineering importance.

3. Discuss the types and structures of metamorphic rocks.

4. Explain the engineering properties of rocks used as building and road material.

5. Write notes on:

- Texture of igneous rocks
- Structure of sedimentary rock
- Metamorphic structures

6. Explain the laboratory tests for engineering properties of rocks.

7. Explain the field and in-situ tests for rock investigations at construction sites.

8. Discuss the suitability of various rocks for road and building construction.

UNIT 3 – STRUCTURAL GEOLOGY

Short Question (2 to 4 marks)

1. Define strike and dip.

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2. What is a fold?

3. Define anticline and syncline.

4. What is a fault?

5. What is a joint?

6. Define unconformity.

7. Write any two engineering problems caused by faults.

8. What is an over-fold?

9. Define shear zone.

10. What is the effect of joints on dams?

Long Questions (10 marks)

1. Explain the causes, classification and recognition of folds.

2. Explain the types and engineering significance of faults.

3. Write a detailed note on joints: types, recognition and engineering effects.

4. Explain the types of unconformities with neat sketches.

5. Discuss the engineering considerations related to folds, faults and joints in civil engineering structures (dams, tunnels, foundations).

6. Explain how you would identify structural features (folds, joints, faults) in the field.

7. Describe the effects of geological structures on stability of tunnels.

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8. Write short notes on:

- Dip and strike
- Joint sets
- Fault plane & fault scarps

UNIT 4 – ENGINEERING GEOLOGY

Short Question (2 to 4 marks)

1. What is seismic refraction?

2. Name two electrical resistivity methods.

3. What is the Wenner configuration?

4. What is the Schlumberger configuration?

5. What is the role of geophysics in civil engineering?

6. List geological considerations for dam site selection.

7. What is abutment?

8. What is a tunnel portal?

Long Questions (10 marks)

1. Describe the electrical resistivity method for subsurface investigation.

2. Explain the seismic refraction method with its field procedure & interpretation.

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3. Compare electrical and seismic methods of subsurface exploration.

4. Discuss the geological considerations for the selection of a dam site.

5. Discuss the geological factors affecting tunnel alignment and design.

6. Explain the importance of geophysical methods in dam and tunnel investigations.

7. Explain the geological difficulties encountered during tunnelling in folded and faulted regions**.

8. Write notes on:

- Leakage problems in dams
- Geological mapping for tunnels
- Subsurface sounding methods

UNIT 5 – REMOTE SENSING & GIS

Short Question (2 to 4 marks)

1. Define remote sensing.

2. What is GIS?

3. What are satellite imageries?

4. Define spatial resolution.

5. List applications of remote sensing in civil engineering.

6. Write components of GIS.

7. Explain platforms and it's classifications.

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Long Questions (10 marks)

1. Explain the principles of remote sensing and types of remote sensing data.

2. Discuss the applications of remote sensing in civil engineering projects.

3. What is GIS? Explain its data structure (raster & vector).

4. Explain the role of GIS in hazard mapping, site selection, and planning.

5. Explain image interpretation elements (tone, texture, pattern, shape).

6. Write a detailed note on the integrated use of RS & GIS in civil engineering.