S–6984

Sub. Code
22BGE5C1

B.Sc. DEGREE EXAMINATION, APRIL 2025

Fifth Semester

Geology

IGNEOUS PETROLOGY

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define SIAL and SIMA.

2. What are pyroclastic deposits?

3. Define panidiomorphic texture.

4. What are reaction rims?

5. What are binary magma?

6. What is incongruent melting?

7. What are leucocratic rocks?

8. Define Shand's saturation principles.

9. Define petrography.

10. What are alkaline rocks?

Part B

$(5 \times 5 = 25)$

Answer **all** questions choosing either (a) or (b).

11. (a) Describe composition and constitutions of magma.

Or

(b) Describe concordant forms of igneous rocks with sketch.

12. (a) Enumerate blocky lava and ropy lava.

Or

(b) Build a note on intergrowth texture with neat diagram.

13. (a) What is continuation reaction principle - Describe.

Or

(b) Enumerate unicomponent magma crystallization.

14. (a) Outline CIPW classification of igneous rocks.

Or

(b) Write about silica saturation in igneous rocks.

15. (a) Describe petrography of Gabbro.

Or

(b) Build a note on Ultrabasic rocks.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Discuss about forms of igneous rocks.

17. Explain various structures of igneous rocks.

18. Evaluate Diopside-Anorthite system of crystallization and a note on petrographic significance.

19. Explain Tabular classification of igneous rocks.

20. Discuss petrographic characteristics and petrogenesis of Anorthosites.

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S–6988

Sub. Code
22BGE6E1

B.Sc. DEGREE EXAMINATION, APRIL 2025

Sixth Semester

Geology

Elective — REGIONAL GEOLOGY

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define shear zones.

2. What is laterite soil?

3. What are anorthosites?

4. What is khondalite group?

5. Write about Talchir formation.

6. Write about Sivaganga formation.

7. Write about Cuddalote sandstone.

8. What are Teri sands?

9. List ores of iron and their occurrence in Tamil Nadu.

10. Define semi precious stone with example.

Part B (5 × 5 = 25)

Answer **all** questions, choosing either (a) or (b).

11. (a) Outline major fault zones of Tamil Nadu.

Or

(b) Summarize major river systems of Tamil Nadu.

12. (a) Outline anorthosites of Kadavur.

Or

(b) Write about charnockites of Pallavaram.

13. (a) Build a note on Terani formations

Or

(b) Develop a note on Sriperumputhur formation.

14. (a) Build a note on Panamparai formation.

Or

(b) Write about Mio-Pliocene laterite deposits of Pudukottai district.

15. (a) Outline PGE of Sittampoondi Anortho site complex.

Or

(b) Summarize distribution of precious stones in Tamil Nadu.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. What are Sathyamangalam group of rocks and explain its distribution in Tamil Nadu.

17. Elaborate distribution of granites of central and southern Tamil Nadu.

18. Discuss about Cretaceous formation of Trichirapalli.

19. Summarize distribution of Tertiary sediments in Tamil Nadu.

20. Discuss origin and mode of occurrence of Kanjamalai iron ore deposits.

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S–6989

Sub. Code
22BGE6E2

B.Sc. DEGREE EXAMINATION, APRIL 2025

Sixth Semester

Geology

Elective — PHOTO GEOLOGY, REMOTE SENSING, GIS AND MINING GEOLOGY

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What are the types of Scale?

2. Define Photogrammetry.

3. How can tone and color assist in analyzing aerial imagery?

4. Define Dentric pattern.

5. What is EMR?

6. Define remote sensing platforms.

7. What are the components of GIS?

8. Define Raster data.

9. What is Tenor value?

10. Define Strategic minerals.

Part B (5 × 5 = 25)

Answer **all** questions choosing either (a) or (b).

11. (a) Distinguish between overlap and side lap.

Or

(b) Describe cameras and films used for aerial photography.

12. (a) Give a note on various interpretation elements in photogrammetry.

Or

(b) Write a short note on vegetation analysis using Aerial photos.

13. (a) Give a note on interaction of EMR with atmosphere.

Or

(b) Write a note on application of Multispectral scanning.

14. (a) What are Vector data? Elucidate the types of Vector data.

Or

(b) Write the application of GPS in geological studies.

15. (a) Write a note on National mineral Policy.

Or

(b) Describe the following mining terms.

(i) Shaft

(ii) Hanging wall

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Discuss the photogrammetry instruments used to interpretate the aerial photographs.

17. Elaborate the various techniques and its application of aerial photography in mineral exploration.

18. Discuss the Various Indian Remote Sensing Satellites and their applications.

19. What is GIS? Explain its principle, components and uses.

20. Explain the classification of Mining and outline the factor determining the choice of mining methods.

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S–6990

Sub. Code
22BGE6E3

B.Sc. DEGREE EXAMINATION, APRIL 2025

Sixth Semester

Geology

Elective – HYDROGEOLOGY AND ENGINEERING GEOLOGY

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define Meteoric water.
2. What is water table?
3. Define porosity.
4. Define Specific Yield.
5. What is meant by WHO?
6. Define pH.
7. List out any two properties of building stones.
8. What is tensile strength?
9. Write any two types of dam.
10. What is grouting?

Part B (5 × 5 = 25)

Answer **all** questions choosing either (a) or (b).

11. (a) Analyze the Vertical distribution of Sub surface water.

Or

(b) Give an account on types of aquifers.

12. (a) Prepare a neat sketch and verify Darcy's Law.

Or

(b) Analyze the theory of Ground water flow.

13. (a) Describe artificial recharge of groundwater.

Or

(b) Give a short account on biological qualities of groundwater.

14. (a) Short note on strength and elastic properties of rocks.

Or

(b) Describe the geological investigation of bridge.

15. (a) Short account on types of tunnels.

Or

(b) Give an account on coastal erosion.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Briefly describe the hydrologic cycle with a neat sketch.

17. Explain the properties that affect the groundwater.

18. Discuss Groundwater quality parameters.

19. Write an essay on role of geology in civil engineering.

20. Enumerate geological investigation required for dam site selection.

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S–6991

Sub. Code
22BGE6E4

B.Sc. DEGREE EXAMINATION, APRIL 2025

Sixth Semester

Geology

Elective — ENVIRONMENTAL GEOLOGY AND MARINE GEOLOGY

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is the difference between a habitat and a niche?

2. Define a producer and a consumer in an ecosystem.

3. What is meant by a hotspot and a mantle plume?

4. Comment on geothermal energy, and how it is generated through volcanism?

5. What is coastal erosion, and what are its causes and effects?

6. How do ocean basins change over time through geological processes?

7. Does coastal degradation impact human health and livelihoods?

8. How do mid-ocean ridges create new oceanic crust?

9. What is the difference between a sea stack and a sea arch?

10. How does the Ekman spiral Impact Ocean mixing and nutrient distribution?

Part B $(5 \times 5 = 25)$

Answer **all** questions, choosing either (a) or (b).

11. (a) Describe the effects of climate change on geological processes and ecosystems.

Or

(b) Enumerate the role of geology in understanding and mitigating natural hazards such as landslides and floods.

12. (a) Describe the role of early warning systems and emergency preparedness in mitigating earthquake hazards.

Or

(b) Comment on the use of thermal imaging and remote sensing techniques to monitor volcanic activity and predict eruptions.

13. (a) Elucidate, how urbanization affects the morphology and habitat of surface water bodies, including channelization, altered sediment transport and changed aquatic habitats.

Or

(b) Evaluate the impact of population pressure on the environment, including deforestation, pollution, and loss of biodiversity.

14. (a) Describe the impacts of coastal erosion on shoreline stability.

Or

(b) Describe the implications of sea floor spreading for our understanding of Earth's history.

15. (a) Describe the factors affecting sea water density, including temperature, salinity and pressure.

Or

(b) Elaborate on the differences between wave types, including ocean waves, swell waves, and storm waves.

Part C $(3 \times 10 = 30)$

Answer any **three** questions.

16. Explain the significance of classifying natural resources and how it impacts their management, conservation and sustainable use.

17. Discuss the causes, effects, and mitigation strategies for natural hazard and explain the role of human activities in increasing vulnerability to this hazards.

18. Explain the sources of groundwater contamination and describe the impact of polluted groundwater on human health, ecosystems, and the environment.

19. Discuss the importance of coastal environments and the impact of human activities on these ecosystems.

20. Explain the effects of coastal erosion, pollution and habitat destruction on coastal biodiversity and human communities.

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