S–5016

Sub. Code
22BGE1C2

B.Sc. DEGREE EXAMINATION, NOVEMBER 2024

First Semester

Geology

GEOMORPHOLOGY

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is IInd order relief?
2. Define mass wasting.
3. Define water table.
4. What is hot springs?
5. Write note on radial drainage pattern.
6. Define river terraces.
7. Define ablation zone.
8. What is glaciers?
9. Define shoreline.
10. Define lakes.

Part B (5 × 5 = 25)

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

11. (a) Designate the process of physical weathering.

Or

(b) Write short notes on types of flowages.

12. (a) Give an account of wind borne depositional landforms.

Or

(b) Describe types of dunes.

13. (a) Write briefly on sources of running water.

Or

(b) Give an account on drainage pattern.

14. (a) Write short notes on type of glaciers.

Or

(b) Give a brief account on origin of glacial ice.

15. (a) Write short note on Coral reefs and its types.

Or

(b) Give notes on lake deposits.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Classify the types of weathering and explain each one of them.

17. Write an essay on geological work and landforms produced by wind.

18. Write an essay on geomorphic cycle and cycle of erosion.

19. Write an essay on glacial landforms and causes of glaciations.

20. Write an essay on origin and classification of lakes.

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S–5017

Sub. Code
22BGE2C1

B.Sc. DEGREE EXAMINATION, NOVEMBER 2024

Second Semester

Geology

PALAEONTOLOGY AND GENERAL STRATIGRAPHY

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define paleontology.
2. What are index fossils?
3. Define echinoids.
4. What are corals?
5. Brief about Alectryonia.
6. What is Lingula?
7. What is Hemichordata?
8. What are three major division of a trilobite?
9. Define biostratigraphy.
10. What is Homotaxis?

Part B (5 × 5 = 25)

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

11. (a) Describe the nature and modes of preservation of fossil.

Or

(b) What are the different types of fossils used in paleontological studies?

12. (a) Explain the morphological features of Class Anthozoa (corals).

Or

(b) Describe the geological history of Echinoidea.

13. (a) Elucidate the geological significance of Cephalopoda fossils.

Or

(b) Describe the fossil Trigonia and Murex.

14. (a) Give an account on fossil of Monograptus.

Or

(b) Describe the fossil Phacops and its geological range

15. (a) Brief note on lithostratigraphic classification and its importance.

Or

(b) Describe the importance of sequence stratigraphy.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Discuss the applications and uses of microfossils in geological studies.

17. Explain the morphology and geological history of Crinoidea.

18. Discuss the morphology and classification of the Phylum Brachiopoda.

19. Explain the morphology and geological history of Graptolites.

20. Outline the lithostratigraphy and chronostratigraphy.

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S–5018

Sub. Code
22BGE3C1

B.Sc. DEGREE EXAMINATION, NOVEMBER 2024

Third Semester

Geology

CRYSTALLOGRAPHY AND OPTICAL MINERALOGY

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define crystal projection.
2. What is translation?
3. Define Isomorphism.
4. What is meant by symmetry?
5. What is called a crystallographic axis?
6. List out the framework silicates.
7. What is Pleochroism?
8. What is meant by lustre?
9. Classify the feldspar group of minerals.
10. Elucidate the term isomorphism.

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

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

11. (a) Describe isomorphism and polymorphism

Or

(b) Write note on the derivation of 32 crystal classes

12. (a) Categorize the optical properties of orthopyroxenes.

Or

(b) Enumerate the optic sign

13. (a) Describe Brewster's law.

Or

(b) Give short account on Biaxial minerals.

14. (a) Describe cubic system and the types of minerals.

Or

(b) Enumerate monoclinic and triclinic systems.

15. (a) Summarize imperfection and irregularities in crystals.

Or

(b) Elucidate the symmetry elements.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Give a detailed account of the morphological characters of a crystal.

17. Write a detailed note on the physical properties of minerals.

18. Explain the Hemimorphic and sphenoidal classes of orthorhombic systems.

19. Write a detailed note on the uniaxial minerals and their properties.

20. Discuss about the twinning axis and law of twinning.

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S–5019	Sub. Code
	22BGE3C2

B.Sc. DEGREE EXAMINATION, NOVEMBER 2024

Third Semester

Geology

MINERALOGY

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Explain Isotropic minerals with examples.
2. Define dimorphism of minerals.
3. Discuss the optical properties of microcline feldspar.
4. Describe physical properties of Biotite.
5. Explain streak.
6. What is crystal habit?
7. Describe twinning.
8. Explain optical properties of calcite.
9. List the Mohs hardness scale from 1 to 10.
10. Describe physical properties of fluorite mineral.

Part B (5 × 5 = 25)

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

11. (a) What are biaxial minerals? How do they form?

Or

(b) Discuss the difference between cleavage and fracture.

12. (a) Describe frame work silicate structure.

Or

(b) Describe physical properties of feldspar minerals (any one).

13. (a) Compare amphibole and pyroxene based on their physical and optical properties.

Or

(b) List physical properties of Garnet minerals (any two).

14. (a) Investigate the mode of occurrence of mica group of minerals.

Or

(b) Discuss the physical properties and chemical properties of Zeolite group of minerals (Any one).

15. (a) Discuss the mode of occurrence of sillimanite.

Or

(b) Describe physical and optical properties of Forsterite.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Understand physical properties of minerals and their relation to form and crystal structure.

17. Describe physical properties and chemical properties of Quartz minerals. Further, mention the gem varieties of Quartz.

18. Describe silicate structure with suitable examples and neat sketches.

19. Discuss in detail about physical properties, optical properties and chemical composition of Mica group of minerals.

20. Investigate the mode of occurrence of Sillimanite, Andalusite and Kyanite with reference to Earth's pressure-temperature conditions.

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S–5020

Sub. Code
22BGE4C1

B.Sc. DEGREE EXAMINATION, NOVEMBER 2024

Fourth Semester

Geology

INDIAN STRATIGRAPHY

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

Write neatly stratigraphic sequence where ever necessary.

1. What are physigraphic division of India?

2. Define 'Homotaxis'.

3. Write down the mineral wealth of cuddaphas.

4. Which is the Vindhyan equivalents in Peninsular India.

5. What is the Geological significance of Permocarbaniferous rocks in India?

6. Mention the environment deposition of Karewa formations.

7. What is Glacial boulder bed.

8. Define cretaceous rocks.

9. Inter trappean beds.

10. Name the rocks in the Lameta group.

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

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

11. (a) Write a brief note on comparative study of physiographic divisions of India.

Or

(b) Write about economic importance of Archaean rocks of Peninsular India.

12. (a) Write a short note about Vindhyan equivalents in the Peninsular India

Or

(b) Give a brief note on characteristics and economic importance of Cuddapahs.

13. (a) Sketch out the stratigraphic sequence in the spiti valley.

Or

(b) Give a brief account of salt range with reference to geologic time units.

14. (a) Give a brief account on various divisions and Gondwanas of India.

Or

(b) Bring out the character and divisions of Marine Mesozoic rock of Peninsular India.

15. (a) Give a brief account on Tertiary rocks of Tamil Nadu.

Or

(b) Explicate the conditions of deposition of siwalik system.

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

Answer any **three** questions.

16. Write in detail about Dhararian Rocks of the Indian Penisula.

17. Explain Cuddapah system.

18. Discuss about Jurassic of Kutch.

19. Enumerate in detail about Cretaceous of Trichy.

20. Enumerate in detail about geological events during Cenozoic era in India.

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S–5021	Sub. Code
	22BGE4C2

B.Sc. DEGREE EXAMINATION, NOVEMBER 2024

Fourth Semester

Geology

STRUCTURAL GEOLOGY

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions

1. What are primary structure?
2. Define Outcrops.
3. What are the three stages of deformations?
4. Define 'plunge of fold'.
5. Differentiate hanging wall and foot wall.
6. Define fault Breccias.
7. What are radial joints?
8. Define Joint sets.
9. What is overlap and off lap?
10. Define angular unconformity.

Part B (5 × 5 = 25)

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

11. (a) Write a note on features represents in topographic maps.

Or

(b) Give a brief note on measuring thickness of outcrop.

12. (a) Distinguish the following folds with diagrams.

(i) Anticlinorium Vs Synclonorium

(ii) Overturned and fan folds

Or

(b) Write in brief about stages of deformation of rocks.

13. (a) Give a note on Fault terminologies

Or

(b) Write in short about recognition of fault zones by breccias and mylonites.

14. (a) Write a note on Inliers and Outliers

Or

(b) Describe types of joints observed in igneous rocks.

15. (a) Write a criteria that distinguish unconformities from faults.

Or

(b) Give a short note on Clinometer.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Define Outcrops. Explain the ways to measure the dimensions of outcrops.

17. Illustrate the classification of Folds in detail with neat sketch.

18. Explain the classification of fault on the basis of its mode of occurrence.

19. Discuss the relationship of joints with other structures.

20. Elaborate the parts and functions of Brunton compass with diagram.

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S–5022

Sub. Code
22BGE5C1

B.Sc. DEGREE EXAMINATION, NOVEMBER 2024

Fifth Semester

Geology

IGNEOUS PETROLOGY

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define petrology.
2. What are concordant form?
3. What is amygdaloidal structure?
4. Define textures.
5. Define Eutectic point.
6. Define assimilation.
7. What are felsic rocks?
8. Define norms and mode.
9. List the minerals present in Syenite.
10. Define monomineralic rock.

Part B (5 × 5 = 25)

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

11. (a) Outline scope of the subject petrology.

Or

(b) Summarize the characteristics of igneous rocks.

12. (a) Describe pillow structure with sketch.

Or

(b) Illustrate porphyritic and poikilitic texture.

13. (a) Describe solid solution with example.

Or

(b) What are variation diagrams? Describe.

14. (a) Enumerate Shand's saturation principles.

Or

(b) Outline principles of igneous rocks classification.

15. (a) Build a note on hypabyssal rocks.

Or

(b) Describe origin of pegmatite.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Discuss chemical composition of interior of the earth with sketch.

17. Explain various kinds of textures of igneous rocks with sketch.

18. Explain Bowen's reaction principle and its bearing on igneous petrogenesis.

19. Evaluate CIPW classification of igneous rocks.

20. Discuss origin and petrographic characteristics of Granite.

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S–5023

Sub. Code
22BGE5C2

B.Sc. DEGREE EXAMINATION, NOVEMBER 2024

Fifth Semester

Geology

SEDIMENTARY AND METAMORPHIC PETROLOGY

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define Sedimentary process.
2. What is Classic texture of sedimentary rock?
3. Define Clay.
4. Define Shale.
5. What is an Organic deposit?
6. Define Guano.
7. Define Grade
8. Define facies.
9. Define Metasomatism
10. Define petrological description of Slate.

Part B (5 × 5 = 25)

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

11. (a) Write a short note on process of Diagenesis.

Or

(b) Describe about the disintegration and decomposition process of sedimentary rocks?

12. (a) Write a short note on classification, mineral composition and texture of Argilaceous group.

Or

(b) Describe about the Residual deposits.

13. (a) Write a brief note on Calcareous Origin of chemical deposits.

Or

(b) Elucidate the description study of Flint, and Caliche.

14. (a) Describe about the Metamorphic textures.

Or

(b) Give account on Thermal metamorphism and its product.

15. (a) Write a short note on Injection and Auto metamorphism.

Or

(b) Describe Oceanic hydrothermal metamorphism.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Discuss about the sedimentary cycle.

17. Write a detail note on classification, mineral composition, and texture of Arenaceous and Rudacaeous group.

18. Write a detail note on Chert, Gypsum, Rock salt and Siderite.

19. Explain about the Cataclastic metamorphism and its products.

20. Explain the texture characteristics of Dynamo thermal and plutonic metamorphism.

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S–5024

Sub. Code
22BGE5C3

B.Sc. DEGREE EXAMINATION, NOVEMBER 2024

Fifth Semester

Geology

ECONOMIC GEOLOGY

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is the significance of hydrothermal deposits in economic geology?
2. What is evaporite deposits in economic geology?
3. Define placer deposits.
4. What is oxidation in the context of mineral deposits?
5. List out the primary Aluminium ore mineral.
6. Which geological environment is conducive to chromite deposit formation?
7. What is the difference between a natural and synthetic abrasive?
8. Distinguish between a dimension stone and a fieldstone.
9. Where are the Tertiary coal deposits found in India?
10. Define the geological process converts organic matter into petroleum.

Part B (5 × 5 = 25)

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

11. (a) Describe the process and economic significance and environmental implications of sulfide enrichments.

Or

(b) Write note on the characteristics and economic significance of phosphatic deposits.

12. (a) Describe the geological processes involved in the formation of iron ore deposits.

Or

(b) Enumerate the geological factor that control the economic deposits of metals such as copper, gold, and lead-zinc.

13. (a) Describe the different classification schemes used for ore deposits, including genetic, descriptive, and economic approaches.

Or

(b) Elucidate the principal ore minerals, deposits types, and geographical distribution lead and zinc in the Earth's crust.

14. (a) Describe the significance of iron ore deposits in terms of their economic importance, and uses.

Or

(b) Describe the role of tectonic setting, weathering, and erosion in shaping the distribution of building stones in India.

15. (a) Give an account the significance of major petroleum-producing state in India.

Or

(b) Describe the distribution of coal deposits in India.

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

Answer any **three** questions.

16. Discuss the formation of iron ore deposits in different geological setting and distribution in India.

17. Discuss the geological factors that control the localization of ore deposits and different tectonic settings.

18. Explain the economic significance of thorium deposits and their potential role in future energy production.

19. Explain the raw materials used in cement production, including limestone, clay and gypsum, and their sources in India.

20. Discuss the significance of petroleum classification in India's energy security and economy.

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S–5025

Sub. Code
22BGE5C4

B.Sc. DEGREE EXAMINATION, NOVEMBER 2024

Fifth Semester

Geology

FIELD GEOLOGY

(CBCS – 2022 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define ore reserves

2. What is Outcrop?

3. Define Slope

4. What is contour?

5. What is the formula for True thickness for the dipping bed?

6. List the factors affects measurement of vertical thickness in the field.

7. Define grit samples

8. How the handling errors causes the contamination of samples?

9. What are the uses of creating cross section map?

10. What is map orientation?

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

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

11. (a) Write the key guidelines for identifying outcrops in the field.

Or

(b) Describe the tasks of a field geologist.

12. (a) Give a note on dip and its types.

Or

(b) Write a note on influence of slope on outcrops.

13. (a) Describe the relationship between true and vertical thickness.

Or

(b) Write a short note on causes for outcrop repetition.

14. (a) Write a note on drill hole sampling.

Or

(b) Write the guidelines for sample sizes based on different geological studies

15. (a) Write the Procedures to locate the outcrop in map.

Or

(b) Write the symbols used to represent structural features in map.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Elaborate the various techniques used for ore reserve estimation.

17. Explain the working principle and application of Brunton compass with diagram.

18. Discuss the challenges for measurement of thickness of the bed in the field.

19. What is sampling? Explain the various sampling techniques with its application.

20. Illustrate the essential elements that must be included on a geological map with its significance in interpretation.

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