F–8155

Sub. Code
7BGE3C1

B.Sc. DEGREE EXAMINATION, NOVEMBER 2022.

Third Semester

Geology

CRYSTALLOGRAPHY AND OPTICAL MINERALOGY

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define axial ratio.

2. Name the three elements of symmetry in crystals.

3. Name the crystallographic system in which the mineral calcite crystallises.

4. List out the symmetry elements of Zircon.

5. Name the crystallographic system in which the mineral topaz crystallises.

6. Define twinning axis.

7. What are polaroids?

8. Define isotropism. Name a mineral which displays this property.

9. Name a mineral which displays rhombohedral cleavage.

10. Define pleochroism.

Part B (5 × 5 = 25)

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

11. (a) Write short notes on hemimorphic and enantiomorphic forms in crystals.

Or

(b) Give an outline on the parts and functioning of contact goniometer.

12. (a) Give an outline on the forms of the normal class of tetragonal system.

Or

(b) Describe the symmetry elements and forms of tourmaline.

13. (a) Describe the symmetry elements and forms of orthoclase.

Or

(b) Give an account on the laws of twinning.

14. (a) Write short notes on Brewster's law.

Or

(b) Draw a diagram of a petrological microscope and label its parts.

15. (a) Define extinction. Describe the procedure for determining extinction angle.

Or

(b) Write short notes on the optical properties studied under crossed nicols.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Write an essay on the salient features of Weiss and Millerian systems of crystal notation.

17. Describe the forms of normal class of tetragonal system.

18. Elaborate on the various kinds of twinning in crystals.

19. Give a detailed account on the construction and use of optical accessories.

20. Describe the procedure for the determination of optic sign in uniaxial and biaxial minerals.

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F–8156

Sub. Code
7BGE3C2

B.Sc. DEGREE EXAMINATION, NOVEMBER 2022.

Third Semester

Geology

MINERALOGY

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define lustre.

2. What is Polymorphism?

3. Name a mineral which possess anhedral nature.

4. Name any two feldspathoid minerals.

5. What is meant by clinopyroxene? Give an example.

6. Name a isotropic mineral.

7. What is the hardness of biotite?

8. Name any two zeolite minerals.

9. Name a mineral which has rhombohedral cleavage.

10. What is the chemical composition of magnesite?

Part B (5 × 5 = 25)

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

11. (a) Write a short account on isomorphism and pseudomorphism.

Or

(b) Write short notes on the scope of mineralogy.

12. (a) Draw and label the various silicate structures.

Or

(b) List out the optical properties of

(i) quartz

(ii) nepheline

13. (a) Write short notes on the mode of occurrences of pyroxene.

Or

(b) List out the optical properties of

(i) Hornblende

(ii) Hypersthene

14. (a) Describe physical and optical properties of scapolite.

Or

(b) Write short notes on the mode of occurrences of zeolite.

15. (a) Describe physical and optical properties of topaz.

Or

(b) List out the physical and optical properties of calcite.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Explain in detail about various physical properties of minerals.

17. Describe the physical and optical properties of feldspar group minerals.

18. Write an essay on the minerals of garnet group.

19. Describe the physical and optical properties of mica group minerals.

20. Describe the physical and optical properties and, mode of occurrence of kyanite.

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F–8158	Sub. Code
	7BGE4C2

B.Sc. DEGREE EXAMINATION, NOVEMBER 2022.

Fourth Semester

Geology

STRUCTURAL GEOLOGY

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Write a short note on out crop.

2. What is a topographic map?

3. Define stress.

4. What is rupture?

5. Define normal fault.

6. What is Heave?

7. Define outliers.

8. What is magnetic north?

9. What is bedding plane?

10. What is Angular Unconformity?

Part B (5 × 5 = 25)

Answer **all** questions.

11. (a) Give a brief account identification of thickness of bed.

Or

(b) Give an account on Attitude of planes.

12. (a) Explain the compressive stress.

Or

(b) Describe the criteria for recognition of folds.

13. (a) Write a short note on slip faults.

Or

(b) Describe thrust fault with neat sketch.

14. (a) Describe the outliers and inliers.

Or

(b) Explain geometric classification of joints.

15. (a) Define Brunton compass and it uses.

Or

(b) Write a short note on clinometer compass.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Write an essay on the preparation of base map and geological maps and add note on its uses.

17. Explain the geometry and classification of folds.

18. Describe the criteria for recognition of faults and their types.

19. Describe the different types of joints with neat sketches.

20. Describe unconformity and write a detail account on it types.

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F–8159

Sub. Code
7BGE5C1

B.Sc. DEGREE EXAMINATION, NOVEMBER 2022.

Fifth Semester

Geology

IGNEOUS PETROLOGY

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. List out any two typical differences between a basaltic and rhyolitic magma.

2. What are batholiths?

3. What are mural joints?

4. Distinguish between rift and grain.

5. Define assimilation.

6. What are petrographic provinces?

7. List out the merits of CIPW classification.

8. What are leucocratic rocks? Give an example.

9. Name the volcanic equivalent of gabbro.

10. What are ultrabasic rocks? Give an example.

Part B (5 × 5 = 25)

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

11. (a) Write short notes on primary magmas.

Or

(b) Elaborate on the chemical composition of the layers of the Earth's interior.

12. (a) Write an account on.

(i) Amygdaloidal structure and

(ii) Columnar joints

Or

(b) Give a short account on

(i) Pillow structure and

(ii) Sheet joints

13. (a) Elaborate on Bowen's reaction series.

Or

(b) Write short notes on variation diagrams.

14. (a) Discuss briefly about Shands saturation principles.

Or

(b) Give an outline on the CIPW classification of igneous rocks.

15. (a) Write short notes on the origin of alkaline rocks.

Or

(b) Give an account on the petrography of lamprophyres.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Write an essay on the forms of igneous rocks.

17. Elaborate on the textures of igneous rocks.

18. Write an essay on the crystallization of binary magma with solid solution.

19. Describe the salient aspects of the Tyrell's tabular classification.

20. Elaborate on the petrographic characters of Anorthosites.

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F–8160	Sub. Code
	7BGE5C2

B.Sc. DEGREE EXAMINATION, NOVEMBER 2022.

Fifth Semester

Geology

SEDIMENTARY AND METAMORPHIC PETROLOGY

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What are clastic sedimentary rocks? Give an example.

2. What is meant by the term diagenesis.

3. What is meant by terrarosa?

4. What is meant by the term arenaceous?

5. Mention the chemical composition of Siderite.

6. What does the term guano refers to?

7. What are the agents of metamorphism?

8. Define granoblastic texture.

9. What is the major mineral in marble?

10. Define metasomatism,

Part B (5 × 5 = 25)

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

11. (a) Write short notes on the process of disintegration and decomposition of rocks.

Or

(b) Describe briefly about the organic structures of sedimentary rocks.

12. (a) Describe the mode of formation of laterites.

Or

(b) Write short notes on Conglomerate.

13. (a) Give a short account on carbonaceous deposits.

Or

(b) Give a brief account of

(i) flint

(ii) caliche

14. (a) Give an outline on the various kinds of metamorphism.

Or

(b) Write a brief account on anatexis and palingenesis.

15. (a) Write short notes on pneumatolytic metamorphism.

Or

(b) Give a brief petrographic account of migmatite.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Write an essay on the textures of sedimentary rocks.

17. Write an essay on rudaceous rocks.

18. Describe the characteristics of chemical deposits.

19. Write an essay on thermal metamorphism and its products.

20. Elaborate on plutonic metamorphism and its products.

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F–8161	Sub. Code
	7BGEE1A

B.Sc. DEGREE EXAMINATION, NOVEMBER 2022.

Fifth Semester

Geology

Elective - FIELD GEOLOGY

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is the use of Brunton compass?

2. What are outcrops?

3. What is a coutour?

4. Distinguish between true dip and apparent dip.

5. Define vertical thickness of beds.

6. What is meant by true thickness of a bed?

7. Define geological sampling.

8. What is meant by sample contamination?

9. Define map scale.

10. What are cardinal points?

Part B (5 × 5 = 25)

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

11. (a) Give an account on the tasks of a field geologist.

Or

(b) Give an account on geological field equipments.

12. (a) Describe the influence of dip and ground slope on outcrops.

Or

(b) Write short notes on clinometer compass.

13. (a) How are true and vertical thickness of beds estimated from field data?

Or

(b) Elaborate on the conditions that bring about repetition of outcrops.

14. (a) Elaborate on coning and quartering.

Or

(b) Explain about core sampling and its significance.

15. (a) Give an account on conventional signs in a topographic map.

Or

(b) Write an account on the symbols used for depicting various rock types.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Elaborate on the preparation and planning for geological field trip.

17. Describe the parts and functioning of Brunton compass along with its uses.

18. Discuss about the measurement of true and vertical thickness of beds in the field along with their inter-relationship.

19. Discuss about the important methods of sampling.

20. Elaborate on the preparation of geological map and report.

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F-8163	Sub. Code
	7BGEE2A

B.Sc. DEGREE EXAMINATION, NOVEMBER 2022.

Fifth Semester

Geology

Elective : HYDROGEOLOGY AND ENGINEERING GEOLOGY

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is meteoric water?

2. Define aquitard.

3. State the Darcy's law.

4. Define specific yield.

5. Expand – BIS, WHO.

6. Expand – TDS.

7. Define landslides.

8. How do you assess the strength of the rocks?

9. What is the difference between a dam and a reservoir?

10. What are groins?

Part B (5 × 5 = 25)

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

11. (a) Explain the various components of hydrological cycle.

Or

(b) Discuss about the geological conditions favouring the formation of springs.

12. (a) Describe the various types of openings in rocks.

Or

(b) Describe the forces causing groundwater movement.

13. (a) Elaborate on Wenner's electrical configuration.

Or

(b) Give an outline on the status of groundwater in Tamil Nadu.

14. (a) Discuss about the measures pertaining in the prevention of landslides.

Or

(b) Discuss about the properties of building stones.

15. (a) Describe the various types of dams.

Or

(b) Discuss about the problems relating to tunneling in soft grounds and the remedial measures.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Describe the various types of aquifers.

17. Write an essay on rock properties affecting groundwater.

18. Discuss about the drinking water quality standards prescribed by the WHO and BIS.

19. Describe the various engineering properties of rocks.

20. Discuss about the causative factors of coastal erosion and their controlling measures.

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