F–0369

Sub. Code
7BGE2C1

B.Sc. DEGREE EXAMINATION, NOVEMBER 2023

Second Semester

Geology

PALAEONTOLOGY AND GENERAL STRATIGRAPHY

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Name any two trace fossils.

2. What is a zone fossil?

3. Give an example for tetracoral and hexacoral.

4. Distinguish between genital plates and ocular plates.

5. What is a spire?

6. What is holostomatus?

7. Mention the geological age of ptilophyllum

8. What is meant by ecdysis?

9. Define correlation.

10. What does sequence stratigraphy deals with?

Part B (5 × 5 = 25)

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

11. (a) Write a short note on the habits and habitats of the organisms.

Or

(b) Write a short note on the uses of microfossils.

12. (a) Give a short account on the classification of corals.

Or

(b) Write a brief account on the geological history of corals.

13. (a) Explain the salient features of dentition in pelecypoda.

Or

(b) Discuss about the suture patterns of cephalopoda.

14. (a) Give an outline the classification of plant kingdom.

Or

(b) Write an account on the classification of trilobites.

15. (a) Give a short account on the imperfections in geological record.

Or

(b) Write an account on the laws of Stratigraphy.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Describe the general morphology of foraminifera and add a note on its classification.

17. Describe the following fossils:

    (a) Stigmatophygus

    (b) Cidaris

    (c) Pentremites

    (d) Encrinus

18. Describe the general morphology of brachiopods with neat sketches.

19. Describe the general morphology, classification and geological history of graptolites.

20. Write an essay on Geological Time Scale.

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F–0370

Sub. Code
7BGE3C1

B.Sc. DEGREE EXAMINATION, NOVEMBER 2023

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. What are Interfacial angles?

2. Define Holohedral form.

3. List out the forms in rhombohedral division.

4. Describe the symmetry elements of monoclinic system.

5. Define twin law.

6. What is becke line?

7. Define isotropic minerals.

8. Explain the uses of quartz wedge.

9. Define uniaxial minerals.

10. Write a note on uniaxial interference figure.

Part B (5 × 5 = 25)

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

11. (a) Explain the laws of crystallography.

Or

(b) Explain in detail about contact goniometer.

12. (a) Write a note on forms in Tetragonal system.

Or

(b) Explain normal class and Trapezohedral class in hexagonal system with neat diagram.

13. (a) Explain the normal class of Monoclinic system.

Or

(b) Explain polysynthetic twin and penetration twin with example.

14. (a) Describe behavior of light in isotropic minerals.

Or

(b) Explain electromagnetic and quantum theories.

15. (a) What is double refraction and explain with neat sketch?

Or

(b) Describe biaxial interference figure.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Give an account on isometric normal class with diagrams.

17. Give an account on Tetragonal normal class with diagrams.

18. Write a note on triclinic system with symmetry elements and its forms.

19. Give an account on Nichol prism and its construction.

20. Describe behavior of light in parallel and crossed Nichol conditions.

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F–0371

Sub. Code
7BGE3C2

B.Sc. DEGREE EXAMINATION, NOVEMBER 2023

Third Semester

Geology

MINERALOGY

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. What is adamantine lusture. Name a mineral which possesses it.

2. Define streak of a mineral.

3. Name the mineral which displays cross-hatched twinning.

4. List out any two members of feldspathoid group.

5. Mention the intersection angles of the cleavages in amphiboles.

6. In which system does the mineral garnet crystallise?

7. List out any two zeolite group minerals.

8. In which system does wollastonite crystallises?

9. What is the hardness of the mineral talc?

10. What is the chemical composition of kyanite, sillimanite and andalusite?

Part B (5 × 5 = 25)

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

11. (a) Write short notes on

(i) Dimorphism

(ii) Paramorphism

Or

(b) Explain in detail about the scope of Mineralogy.

12. (a) Describe in detail about double chain silicate structure with example.

Or

(b) Describe the physical and optical properties of quartz.

13. (a) Distinguish the optical properties of Hypersthene and Diopside.

Or

(b) Describe the physical and optical properties of garnet.

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

Or

(b) Write an essay about mode of occurrences and chemical composition of zeolites.

15. (a) Explain physical and optical properties of zircon in detail.

Or

(b) Describe the mode of occurrences of

(i) Tourmaline

(ii) Kaolin

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Write an essay on the physical properties of the minerals.

17. Describe the physical and optical properties, mode of occurrence of feldspathoid minerals.

18. Discuss about the mode of occurrence of pyroxene and amphibole minerals.

19. Write an essay on the physical and optical properties of mica group minerals.

20. Write an essay on olivine group minerals.

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F–0372	Sub. Code
	7BGE4C2

B.Sc. DEGREE EXAMINATION, NOVEMBER 2023

Fourth Semester

Geology

STRUCTURAL GEOLOGY

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define strike and dip.
2. Differentiate between apparent dip and true dip.
3. Define homocline.
4. How to identify dome and basin?
5. What is hade and heave?
6. What is called longitudinal fault?
7. What are the uses of a clinometer?
8. Define diastrophism?
9. What is on lap and regressive aff lap?
10. Define an angular unconformity.

Part B (5 × 5 = 25)

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

11. (a) Short notes on preparation and uses of geologic maps.

Or

(b) Write notes on attitude of the planes.

12. (a) Short notes on stress and strain.

Or

(b) Describe a single fold with a diagram.

13. (a) Short notes on the fault terminology.

Or

(b) Write notes on types of faults.

14. (a) Short notes on joint sets.

Or

(b) Write notes on inliers and outliers.

15. (a) Short notes on general characteristics of unconformities.

Or

(b) Write notes on clinometer compass.

Part C (3 × 10 = 30)

Answer any **three** questions.

16. Write an essay on various maps for geological studies.

17. Describe the criteria for recognition of folds in the field.

18. Discuss the methods of classification of faults.

19. Write an essay on the repetition of outcrops due to various reasons.

20. Describe the parts and functions of a Brunton compass with a diagram.

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F–0373

Sub. Code
7BGE5C1

B.Sc. DEGREE EXAMINATION, NOVEMBER 2023

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 andesitic and basaltic magma.

2. What are lapilli?

3. What does the term rock texture means?

4. What are directive textures?

5. Define petrographic province.

6. What is meant by assimilation?

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 extrusive forms of igneous rocks.

Or

(b) Discuss about the chemical composition of the layers of the Earth's interior.

12. (a) Write an account on

(i) intergrowth texture and

(ii) xenolithic texture

Or

(b) Give a short account on porphyritic and poikilitic textures.

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

Or

(b) Discuss about any two theories and evidences about differentiation.

14. (a) Write short notes on Shands saturation principles.

Or

(b) Give an outline on the Tyrell's tablular classification of igneous rocks.

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

Or

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

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

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

17. Elaborate on the structures of igneous rocks.

18. Write an essay on the crystallization of unicomponent magma.

19. Describe the salient aspects of the CIPW classification.

20. Elaborate on the petrographic characters of Granite.

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F–0374	Sub. Code
	7BGE5C2

B.Sc. DEGREE EXAMINATION, NOVEMBER 2023

Fifth Semester

Geology

SEDIMENTARY AND METAMORPHIC PETROLOGY

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A $(10 \times 2 = 20)$

Answer **all** questions.

1. What are non-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 argillaceous?
5. Mention the chemical composition of gypsum.
6. What does the term caliche refers to?
7. What are the agents of metamorphism?
8. Define lineation.
9. What is hornfels?
10. What is meant by auto metamorphism?

Part B (5 × 5 = 25)

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

11. (a) Give a broad outline on the classification of sedimentary rocks.

Or

(b) Describe briefly about the clastic textures of sedimentary rocks.

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

Or

(b) Write short notes on breccia.

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

Or

(b) Give a brief account of

(i) flint

(ii) guano

14. (a) Give an outline on metamorphic facies.

Or

(b) Write a brief account on the products of cataclastic metamorphism.

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

Or

(b) Give a brief petrographic account of quartzite.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

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

17. Write an essay on residual deposits.

18. Elaborate on the salient features of chemical deposits.

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

20. Elaborate on dynamothermal metamorphism and its products.

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F–0375

Sub. Code
7BGEE1A

B.Sc. DEGREE EXAMINATION, NOVEMBER 2023

Fifth Semester

Geology

Elective – FIELD GEOLOGY

(CBCS – 2017 onwards)

Time : 3 Hours Maximum : 75 Marks

Part A (10 × 2 = 20)

Answer **all** questions.

1. Define rock outcrops.

2. What is the use of haversack in field?

3. What is meant by apparent dip?

4. How are steep conical hills represented in topographic maps.

5. Define true thickness of beds.

6. What is meant by vertical thickness of beds?

7. What is meant by pitting and trenching of ore bodies?

8. What is meant by sample contamination?

9. What is a small scale map? Mention any one of its use.

10. Mention the conventional symbols used to depict springs in a topographic map.

Part B (5 × 5 = 25)

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

11. (a) Write notes on the tasks of a field geologist.

Or

(b) Write an account on the areas to look for fossils and other geological features in field.

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

Or

(b) Write short notes on Brunton compass.

13. (a) Describe the procedure for estimating true and vertical thickness of beds field data.

Or

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

14. (a) Describe the procedure involved in coning and quartering.

Or

(b) Explain about drill hole sampling and its significance.

15. (a) Give an outline on the preparation of geological map and report.

Or

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

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Give an account on the preparation and planning for geological field trip.

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

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

19. Write an essay on important methods of sampling.

20. Elaborate on the details printed on a topographic map.

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F–0377	Sub. Code
	7BGEE2A

B.Sc. DEGREE EXAMINATION, NOVEMBER 2023

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. Define aquiclude.
2. What is meant by juvenile water?
3. Define porosity.
4. Define specific retention.
5. Define apparent resistivity.
6. What is meant of groundwater hardness?
7. How is the elastic property of rocks assessed?
8. List out any two natural causes that trigger landslides.
9. List out the various types of dams.
10. What are jetties?

Part B (5 × 5 = 25)

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

11. (a) Discuss about the geological conditions favoring the formation of springs.

Or

(b) Write short notes on unconfined aquifer.

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

Or

(b) Discuss about the rock properties affecting groundwater.

13. (a) Discuss about the water standards for drinking purpose prescribed by the BIS.

Or

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

14. (a) Discuss about the various types of tunnels.

Or

(b) Discuss about the role of Geology in Civil Engineering.

15. (a) Write short notes on geological investigation pertaining to tunneling.

Or

(b) Discuss about the preventive measures of coastal erosion.

Part C

$(3 \times 10 = 30)$

Answer any **three** questions.

16. Write an essay on the vertical distribution of groundwater.

17. Write an essay on groundwater movement.

18. Elaborate on groundwater exploration by means of electrical resistivity method.

19. Discuss about the causes of landslides and elaborate on their controlling measures.

20. Elaborate on geological investigations pertaining to the choice of dam site.

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