

<b>F-3023</b>
---------------

<b>Sub. Code</b>
------------------

<b>7MGE2C1</b>
----------------

**M.Sc. DEGREE EXAMINATION, APRIL 2021 &  
SUPPLEMENTARY / IMPROVEMENT / ARREAR EXAMINATIONS  
Second Semester**

**Geology**

**ADVANCED CRYSTALLOGRAPHY AND MINERALOGY**

**(CBCS – 2017 Onwards)**

Time : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. What is Amorphous form?
2. Define Hemimorphism.
3. Give a short note on Rotation.
4. Define Quartz wedge.
5. What is the use of Powder method?
6. Give the properties of Zircon.
7. Define Metamict state.
8. What are Frame work silicates?
9. Define Optic axis.
10. Give the chemical composition of Zircon and Staurilite.

**Part B****(5 × 5 = 25)**

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

11. (a) Describe the different type of projections used in Crystallography.

Or

- (b) Explain Interfacial angel and its measurement.

12. (a) Illustrate Heminedrism with examples.

Or

- (b) Describe the various types of Twins.

13. (a) Write a brief note on the primary and secondary Optic axis.

Or

- (b) Write a brief note on the basic principle of X-Ray diffraction.

14. (a) Give an account on various kinds and degrees of luster observed in minerals.

Or

- (b) Give an Example of Mohs scale of Hardness.

15. (a) Describe the physical optical properties and chemical composition of clay minerals.

Or

- (b) Explain the physical and Optical properties of Tourmaline.

**Part C**

(3× 10 = 30)

Answer any **three** questions.

16. Describe the symmetry elements and forms present in the normal class of Tetragonal system.
  17. Elaborate the Bragg's law and application.
  18. Describe the 32 Crystal classes based on Schoenflies notation.
  19. Give the physical Chemical and Optical properties of pyroxene group minerals.
  20. Write an essay on Feldspathoid group of minerals.
-

**F-3024****Sub. Code****7MGE2C2**

**M.Sc DEGREE EXAMINATION, APRIL 2021 &  
SUPPLEMENTARY / IMPROVEMENT / ARREAR EXAMINATIONS  
Second Semester**

**Geology**

**IGNEOUS AND METAMORPHIC PETROLOGY**

**(CBCS – 2017 onwards)**

Time : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. Write notes on Ring dyke.
2. Define concordant forms.
3. What is Niggli variation diagram?
4. What are Trace Elements?
5. What are Lamprophyres
6. Write short notes on Gneisses
7. What are Antistress Minerals?
8. Briefly Explain Anataxis.
9. What is meant by Facies series?
10. Explain Zones of Metamorphism.

**Part B****(5 × 5 = 25)**Answer **all** Questions, choosing either (a) or (b).

11. (a) What is different between Laccolith and Lopolith?

Or

- (b) What role do fugitive constituents play in Magma?

12. (a) Distinguish between optic and Porphyritic Texture.

Or

- (b) Give briefly account on Discordant plutons.

13. (a) Discuss the Diopside- Anorthite system.

Or

- (b) Outline the Crystallization of Uncomponent Magma.

14. (a) Give a brief account on the factors that control Metamorphism.

Or

- (b) Write detailed notes on Granulites.

15. (a) What are Migmatites? How are they formed?

Or

- (b) Write a note on Metamorphic Differentiation.

**Part C****(3 × 10 = 30)**Answer any **Three** Questions.

16. Write an essay on the tabular classification of Igneous rocks.
  17. Describe Origin and Petrography of Charnockites.
  18. Discuss the suitable ternary components silica system and its relation to Magma Genesis.
  19. Give an account of the classification of Metamorphic Grades.
  20. What are ACF and AKF diagrams? Discuss their application in the study of metamorphic rock.
-

**F-3025****Sub. Code****7MGE2C3**

**M.Sc. DEGREE EXAMINATION, APRIL 2021 &  
SUPPLEMENTARY / IMPROVEMENT / ARREAR EXAMINATIONS  
Second Semester**

**Geology**

**SEDIMENTOLOGY AND SEDIMENTARY PETROLOGY**

**(CBCS – 2017 onwards)**

Time : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. Give the properties of mudstones.
2. Define conglomerate.
3. Write about Carbonaceous deposits.
4. Write a short note on Palaeocurrents.
5. Define sem.
6. Differentiate the Lithification and diagenesis.
7. Write about Fluvial deposits.
8. What is Barrier island and beach facies?
9. Note on Cratonic basins.
10. What is Trenches?

**Part B**

(5 × 5 = 25)

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

11. (a) Write a detail note on Textures and structure of sedimentary rocks.

Or

- (b) Write briefly on Porosity and permeability.

12. (a) Explain the Field equipment, mapping and logging rock units.

Or

- (b) Distinguish Lithification and Diagenesis.

13. (a) Brief note on Mechanical analysis of sediments.

Or

- (b) Explain the sign analysis data.

14. (a) Illustrate the Delta types and recognition of ancient delta.

Or

- (b) Write a note characteristic of non marine environment of deposition.

15. (a) Describe Sub-duction trenches.

Or

- (b) Describe molasses and flysch deposits.

**Part C**

(3 × 10 = 30)

Answer any **three** questions.

16. Give the detailed note on the Study of clastic rocks.  
17. Explain the Study on non clastic rocks.



18. Elaborate the Application of trace and rare earth elements.
  19. Detail explanation about the Marine environments.
  20. Describe the Strike-slip tectonics.
-

**F-3026****Sub. Code****7MGE2E1**

**M.Sc. DEGREE EXAMINATION, APRIL 2021 &  
SUPPLEMENTARY / IMPROVEMENT / ARREAR EXAMINATIONS  
Second Semester**

**Geology**

**Elective-PETROLEUM AND COAL GEOLOGY**

**(CBCS – 2017 onwards)**

Time : 3 Hours

Maximum : 75 Marks

**Part A**

(10× 2 = 20)

Answer **All** questions.

1. Define trap rock.
2. Define diagenesis.
3. What is Primary Porosity?
4. Write notes on well logs and their use.
5. What is Lignite?
6. What is coal Bed Methane?
7. Diagenesis.
8. What is shale gas?
9. What is Kerogen?
10. Write a note on macerals.

**Part B**

(5× 5 = 25)

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

11. (a) Explain the paleographic and Tectonic requirements for the formation of coal.

Or

- (b) Give an account on development of coal facies.

12. (a) Explain the method of gasification of coal and its advantages.

Or

- (b) Give a brief notes on distribution of Tertiary coal fields in India.

13. (a) Write a short account on chemical properties of coal.

Or

- (b) Give a brief account on ranks of coal.

14. (a) Explain Reservoir Traps with neat sketch.

Or

- (b) Give a brief notes on Migration of oil with diagram.

15. (a) Give an brief account on coal Bed Methane.

Or

- (b) Give a brief outline of Gas Hydrates.

**Part C**

(3× 10 = 30)

Answer any **Three** questions.

16. Write an essay on the different states of coal formation.
  17. Describe the distribution of coal deposits in India.
  18. Write an essay on the lignite deposits of Neyveli and outline the mining operations.
  19. Give an elaborate account on the concept crude oil and the reservoir Traps.
  20. Give an essay on the methods of petroleum exploration.
-

**F-3030****Sub. Code****7MGE4E1**

**M.Sc. DEGREE EXAMINATION, APRIL 2021 &  
SUPPLEMENTARY / IMPROVEMENT / ARREAR EXAMINATIONS  
Fourth Semester**

**Geology**

**Elective-GEOLOGICAL GEOPHYSICAL AND  
GEOCHEMICAL EXPLORATION**

**(CBCS – 2017 onwards)**

Time : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. Define Drilling?
2. What is pitting?
3. Define Resistivity Gephysics methods.
4. Define logging.
5. Give the principle of reflection.
6. Write about Geophones.
7. Define Radioactive Decay.
8. Define concepts of magnetic propecting.
9. Write a short note on Geochemical dispersion.
10. Define background values.

**Part B****(5 × 5 = 25)**

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

11. (a) Explain Geomorphological guides to Ore search.

Or

- (b) Write an account on Trenching and Exploratory Mining.

12. (a) Explain the problem of ambiguity of Geophysical interpretation.

Or

- (b) Give a brief note on the self and resistivity Geophysical method.

13. (a) Explain interpretation of Gravity data and Depth problem.

Or

- (b) Detail note on Elastic properties of the earth materials.

14. (a) Describe about the principle of Radioactive prospecting.

Or

- (b) Discuss Magnetic survey on land and sea.

15. (a) Explain bed rock and soil Geochemical surveys.

Or

- (b) Discuss Geochemical exploration of base metals.

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

Answer any **three** questions.

16. Give explanation on the Mineralogical, Structural and Stratigraphical guides to Ore search.
  17. Elucidate the application of Electrical methods in minerals and petroleum exploration.
  18. Elaborate sonic logging.
  19. Explain the instrument field procedure and interpretations employed in Radioactive survey.
  20. Detailed note on outline on Biogeochemical Exploration.
-

**F-3031****Sub. Code****7MGE4E2**

**M.Sc. DEGREE EXAMINATION, APRIL 2021 &  
SUPPLEMENTARY / IMPROVEMENT / ARREAR EXAMINATIONS  
Fourth Semester**

**Geology**

**Elective-HYDROGEOLOGY AND GROUNDWATER  
MANAGEMENT**

**(CBCS – 2017 onwards)**

Time : 3 Hours

Maximum : 75 Marks

**Part A**

(10 × 2 = 20)

Answer **all** questions.

1. Define Aquifer.
2. Define Laminar flow.
3. What is resistivity data?
4. Define groundwater targeting.
5. Define Well development.
6. Write about pumping.
7. Write a short note on sea water intrusion.
8. Define pump test.
9. How quality of water is determined?
10. What are the water quality parameters?



**Part B****(5 × 5 = 25)**

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

11. (a) Explain Movement of groundwater.

Or

- (b) Write an account on vertical distribution of groundwater in hard rock region.

12. (a) Explain the instruments and interpretation of Resistivity data.

Or

- (b) Give a brief note on the Application for the Geophysical Methods in groundwater targeting.

13. (a) Explain design of tube wells, screening and artificial packing.

Or

- (b) Detail note on methods of sealing.

14. (a) Describe about the water balance studies and safe yield.

Or

- (b) Explain Evaluate the aquifer parameters through pump test.

15. (a) Discuss the water quality parameters and their standards for domestic and irrigation purpose.

Or

- (b) Explain the graphical representation of water quality.

**Part C**

(3 × 10 = 30)

Answer any **three** questions.

16. Give explanation on the permeability in laboratory and in the field.
  17. Elucidate the subsurface methods of groundwater detection.
  18. Elaborate the features of recharge and discharge areas.
  19. Explain the Conjunctive use of surface and groundwater reservoirs in India.
  20. Detailed note on quality of water in various rock types.
-