

R-4642

Sub. Code

464201

M.Sc. DEGREE EXAMINATION, APRIL 2021

Second Semester

Applied Geology

IGNEOUS AND METAMORPHIC PETROLOGY

(CBCS – 2019 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** the questions.

1. Discuss: Fractional crystallization.
2. Write about IUGS classification.
3. Explain: MORB.
4. What might be the geological significance of Columbia River basalt?
5. What is epizone? Discuss
6. Explain: Schistosity
7. Discuss: Dolomitization.
8. Write about Thermal metamorphism.
9. Define: Anenaceous rocks.
10. What are rare earth elements?

Part B

(5 × 5 = 25)

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

11. (a) Discuss about the forms of Intrusive Igneous rocks.
Or
(b) Write about the petrogenetic significance of exclusive rocks.
12. (a) Brief about Ternary mapma system.
Or
(b) Explain about the petrogenetic provinces of Deccan traps.
13. (a) Discuss about the structure of metamorphic rocks.
Or
(b) Explain: Franciscan zone.
14. (a) Enumerate: Gibbs phase rule.
Or
(b) Discuss:
(i) Metasomatism
(ii) Gronitisation
15. (a) Write about Mopmatic emplacement.
Or
(b) Discuss Palingenesis.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Discuss about the Oceanic rift valleys.
17. Geological significance of alkaline rock complex of India.
18. Write about Bavrourian zones.

19. Discuss about the common minerals identified in metamorphic rocks.
 20. Bring about the role of rare earth elements in Metamorphism
-

R-4643

Sub. Code

464202

M.Sc. DEGREE EXAMINATION, APRIL 2021

Second Semester

Applied Geology

SEDIMENTARY PETROLOGY

(CBCS – 2019 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Arkose
2. Roundness of sediments.
3. Evaporates
4. Clastic sediments
5. Aulacogens
6. Orthogeosynclines
7. Loess
8. Diamicts
9. Provenance
10. Write any four example of heavy mineral.

Part B**(5 × 5 = 25)**

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

11. (a) Write the difference between Micrite and Sparite.

Or

- (b) Write about Dott's scheme of classification of sandstones.

12. (a) Write a note on iron bearing sediments with suitable examples.

Or

- (b) Describe "Folk and Dunham" classification of sediments.

13. (a) What is the difference between Foreland basin and Rift basin?

Or

- (b) Role of tectonics in sediment composition.

14. (a) Write an essay on sedimentation in glacial environments.

Or

- (b) Discuss about tillites and their significance.

15. (a) Write about the origin and mode of formation of heavy minerals.

Or

- (b) Write a note on sieve analysis instruments.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Discuss in detail on sedimentary structures with neat diagram.
 17. Write in detail on the quantitative grain size analysis.
 18. Give an account on the origin, structure and classification of Delta with suitable examples.
 19. Enumerate the role of grain size parameters in terrigenous elastic sediments.
 20. Write an essay on heavy mineral analysis. Add a note on its application in provenance studies.
-

R-4644

Sub. Code

464203

M.Sc. DEGREE EXAMINATION, APRIL 2021

Second Semester

Applied Geology

GEOMORPHOLOGY

(CBCS – 2019 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Hydration
2. Exfoliation
3. Watershed
4. Bajada
5. Swash
6. Littoral current
7. Playa Lake
8. Whale backs
9. Recessional moraine
10. Eskers

Part B**(5 × 5 = 25)**

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

11. (a) Write about the physical weathering process with neat diagram.

Or

- (b) Discuss about the fundamental concepts used in geomorphology.

12. (a) River Capture-Discuss.

Or

- (b) Write an essay on river migration.

13. (a) Describe the behaviour of waves on head lands.

Or

- (b) Discuss about the classification and economic importance of shore lines.

14. (a) Write the difference between Barchans and Star dunes.

Or

- (b) Describe the different landforms created by volcanoes.

15. (a) Briefly explain about the landforms created by Aeolian action.

Or

- (b) Write a note on sieve analytical instruments.

Part C**(3 × 10 = 30)**Answer any **three** questions.

16. How the Geomorphology is related with tectonic? Add a note on different landforms produced from tectonics.
 17. Write in detail on fluvial cycle. Add a note on how the valleys are formed due to different fluvial process.
 18. Give an account on the classification of shorelines and add a note on constructional and destructional land forms
 19. Discuss in detail on land forms created by volcanoes. Add a note on its resources and hazards.
 20. How do you classify land forms? Give a brief account on geomorphic features of India.
-

R-4645

Sub. Code

464501

M.Sc. DEGREE EXAMINATION, APRIL 2021

Second Semester

Applied Geology

NATURAL HAZARDS AND MANAGEMENT

(CBCS – 2019 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

Define the following:

1. Geomorphic features
2. Earthquake
3. Which satellite is used for flood vulnerability?
4. Tsunami
5. Reservoir Siltation
6. Seawalls
7. CRZ
8. Difference between prevention and mitigation.
9. MOEFs
10. CPCB

Part B**(5 × 5 = 25)**

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

11. (a) Discuss about the types of Disasters.

Or

- (b) Write an essay on major triggering parameters for landslides.

12. (a) Write a note on remedial measures and mitigation strategies for flood disasters.

Or

- (b) Prediction of Tsunami from field-Discuss.

13. (a) Briefly explain the role of Remote Sensing and GIS in drought analysis.

Or

- (b) Write a note on mapping and mitigation strategies for salt water intrusion.

14. (a) Write a note on the measures to be taken for beach stability.

Or

- (b) Interaction of waves with different coastal protection structures-Discuss.

15. (a) Describe the disaster prevention and mitigation measures.

Or

- (b) What is the role of UNESCO and FAO in ocean management?

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Give an account on application of Remote Sensing and GIS in landslides and slope stability.
 17. Write in detail about role and applications of Remote Sensing and GIS in natural disasters with special reference to Tsunami.
 18. Discuss in detail on the application of Remote Sensing and GIS in soil erosion and reservoir siltation. Add a note on its different mitigation strategies.
 19. Explain about the roles and responsibilities of community- State & Central Government bodies.
 20. Give an account on role of national and international agencies and organizations in ocean management.
-

R5457

Sub. Code

464503

M.Sc. DEGREE EXAMINATION, APRIL – 2021.

Fourth Semester

Applied Geology

**ENGINEERING GEOLOGY, MINING GEOLOGY, ORE
PROCESSING AND ENVIRONMENTAL GEOLOGY**

(CBCS – 2019 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part - A

(10 × 2 = 20)

Answer **ALL** the questions.

1. Write notes on the steps to be taken for slope stability.
2. Define pedology.
3. Mention the types of dams constructed in India.
4. What is reservoir induced seismicity?
5. What are the uses of tunnels?
6. Give a short note on grouting.
7. Write notes on Ball mills.
8. Mention the ore minerals of Manganese.
9. Give a short note on the alluvial mining.
10. What are the minerals used in ore beneficiation?

Part - B

(5 × 5 = 25)

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

Each question carries equal marks.

11. (a) Enumerate the scope and significance of Engineering Geology.

Or

- (b) Discuss the various engineering properties of rocks.

12. (a) Give an account on the groundwater problems faced during the constructions of Dams.

Or

- (b) Write notes on the geological structures and other related conditions of tunnels.

13. (a) Discuss the ground water problem and its management in open cast mining.

Or

- (b) Write notes on the mine ventilation and techniques.

14. (a) Explain in detail the genesis, distribution and beneficiation of lead and zinc deposits.

Or

- (b) Describe the genesis, distribution and beneficiation of copper ore deposits.

15. (a) Discuss the various methods of mining hazards and controlling measures.

Or

- (b) Discuss on the types of laws and regulations that are in force in coastal mining.

Part - C

(3 × 10 = 30)

Answer any **Three** questions.

16. Give a detailed account on the classification of different types of soils and their engineering properties.
 17. Describe the important geological parameters for the construction of reservoirs. And a note on silting of reservoir.
 18. Explain in detail the mode of transportation of broken ore in open and underground mines. Mention the mine machineries.
 19. Describe in detail on the various beneficiation process of coal.
 20. Give a detailed account on the mining laws and environmental impact on mining projects.
-

R5458

Sub. Code

464504

M.Sc. DEGREE EXAMINATION, APRIL – 2021

Fourth Semester

Applied Geology

PETROLEUM GEOLOGY

(CBCS – 2019 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** the questions.

1. Give a short note on the reservoir rocks with examples.
2. Explain the migration of hydrocarbons.
3. Give a short note on the Reservoir pressure.
4. Write a brief on the geothermal gradient.
5. What are the geophysical methods widely used in oil exploration?
6. Define viscosity and the viscosity of petroleum.
7. Write notes on carbon cycle.
8. Define an oil trap. Mention the different types of structural traps.
9. Give a short note on the well completion technique.
10. Mention the different types of drilling methods in hydrocarbon exploration.

Part B

(5 × 5 = 25)

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

Each question carries equal marks.

11. (a) Discuss in detail on the porosity and permeability of rocks in the genesis and accumulation of hydrocarbons.

Or

- (b) Discuss in detail on the hypotheses on the origin of petroleum.

12. (a) Describe the source and effects of heat energy in the genesis of hydrocarbons.

Or

- (b) Explain the significance of reservoir pressure and the techniques of its measurement.

13. (a) Describe the gravity method of hydrocarbon exploration.

Or

- (b) Give an elaborate account on the magnetic method of oil exploration.

14. (a) Explain in detail the composition and various types of structures of organic matter.

Or

- (b) Describe the method of accumulation of organic matter in the process of generation of hydrocarbons.

15. (a) Discuss the various well site geological techniques.

Or

- (b) Discuss on the types and classification of drilling pits.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Write an essay and critically analyze the categorization of petroliferous basins of India with a case study from Tamil Nadu.
 17. Enumerate in detail the different methods of recovery of hydrocarbons.
 18. Describe the advanced seismic refraction and reflection methods of petroleum exploration and data interpretation.
 19. Explain in detail the geochemical methods of source rock characterization and maturation assessment.
 20. Give a detailed account on the exploration policy and project management of oil wells.
-