

R-2993

Sub. Code

464201

M.Sc. DEGREE EXAMINATION, APRIL 2019

Second Semester

Applied Geology

IGNEOUS AND METAMORPHIC PETROLOGY

(CBCS – 2016 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **ALL** the questions.

1. Write notes on dyke and sill.
2. Give a short note on Eutectic point.
3. Write notes on Assimilation.
4. Discuss the causes for the formation of magma.
5. Write short notes on magmatic differentiation.
6. Explain in brief the thermal metamorphism.
7. Write notes on gneissic and schistose structures.
8. Explain Anatexis.
9. What are the physical properties of rocks?
10. Name few spectral properties of minerals and rocks.

Part B

(5 × 5 = 25)

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

11. (a) Write notes on Binary silicate system of crystallization.

Or

- (b) Give an account on the textures of igneous rocks with neat diagrams.

12. (a) Enumerate the petrogenesis of alkaline rocks.

Or

- (b) Explain the fluid inclusion studies of igneous rocks.

13. (a) Describe the petrography of schists and gneisses.

Or

- (b) Give an account on the petrogenesis of Pegmatites.

14. (a) Enumerate the kinds of metamorphism and their products.

Or

- (b) Outline the granitization of migmatites.

15. (a) Write notes on the mapping of igneous and metamorphic rocks through digital image processing.

Or

- (b) Give an account on the stress and anti-stress minerals.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Give a detailed account on the Ternary Silicate System of crystallization with a neat diagram.
 17. Write an essay on the IUGS and Tabular classification of igneous rocks.
 18. Describe the various zones, grades and facies concept of metamorphism.
 19. Explain the petrogenesis of Amphibolites and Charnockites
 20. Write an essay on the influence of physical and chemical properties of mineral and rocks over spectral reflectance.
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R-2994

Sub. Code

464202

M.Sc. DEGREE EXAMINATION, APRIL 2019

Second Semester

Applied Geology

SEDIMENTARY PETROLOGY

(CBCS – 2016 onwards)

Time : 3 Hours

Maximum : 75 Marks

Section A

(10 × 2 = 20)

Answer **all** questions.

1. Write notes on sphericity and roundness.
2. What are the factors controlling the composition of gravel?
3. Write notes on manganese nodules.
4. What are clastic rocks? Give examples.
5. Write short notes on Ooids.
6. What are clay minerals? Briefly differentiate them.
7. Write notes on the parameters for the sedimentary basin classification.
8. Explain Episodic Wrenches and Fold Belts.
9. Differentiate the intracratonic rift basin from pericratonic rift basin.
10. Write notes on Glauconite.

Section B

(5 × 5 = 25)

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

All questions carry equal marks.

11. (a) Write notes on porosity and permeability of sedimentary rocks.

Or

- (b) Give an account on the textures of sedimentary rocks with neat diagrams.

12. (a) Enumerate the evaporate deposits.

Or

- (b) Explain the lithification and diagenesis.

13. (a) Describe the significance of heavy minerals in sedimentological analyses.

Or

- (b) Give an account on the paleocurrents basin analysis.

14. (a) Explain the origin and environment of deep sea carbonates.

Or

- (b) Outline the origin of petroleum gas in sedimentary rocks.

15. (a) Give an account on the Interior Sag basins with examples.

Or

- (b) Write notes on the mapping of sedimentary rocks through digital image processing.

Section C

(3 × 10 = 30)

Answer any **three** questions.

16. Give a detailed account on the different types of physical and chemical weathering and their products.
 17. Write an essay on the classification of sedimentary rocks.
 18. Describe the Fluvial and Aeolian process of erosion, transportation and sedimentation of various kinds of rocks.
 19. Write an essay on the tectonism and evolution of Indian sedimentary basins.
 20. Write an essay on the mapping of sedimentary rocks in the field. Add a note on their expression in aerial and satellite images.
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R-2995

Sub. Code

464203

M.Sc. DEGREE EXAMINATION, APRIL 2019

Second Semester

Applied Geology

GEOGRAPHIC INFORMATION SYSTEM AND GPS

(CBCS – 2016 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. What is the use of GIS?
2. List different types of data structure in GIS.
3. Define interpolation.
4. List the applications of DTM.
5. What is buffering?
6. List the advantages of carto modelling.
7. What is time code?
8. What is NAVSTAR?
9. Define Pseudo range.
10. List the types of GPS positioning.

Part B

(5 × 5 = 25)

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

11. (a) Write brief notes on data structure in GIS.

Or

- (b) Write short notes on GIS capabilities for Data correction.

12. (a) Write brief notes on Global Method of interpolation.

Or

- (b) Write short notes on local and optimal interpolation.

13. (a) Describe point operation, regional operations and neighbourhood operations.

Or

- (b) Write short notes on Network analysis in cartographic model in GIS.

14. (a) Write short notes on user segment in GPS.

Or

- (b) Write short notes on classification of GPS receivers.

15. (a) Write short notes on Differential GPS.

Or

- (b) Write short notes on GPS opportunities in India.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Explain in detail on data input, verification and corrections in GIS.

17. Give a detailed on usefulness of DEM/DTM.
 18. Give a detailed account on advantages and disadvantages of Carto modelling.
 19. Write an essay on Errors in GPS observations.
 20. Write in detail on GPS mapping methods.
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R-2996

Sub. Code

464204

M.Sc. DEGREE EXAMINATION, APRIL 2019

Second Semester

Applied Geology

GEOMORPHOLOGY

(CBCS – 2016 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Define denudation.
2. List any two significant tectonic geomorphic systems.
3. Define meandering.
4. Define river terrace.
5. Define shorelines.
6. Define submerging, coasts.
7. Define yardang.
8. Note on volcanic eruption.
9. Define ground water generated landforms.
10. Define varves.

Part B

(5 × 5 = 25)

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

11. (a) Write about the origin and field manifestations of various tectonic geomorphologic -Landforms.

Or

- (b) Describe about process of weathering.

12. (a) Write short note on entrenched meanders and braided streams.

Or

- (b) Give an account on development of river valleys.

13. (a) What is shoreline? Describe various types of shorelines

Or

- (b) Write short note on sea mounts and mid oceanic ridges.

14. (a) Describe wind deposits.

Or

- (b) Give a brief account on management of Aeolian systems.

15. (a) Write note on water table.

Or

- (b) Write note on glacial erosion and related landforms.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Write an essay on climatic influences and product of weathering.
 17. Give a detailed understanding on fluvial cycle of erosion.
 18. Discuss about the constructional and destructional landforms in coastal Geomorphology.
 19. Discuss spatial distribution of volcanoes around the world.
 20. Give a detailed note on geological action and landforms produced by glacier.
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R-2997

Sub. Code

464501

M.Sc. DEGREE EXAMINATION, APRIL 2019

Second Semester

Applied Geology

FUEL GEOLOGY (E)

(CBCS – 2016 onwards)

Time : 3 Hours

Maximum : 75 Marks

Part A

(10 × 2 = 20)

Answer **all** questions.

1. Define Hydrocarbon with examples.
2. What are reservoir rocks? Give suitable examples.
3. Define Wenner's arrangement of electrodes with neat sketch.
4. Define Drilling and list out the methods that are widely used in petroleum exploration.
5. What is the use of GIS in Coal exploration?
6. Define diagenesis. How it affects organic materials?
7. Define geothermal resources with examples.
8. Define Neotectonics.
9. What are radioactive minerals?
10. What is nuclear waste?

Part B

(5 × 5 = 25)

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

11. (a) Write short note on migration and entrapment of hydrocarbon.

Or

- (b) Write in brief about various types of structural traps.

12. (a) Describe how seismic refraction method is useful in hydrocarbon exploration.

Or

- (b) Give a brief account on application of remote sensing for oil exploration in Terrestrial basins.

13. (a) Write short note on insitu theory of coal origin and the important evidences that has been carried out from the theory.

Or

- (b) Give short note on coal petrology.

14. (a) Write short note on Heat flow analysis.

Or

- (b) Give a brief note on water temperature analysis.

15. (a) Describe the mineralogy and geochemistry of radioactive minerals.

Or

- (b) Write short note on instrumental techniques of detection and measurement of radio activity.

Part C

(3 × 10 = 30)

Answer any **three** questions.

16. Write an essay on the genesis of hydrocarbon.
 17. Write in detail about the geophysical methods adopted for off-shore hydrocarbon exploration.
 18. Give detail account on Tertiary coal deposits of India. Add a note on Neyveli Lignite deposit.
 19. Discuss the process of remote sensing data analysis in detail and its application in hydrocarbon exploration.
 20. Give detail account on radioactive method of prospecting and assaying of mineral deposits.
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