D 90952 (Pages : 2) Name.....

Reg. No.....

THIRD SEMESTER M.A./M.Sc./M.Com. DEGREE (REGULAR) EXAMINATION NOVEMBER 2020

(CBCSS)

Applied Geology

GEL 3C 09—IGNEOUS AND METAMORPHIC PETROLOGY

(2019 Admissions)

Time : Three Hours Maximum : 30 Weightage

(Instructions : Draw neat diagrams wherever necessary)

Section A (Short Answer Type Questions)

Answer at least **three** *questions.*
Each question carries 2 *weightage.*
All questions can be attended.
Overall Ceiling 6.

1. Metamorphic facies series.
2. Apophyses.
3. Deviatoric stress.
4. Poikiloblastic texture.
5. Differentiation Index.
6. Pseudotachylite.
7. Daly gap.

(3 × 2 = 6 weightage)

Section B (Short Essay Questions)

Answer at least **three** *questions.*
Each question carries 4 *weightage.*
All questions can be attended.
Overall Ceiling 12.

8. Chemographic projections in metamorphic petrology.
9. Incongruent melting of Forsterite-Anorthite system.
10. Role of fluids in metamorphic reactions.
11. Petrogenesis of carbonatites.

Turn over

12. Importance of Rare Earth Elements (REEs) in igneous petrogenesis.

13. Plate tectonics and Paired metamorphic belts.

14. Regional metamorphism of argillaceous rocks.

(3 × 4 = 12 weightage)

Section C (Long Essays)

Answer at least **two** *questions.*
Each question carries 6 *weightage.*
All questions can be attended.
Overall Ceiling 12.

15. Discuss in detail the application of isotopic studies in the petrogenesis of igneous rocks.

16. Describe the crystallization sequence and petrogenetic significance of the Albite-Anorthite-Diopside ternary system.

17. What are ultramafic igneous rocks ? Discuss the thermal and regional metamorphism of ultramafic igneous rocks.

18. Explain the petrogenetic significance of textures and structures of the igneous rocks.

(2 × 6 = 12 weightage)

D 90953 (Pages : 2) Name.....

Reg. No.....

THIRD SEMESTER M.A./M.Sc./M.Com. DEGREE (REGULAR) EXAMINATION, NOVEMBER 2020

(CBCSS)

Applied Geology

GEL 3E 01 A—CLIMATOLOGY

(2019 Admissions)

Time : Three Hours Maximum : 30 Weightage

Draw neat diagrams wherever necessary.

Section A

I. Short Answer Type Questions. Answer at least *three* questions. Each question carries 2 weightage. All questions can be attended. Overall Ceiling 6 :

1 Motions of the earth.

2 Insolation and heat budget.

3 Coriolis force.

4 Local winds.

5 Rossby waves.

6 Cirrus and Cumulus clouds.

7 Tornado.

(3 × 2 = 6 weightage)

Section B

II. Short Essay Questions. Answer at least *three* questions. Each question carries 4 weightage. All questions can be attended. Overall Ceiling 12 :

8 Global warming and its effects.

9 Layered structure of the atmosphere.

10 Atmospheric stability and adiabatic lapse rate.

11 Types of temperature inversions.

Turn over

12 Jet streams and their significance.

13 Forms of condensation.

14 Types of precipitation.

(3 × 4 = 12 weightage)

Section C

III. Long Essay. Answer at least *two* questions. Each question carries 6 weightage. All questions can be attended. Overall Ceiling 12 :

15 Give an account of the Koppen Climate Classification System. What are its advantages and limitations ?

16 Describe the atmospheric pressure belts and planetary winds of the earth.

17 Explain the concept of fronts or frontal surfaces highlighting on their characteristics and classification.

18 Discuss the origin, characteristics, structure and regional distribution of Tropical cyclones.

(2 × 6 = 12 weightage)

D 90955 (Pages : 2) Name.....

Reg. No.....

THIRD SEMESTER M.A./M.Sc./M.Com. DEGREE (REGULAR) EXAMINATION NOVEMBER 2020

(CBCSS)

Applied Geology

GEL 3E 02 (A)—ENVIRONMENTAL GEOLOGY

(2019 Admissions)

Time : Three Hours Maximum : 30 Weightage

Draw neat diagrams wherever necessary.

Section A

Answer at least **three** *questions.*
Each question carries 2 *weightage.*
All questions can be attended.
Overall Ceiling 6.

I. Short answer type questions :

1 Smog.

2 Point sources.

3 Eutrophication.

4 Incineration.

5 Pollutant.

6 Micro-ecosystem.

7 Itai-Itai.

(3 × 2 = 6 weightage)

Section B

Answer at least **three** *questions.*
Each question carries 4 *weightage.*
All questions can be attended.
Overall Ceiling 12.

II. Short essay questions :

8 Soil conservation.

9 4Rs.

10 E waste.

Turn over

11 Environmental consequences of mining.

12 Global warming.

13 Disaster management.

14 Saline water intrusion.

(3 × 4 = 12 weightage)

Section C

Answer at least **two** *questions.*
Each question carries 6 *weightage.*
All questions can be attended.
Overall Ceiling 12.

III. Long essay :

15 Describe in detail about EIA and its various stages.

16 Explain air pollution, its sources and effects.

17 Give a brief account of wastes, different types of wastes and their management strategies.

18 Elucidate the environmental consequences of natural hazards like earthquakes, landslide and volcanic activity.

(2 × 6 = 12 weightage)

D 90957 **(Pages : 2)** **Name.....**

Reg. No.....

THIRD SEMESTER M.A./M.Sc./M.Com. DEGREE (REGULAR) EXAMINATION NOVEMBER 2020

(CBCSS)

Applied Geology

GEL 3E 03a—MARINE GEOLOGY

(2019 Admissions)

Time : Three Hours Maximum : 30 Weightage

(Instructions : Draw neat diagrams wherever necessary)

Section A (Short Answer Type Questions)

Answer at least **three** *questions.*
Each question carries 2 *weightage.*
All questions can be attended.
Overall Ceiling 6.

1. Pycnocline.
2. Carbonate Compensation Depth.
3. Guyots.
4. Tides.
5. Tsunamis.
6. Geostrophic currents.
7. Salinity.

(3 × 2 = 6 weightage)

Section B (Short Essay Questions)

Answer at least **three** *questions.*
Each question carries 4 *weightage.*
All questions can be attended.
Overall Ceiling 12.

8. Upwelling and sinking.
9. Thermohaline circulation.
10. Submarine canyons.
11. Challenger Expedition.
12. Coriolis Effect.
13. ENSO.
14. Mn Nodules.

(3 × 4 = 12 weightage)

Turn over

Section C (Long Essays)

Answer at least **two** *questions.*
Each question carries 6 *weightage.*
All questions can be attended.
Overall Ceiling 12.

15. Briefly describe sea level changes, the causes, evidences and implications.
16. Describe the different types of marine sediments, their sources and classification.
17. Explain the physical properties of sea water and the factors affecting their distribution.
18. Write in detail about coastal geomorphology, classification of coasts, coastal erosion and coastal protection structures.

(2 × 6 = 12 weightage)

D 91395 (Pages : 2) Name.....

Reg. No.....

THIRD SEMESTER P.G. DEGREE EXAMINATION, NOVEMBER 2020

(CCSS)

M.Sc. Applied Geology

GEL 3E 01—REMOTE SENSING AND GEOGRAPHIC INFORMATION SYSTEM

(2018 Admissions)

Time : Three Hours Maximum : 80 Marks

Draw diagrams wherever necessary.

Part A (Short Answer)

Answer **all** *questions.*
Each question carries 2 *marks.*

1. Landsat.
2. Scale of photographs.
3. Raster.
4. SAR.
5. Geosynchronous satellites.
6. Thematic maps.
7. Topology.
8. ArcGIS.

(8 × 2 = 16 marks)

Part B (Short Essay)

Answer any **six** *questions.*
Each question carries 6 *marks.*

9. Digital Elevation Model.
10. Multi-Spectral Scanners.
11. GIS in Urban Planning.
12. Georegistration procedures.

Turn over

13. Thermal Sensors.

14. Electromagnetic Spectrum.

15. Stefan-Boltzmann Law.

16. Open Source GIS softwares and its limitations.

17. Great Trigonometrical Survey of India.

18. Differentiate between ellipsoid and datum.

(6 × 6 = 36 marks)

Part C

Write essays on **two** *of the following.*
Each question carries 14 *marks.*

19. Explain the different types of projections used in preparing maps. Illustrate with diagrams.

20. Explain photogrammetry. Elaborate the basic geometric characteristics of aerial photographs.

21. Explain energy interactions in the atmosphere.

22. Describe the elements of photo interpretation and its uses.

(2 × 14 = 28 marks)

D 91397 **(Pages : 2)** **Name.....**

Reg. No.....

THIRD SEMESTER P.G. DEGREE EXAMINATION, NOVEMBER 2020

(CCSS)

M.Sc. Applied Geology

GEL 3C 08—EXPLORATION GEOLOGY AND APPLIED GEOPHYSICS

(2019 Admissions)

Time : Three Hours Maximum : 80 Marks

Draw diagrams wherever necessary.

Part A

Write short notes on the following.
Each question carries 2 marks.

1. Assaying.
2. Rotary drilling.
3. Mobility of elements.
4. GM counters.
5. Geobotanical indicator.
6. Factors affecting travel velocity of seismic waves in sedimentary rocks.
7. Litholog.
8. Resistivity.

(8 × 2 = 16 marks)

Part B

Write short essays on any **six** *of the following.*
Each question carries 6 marks.

9. Different methods of ore reserve estimation.
10. Describe the mode of occurrence of trace elements in rocks and sediments.
11. Geochemical anomalies in surface waters and sediments.

Turn over

12. Explain the principles of radioactivity and their use in radiometric surveys.

13. Describe the field procedure for magnetic surveys.

14. Schlumberger method for exploration of groundwater.

15. Give an account of seismic instruments used in exploration of minerals. Add a note on seismic records.

16. Discuss the different methods of sampling.

17. Compare radiometric logging with sonic logging of bore holes. Add a note on core loss.

18. Describe electrical logging of bore holes.

(6 × 6 = 36 marks)

Part C

Write essays on **two** *of the following.*
Each question carries 14 *marks.*

19. Explain the principles of gravity methods of exploration of minerals and also describe a gravimeter.

20. Explain the principles behind geochemical surveys. Add a note on biochemical anomalies.

21. Describe the self potential methods used in the exploration of sulphide deposits.

22. Give an account of diamond drilling for exploration of minerals.

(2 × 14 = 28 marks)

D 91398 (Pages : 2) Name.....

Reg. No.....

THIRD SEMESTER P.G. DEGREE EXAMINATION, NOVEMBER 2020

(CCSS)

M.Sc. Geology

GEL 3E 03 A—ENVIRONMENTAL GEOLOGY

(2019 Admissions)

Time : Three Hours Maximum : 80 Marks

Draw diagrams wherever necessary.

Part A

Write short notes on the following.
Each question carries 2 marks.

1. Lithosphere.
2. Natural hazards.
3. Land use maps.
4. Acid rain.
5. BOD.
6. Sources of nitrate contamination in groundwater.
7. Subsurface storage of nuclear wastes.
8. Ecological disaster.

(8 × 2 = 16 marks)

Part B

Write short essays on any **six** *of the following.*
Each question carries 6 *marks.*

9. Environmental mapping and its importance in sustainable development.
10. Significance of conservation of natural resources.
11. Methods of soil conservation.
12. Describe the wastes generated due to mining activities.

13. Discuss the effects of oil spills on the ecosystems.

14. Give an account of the sources and effects of air pollution ?

15. Discuss two different models of EIA.

16. Give an account of the health hazard due to pollution of groundwater.

17. Discuss the ill effects of urban development on the environment.

18. What are mangroves ? Explain the measures to be adopted for conserving mangroves.

(6 × 6 = 36 marks)

Part C

Write essays on **two** *of the following.*

Each question carries 14 *marks.*

19. Describe the different methods for the disposal of municipal wastes.

20. Give an account of the sources of marine pollution.

21. Describe the impacts of volcanic eruptions on human population.

22. Discuss the role of geologists in environmental management and planning.

(2 × 14 = 28 marks)

D 91396 (Pages : 2) Name.....

Reg. No.....

THIRD SEMESTER P.G. DEGREE EXAMINATION, NOVEMBER 2020

(CCSS)

M.Sc. Geology

GEL 3C 07—IGNEOUS AND METAMORPHIC PETROLOGY

(2019 Admissions)

Time : Three Hours Maximum : 80 Marks

Draw neat diagrams wherever necessary.

Part A

Write short notes on the following.
Each question carries 2 marks.

1. Reaction pair.
2. Binary system.
3. CIPW Norm.
4. A-type granites.
5. Migmatites.
6. Retrograde metamorphism.
7. Granulite.
8. Kimberlites.

(8 × 2 = 16 marks)

Part B

Write short essays on any **six** *of the following.*
Each question carries 6 *marks.*

9. Anorthosites.
10. Binary chemical variation diagrams.
11. Explain binary phase diagrams.
12. Significance of isotopic studies in the petrogenesis of igneous rocks.
13. Importance of the study of textures in the evolution of intrusive igneous rocks.
14. Ophiolites.
15. Contact metamorphism of argillaceous rocks.
16. Discuss the relation between plate tectonics and metamorphism.
17. Describe ACF and AKF diagrams.
18. Discuss the role of fluids in metamorphic reactions.

(6 × 6 = 36 marks)

Turn over

Part C

Write essays on **two** *of the following.*
Each question carries 14 *marks.*

19. Describe the petrography, genesis and mode of occurrence of carbonatites.

20. Give a detailed account of the course of crystallization of Forsterite-Diopside-Silica System.

21. Give an account of metamorphic differentiation.

22. Explain the petrogenetic significance of metamorphic textures and structures.

(2 × 14 = 28 marks)

D 91400 **(Pages : 2)** **Name**.....

Reg. No.....

THIRD SEMESTER P.G. DEGREE EXAMINATION, NOVEMBER 2020

(CCSS)

M.Sc. Applied Geology

GEL 3E 04 A—CLIMATOLOGY AND DISASTER MANAGEMENT

(2019 Admissions)

Time : Three Hours Maximum : 80 Marks

Draw neat diagrams wherever necessary.

Part A

Write short notes on **all** *of the following.*
Each question carries 2 *marks.*

1. Natural hazards.
2. La Nina.
3. Jet stream.
4. Anticyclone.
5. Flash flood.
6. Elements at Risk.
7. Stratosphere.
8. Condensation.

(8 × 2 = 16 marks)

Part B

Write short essays on any **six** *of the following.*
Each question carries 6 *marks.*

9. Influencing factors of landslides.
10. Composition of present and primitive atmosphere.
11. Radiation balance.
12. Extratropical storm.

Turn over

13. Sea level changes.

14. Indian monsoons.

15. Air-Sea interaction.

16. Coastal erosion.

17. Man-made disasters.

18. Disaster Management Act, 2005.

(6 × 6 = 36 marks)

Part C

Write essays on any **two** *of the following.*
Each question carries 14 *marks.*

19. Describe Koppen's classification of climate.

20. Describe the distribution of precipitation over India.

21. Explain cloud formation and precipitation processes.

22. Discuss the reasons and frequency of occurrence of cyclones and floods in different parts of India. Add a note on the recent floods in Kerala.

(2 × 14 = 28 marks)