D 11593 (Pages : 2) Name.....

Reg. No.....

THIRD SEMESTER M.Sc. DEGREE (REGULAR/SUPPLEMENTARY) EXAMINATION, NOVEMBER 2021

(CBCSS)

Applied Geology

GEL 3E 03 a—MARINE GEOLOGY

(2019 Admission onwards)

Time : Three Hours Maximum : 30 Weightage

General Instructions

1. *In cases where choices are provided, students can attend* **all** *questions in each section.*
2. *The minimum number of questions to be attended from the Section / Part shall remain the same.*
3. *The instruction if any, to attend a minimum number of questions from each sub section / sub part / sub division may be ignored.*
4. *There will be an overall ceiling for each Section / Part that is equivalent to the maximum weightage of the Section / Part.*

Draw neat diagrams wherever necessary.

I. Short Answer Type Questions. Answer any *four* questions :

1 Thermocline.

2 Continental rise.

3 Breakers.

4 Sinking.

5 Lanina.

6 Oozes.

7 Florida Current.

(4 × 2 = 8 weightage)

II. Short Essay Questions. Answer any *four* questions :

8 Wave characteristics.

9 Types of tides.

Turn over

CHMK LIBRARY UNIVERSITY OF CALICUT

10 Coastal Protection Structures.

11 Storm surges.

12 Vertical distribution of salinity in the oceans.

13 Geostrophic currents and Westward Intensification.

14 Submarine canyons.

(4 × 3 = 12 weightage)

III. Long Essays. Answer any *two* questions :

15 Briefly describe the currents that prevail in the Indian Ocean.

16 Describe the Continental margins, features of continental shelf, continental slope and continental rise.

17 Explain the physical properties of sea water and the factors affecting their distribution.

18 Write in detail about the Marine sediments and their types.

(2 × 5 = 10 weightage)

CHMK LIBRARY UNIVERSITY OF CALICUT

D 11591 (Pages : 2) Name.....

Reg. No.....

THIRD SEMESTER M.Sc. DEGREE (REGULAR/SUPPLEMENTARY) EXAMINATION, NOVEMBER 2021

(CBCSS)

Applied Geology

GEL 3E 02 A—ENVIRONMENTAL GEOLOGY

(2019 Admission onwards)

Time : Three Hours Maximum : 30 Weightage

General Instructions

1. *In cases where choices are provided, students can attend* **all** *questions in each section.*
2. *The minimum number of questions to be attended from the Section / Part shall remain the same.*
3. *The instruction if any, to attend a minimum number of questions from each sub section / sub part / sub division may be ignored.*
4. *There will be an overall ceiling for each Section / Part that is equivalent to the maximum weightage of the Section / Part.*

(Instructions : Draw neat diagrams wherever necessary)

Section A

I. Short answer type questions. Answer any *four* questions :

1 Regolith.
2 EIA.
3 Avalanche.
4 COD.
5 Hazards.
6 E waste.
7 Green house gases.

(4 × 2 = 8 weightage)

Section B

II. Short essay questions. Answer any *four* questions :

8 Problems of urbanization.

9 Geologic hazards.

10 Types of solid waste.

Turn over

CHMK LIBRARY UNIVERSITY OF CALICUT

11 Global warming.

12 Ozone depletion.

13 Saline water intrusion.

14 Mine site decommissioning.

(4 × 3 = 12 weightage)

Section C

III. Long essay questions. Answer any *two* questions :

15 Describe in detail about waste management, its prevention and minimization and the waste disposal methods.

16 Explain Air pollution, its sources and effects.

17 Give a brief account of EIA, emphasizing on the principles, procedures, rapid and comprehensive EIA and steps of EIA.

18 ExplainWater pollution highlighting on surface water pollution and groundwater pollution with reference to their causes, effects and treatment measures.

(2 × 5 = 10 weightage)

CHMK LIBRARY UNIVERSITY OF CALICUT

D 11589 (Pages : 2) Name.....

Reg. No.....

THIRD SEMESTER M.Sc. DEGREE (REGULAR/SUPPLEMENTARY) EXAMINATION, NOVEMBER 2021

(CBCSS)

Applied Geology

GEL 3E 01 A—CLIMATOLOGY

(2019 Admission onwards)

Time : Three Hours Maximum : 30 Weightage

General Instructions

1. *In cases where choices are provided, students can attend* **all** *questions in each section.*
2. *The minimum number of questions to be attended from the Section / Part shall remain the same.*
3. *The instruction if any, to attend a minimum number of questions from each sub section / sub part / sub division may be ignored.*
4. *There will be an overall ceiling for each Section / Part that is equivalent to the maximum weightage of the Section / Part.*

(Instructions : Draw neat diagrams wherever necessary)

Section A

I. Short answer type questions. Answer any four questions :

1 Standard time.

2 Precipitation effectiveness.

3 Local winds.

4 Rossby waves.

5 Dew point.

6 Smog.

7 Tornado and hurricane.

(4 × 2 = 8 weightage)

Section B

II. Short essay questions. Answer any *four* questions :

8 Structure and composition of the atmosphere.

9 Atmospheric equilibrium.

Turn over

CHMK LIBRARY UNIVERSITY OF CALICUT

10 Major jet streams.

11 Types of fronts.

12 Classification of clouds.

13 Types of rainfall.

14 Recent cyclones in the Arabian Sea.

(4 × 3 = 12 weightage)

Section C

III. Long essay questions. Answer any *two* questions :

15 Give details on the Koppen's classification of climate. Add a note on the advantages and limitations of this classification.

16 Write an essay on the major wind systems of the earth.

17 Discuss the types of temperature inversion and its effects on weather.

18 Describe the conditions and stages of formation of tropical cyclones. Add a note on their structure.

(2 × 5 = 10 weightage)

CHMK LIBRARY UNIVERSITY OF CALICUT

D 11588 (Pages : 2) Name.....

Reg. No.....

THIRD SEMESTER M.Sc. DEGREE (REGULAR/SUPPLEMENTARY) EXAMINATION, NOVEMBER 2021

(CBCSS)

Applied Geology

GEL 3C 09—IGNEOUS AND METAMORPHIC PETROLOGY

(2019 Admission onwards)

Time : Three Hours Maximum : 30 Weightage

General Instructions

1. *In cases where choices are provided, students can attend* **all** *questions in each section.*
2. *The minimum number of questions to be attended from the Section / Part shall remain the same.*
3. *The instruction if any, to attend a minimum number of questions from each sub section / sub part / sub division may be ignored.*
4. *There will be an overall ceiling for each Section / Part that is equivalent to the maximum weightage of the Section / Part.*

Draw neat diagrams wherever necessary.

Part A

I. Short Answer Type Questions. Answer any *four* questions :

1 Phacolith.

2 Granulose structure.

3 Batch melting.

4 Metamorphic facies series.

5 Tectonomagmatic environment.

6 Stress and Anti-stress minerals.

7 Pegmatites.

(4 × 2 = 8 weightage)

Part B

II. Short Essay Questions. Answer any *four* questions :

8 Compositional variation in magmas.

9 Role of fluids in metamorphic reactions.

Turn over

CHMK LIBRARY UNIVERSITY OF CALICUT

10 Petrogenesis of lamprophyres.

11 Chemographic projections in Metamorphic Petrology.

12 Applications of phase rule in the silicate systems.

13 Paired metamorphic belts in relation to plate tectonics.

14 Characteristics and petrogenetic significance of ophiolites.

(4 × 3 = 12 weightage)

Part C

III. Long Essays. Answer any *two* questions :

15 Explain the thermal and regional metamorphism of carbonate rocks.

16 Explain the course of crystallization and petrogenetic significance of the Diopside-Anorthite-Albite ternary system.

17 Describe the petrography, classification and petrogenesis of anorthosites.

18 Explain the concept of 'metamorphism in space and time' with respect to the plate tectonics and metamorphic processes operated in the Archaean and Proterozoic terrains.

(2 × 5 = 10 weightage)

CHMK LIBRARY UNIVERSITY OF CALICUT

D 11166-A (Pages : 2) Name.....

Reg. No.....

THIRD SEMESTER P.G. DEGREE EXAMINATION, NOVEMBER 2021

(CCSS)

Applied Geology

GEL 3E 03 C—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.*

1. Distinguish between Hazard and Disaster.
2. Write a note on the classification of disasters.
3. Describe the different types of drought.
4. Explain how avalanches cause disasters.
5. Describe the causes, effects and mitigation of tsunami.
6. Give an account of Building fire and its impacts.
7. Explain the significance of Communication and Training in disasters.
8. Describe lightning and soil piping as potential hazards in Kerala.

(8 × 2 = 16 marks)

Part B

Write short essays on any **six** *of the following.*

9. Give an account of the Disaster Management Cycle and its different phases.
10. Explain Comprehensive Disaster Management Plan and its elements.
11. Describe prevention, preparedness and mitigation of floods.
12. Give an account of the prevention and mitigation of landslide hazards.
13. Describe biological disasters as man-made disasters and their impacts on society.

Turn over

CHMK LIBRARY UNIVERSITY OF CALICUT

14. Explain the causes, adverse impacts and mitigation of coal and oil fire.

15. Enumerate points on the impacts of industrial pollution on air, water and land.

16. Describe Risk Reduction and Vulnerability Analysis in Disaster Management.

17. Explain how Armed Forces and Police play their role in Disaster Response.

18. Describe coastal erosion and flood as potential hazards in Kerala.

(6 × 6 = 36 marks)

Part C

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

19. Describe the Policy and Administrative Framework for Disaster Management In India. Add a note on Disaster management Act-2005.

20. Give an account of Earthquakes and Volcanic eruptions as natural disasters with reference to their causes, adverse effects, preparedness and mitigation.

21. Explain Nuclear Disasters and Chemical Disasters with suitable examples.

22. Discuss the role of Geo-informatics in Disaster Management.

(2 × 14 = 28 marks)

CHMK LIBRARY UNIVERSITY OF CALICUT

D 11166 (Pages : 2) Name.....

Reg. No.....

THIRD SEMESTER P.G. DEGREE EXAMINATION, NOVEMBER 2021

(CCSS)

Applied Geology

GEL 3E 03A—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. Sustainable development.
2. EIA.
3. Primary effects of earthquakes.
4. Leachate.
5. Smog.
6. Landfills.
7. Nuclear implosion.
8. Mangroves.

(8 × 2 = 16 marks)

Part B

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

9. Role of geologists in environmental management.
10. Environmental impacts due to landslides.
11. Types of municipal wastes and their disposal.
12. Describe the health hazards due to ground water pollution by heavy metals.
13. Discuss the different types of coastal environments and their distribution.
14. Explain environmental mapping and its significance.

CHMK LIBRARY UNIVERSITY OF CALICUT

15. Discuss the significance of mineral conservation and preservation.

16. Give an account of the different types of wastes generated by mining activities.

17. Methods of control of ground water pollution.

18. Effects of oil spills on marine ecosystems.

(6 × 6 = 36 marks)

Part C

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

Each question carries 14 *marks.*

19. Describe the different sources of marine pollution.

20. Give an account of various anthropogenic hazards.

21. Describe the various sources of surface water pollution.

22. Discuss the consequences of air pollution in urban areas.

(2 × 14 = 28 marks)

CHMK LIBRARY UNIVERSITY OF CALICUT

D 11165 (Pages : 2) Name.....

Reg. No.....

THIRD SEMESTER P.G. DEGREE EXAMINATION, NOVEMBER 2021

(CCSS)

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.

1. Drill bits.
2. Rotary drilling.
3. Path finder elements.
4. Gravimeter.
5. Geophysical anomaly.
6. Seismic body waves.
7. Bore hole deviation.
8. Gossan.

(8 × 2 = 16 marks)

Part B

Write short essays on any **six** *of the following.*

9. Different methods of surface exploration of mineral deposits.
10. Describe the mobility of elements, threshold values and geochemical anomalies.
11. Principles and instruments used in self potential method of exploration of metal sulphides.
12. Explain the principles of air-borne magnetic survey. Add a note on magnetometers.
13. Principles of radioactivity and radiometric methods of mineral exploration.

Turn over

CHMK LIBRARY UNIVERSITY OF CALICUT

14. What are regional and local gravity anomalies ? Add a note on the application of gravity in mineral exploration.

15. Describe seismic refraction and reflection surveys.

16. Discuss the mode of occurrence of trace elements in geological materials and their use in mineral exploration.

17. Describe geobotanical survey techniques.

18. Describe thermal logging of bore holes.

(6 × 6 = 36 marks)

Part C

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

19. Describe G.M counters and Scintillometers and their use in the exploration of minerals.

20. Discuss the anomalies in surface water and sediments and their use in mineral exploration.

21. Describe Wenner and Schlumberger methods used in ground water exploration.

22. Explain the different methods of estimation of ore reserves.

(2 × 14 = 28 marks)

CHMK LIBRARY UNIVERSITY OF CALICUT

D 11164 (Pages : 2) Name.....

Reg. No.....

THIRD SEMESTER P.G. DEGREE EXAMINATION, NOVEMBER 2021

(CCSS)

Applied Geology

GEL 3C 07—IGNEOUS AND METAMORPHIC PETROLOGY

(2019 Admissions)

Time : Three Hours Maximum : 80 Marks

Draw diagrams wherever necessary.

Part A

Write short notes on the following :

1. Incongruent melting.
2. Quaternary system.
3. Mode and Norm.
4. Paired metamorphic belts.
5. Anatexis.
6. Polymetamorphism.
7. Hornfels.
8. Komatiites.

(8 × 2 = 16 marks)

Part B

Write short essays on any *six* of the following :

9. Streckeisen's QAP Classification of igneous rocks.
10. Ternary phase diagram.
11. Petrogenetic significance of equilibrium and inequilibrium crystallizations.
12. Petrogenetic significance of trace elements in igneous rocks.
13. Importance of textures in the study of evolution of igneous rocks.
14. Petrography and petrogenesis of Kimberlites.
15. Discuss the relation between plate tectonics and metamorphic processes.
16. Discuss extra-terrestrial metamorphism.
17. Distinguish between prograde and retrograde metamorphism with suitable examples.
18. Discuss metamorphic differentiation.

(6 × 6 = 36 marks)

Turn over

CHMK LIBRARY UNIVERSITY OF CALICUT

Part C

Write essays on *two* of the following :

19. Describe different types of classification of granites.

20. Give an account of the course of crystallization of Diopside - Albite- Anorthite System.

21. Discuss the progressive regional metamorphism of argillaceous rocks.

22. Describe ACF, AKF, AFM diagrams and their significance.

(2 × 14 = 28 marks)

CHMK LIBRARY UNIVERSITY OF CALICUT