

QP CODE

Reg.No :

Name :

MAHATMA GANDHI UNIVERSITY, KOTTAYAM
THIRD SEMESTER MGU-UGP (HONOURS) REGULAR EXAMINATION
OCTOBER 2025

Third Semester

DISCIPLINE SPECIFIC CORE COURSE B (DSC B)– MG3DSCGEO202
MINERAL SCIENCE

(2024 ADMISSION ONWARDS)

Duration: 1.5 Hours

Maximum Marks: 50

Remember(K), Understand(U), Apply(A), Analyse(An), Evaluate(E), Create(C), Skill(S), Interest(I) and Appreciation(Ap)

Students should attempt at least one question from each course outcome to enhance their overall outcome attainability.

Part A

Short answer in 60 words

Answer any 7 questions

Each question carries 2 marks

1. Define polymorphism. [A][2]
2. Name any two non-silicate minerals. [A][4]
3. Define Solid solutions in minerals. [A][2]
4. List some important parts of petrological microscope. [A][3]
5. List the Scope of Optical Mineralogy. [A][3]
6. Define critical angle. [A][3]
7. List the Physical properties of Garnet Group of Minerals. [An][5]
8. Name any two Native Elements. [An][6]

[2x7 = 14]

Part B

Short notes in 250 words

Answer any **3** questions

Each question carries **8** marks

9. Classify Minerals based on anionic groups. [A][4]
10. Explain mode of occurrence and uses of the group oxides. [An][6]
11. Describe physical properties of carbonates, sulfates and halides. [An][6]
12. Illustrate and explain nicol prism. [A][3]
13. List the symmetry elements and forms present in the normal class of Tetragonal. [U][1]

Part C

Essay in 400 words

Answer any **1** questions

Each question carries **12** marks

14. Explain Optical properties under plane polarised and crossed polarised light. [A][3]
15. Explain Structure, chemistry and optical and physical properties, modes of occurrence of Phyllosilicates. [An][5]

[12x1 = 12]

QPCODE

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MAHATMA GANDHI UNIVERSITY, KOTTAYAM
MGU-UGP (HONOURS) B Sc (Hons) GEOLOGY EXAMINATION
OCTOBER 2025
DSE - MG3DSEGEO200 - ENDOGENOUS EARTH PROCESSES
(2024 ADMISSION ONWARDS)

Duration: 1.5-hour

Maximum Marks: 70 marks

Remember(K), Understand(U), Apply(A), Analyse (An), Evaluate(E), Create(C), Skill(S), Interest(I) and Appreciation (Ap)

Students should attempt at least one question from each course outcome to enhance their overall outcome attainability.

Part A

Short answer in 60 words

Answer any 5 questions

Each question carries 2 marks

1. Mention two evidences supporting continental drift hypothesis.
2. Define the principle of Uniformitarianism.
3. What are the three main types of plate boundaries?
4. What is the geothermal gradient?
5. What is Epeirogeny.
6. Differentiate between Richter and Mercalli scales.

[2x5 = 10marks]

Part B

Short notes in 250 words

Answer any 6 questions

Each question carries 8 marks

7. Discuss the global distribution of volcanoes.
8. Discuss the classification of earthquake based on causes and depth.
9. Explain the behaviour of Magma.
10. Discuss the Isostasy concepts.
11. Explain the concept of Sea floor spreading and their supporting evidences.
12. Explain mantle convection currents and mantle plume.
13. What are endogenous geomorphic processes? Describe their associated landforms.
14. Differentiate between Himalayan, Andes, and Japan types of orogeny.

[8x6 = 48marks]

Part C

Essay in 400 words

Answer any 1 question

Each question carries 12 marks

15. Discuss the major changes that the Earth has undergone through geologic time?
16. Describe the plate tectonics theory and its significance in explaining endogenous geomorphic processes

[12x1 = 12marks]

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MAHATMA GANDHI UNIVERSITY, KOTTAYAM

**THIRD SEMESTER MGU-UGP (HONOURS) B Sc (Hons) GEOLOGY
EXAMINATION**

OCTOBER 2025

MG3DSCGEO200 MINERALOGY

(2024 ADMISSION ONWARDS)

Duration: 1.5 Hours

Maximum Marks: 50

Remember(K), Understand(U), Apply(A), Analyse(An) Evaluate(E), Create(C), Skill(S), Interest(I) and Appreciation(Ap)

Students should attempt at least one question from each course outcome to enhance their overall outcome attainability.

Part A

Short answer in 60 words

Answer any **7** questions

Each question carries **2** marks

- | | |
|---|-----------------|
| 1. What is the significance of streak of a mineral? | [Ap][CO2] |
| 2. Name two examples for oxide minerals | [An][CO6] |
| 3. What are miller indices? | [U][CO1] |
| 4. Differentiate polymorphism and isomorphism | [Ap][CO2] |
| 5. How is refractive index of a mineral useful in mineral identification? | [Ap]CO3] |
| 6. Write the role of Nicol Prism in optical mineralogy. | [Ap][CO3] |
| 7. What is pleochroism? Give an example. | [Ap][CO3] |
| 8. List the silicate groups of minerals | [Ap][CO4] |
| | [2x7=14] |

Part B

Short notes in 250 words

Answer any 3 questions

Each question carries 8 marks

- | | |
|--|-----------|
| 9. Write a brief note on physical and chemical properties of carbonate and sulphide mineral groups with examples | [An][CO6] |
| 10. Classification of minerals based on silicate structure | [Ap][CO4] |

11. Write a short essay on symmetry elements and forms present in the normal classes of Isometric system [U][CO1]
12. What are the major Physical properties of minerals and how they are useful in mineral identification? Explain with examples. [Ap] [CO2]
13. Write a note on feldspar group of minerals and how they are distinct from feldspathoid group of minerals? [An][CO5]

[8x3=24]

Part C

Essay in 400 words

Answer any 1 question

Each question carries 12 marks

14. Analyze the properties of seven crystal systems and elaborate how their inherent symmetry controls physical and optical behaviour of minerals. Illustrate your discussion using specific mineral examples. [An][CO5]
15. Illustrate the working and components of a petrological microscope. Analyze the functions of optical accessories in observing and identifying minerals in thin sections. [Ap][CO3]

[12x1=12]

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