

## THIRD SEMESTER (CBCSS—UG) DEGREE EXAMINATION, NOVEMBER 2021

## Geology

GEO 3C 05—SATELLITE REMOTE SENSING AND GIS DATA MANAGEMENT SYSTEM

(2019—2020 Admissions)

Time : Two Hours

Maximum : 60 Marks

*Answer all questions.  
(Draw neat sketches wherever necessary)*

**Section A**

*Answer at least eight questions.  
Each question carries 3 marks.  
All questions can be attended.  
Overall Ceiling 24.*

1. Hyperspectral imaging.
2. SAR and RAR.
3. Blackbody radiation.
4. Bhaskara satellites.
5. Launch vehicles.
6. Antrix.
7. IIRS.
8. Landsat.
9. Electronic data transfer.
10. Analogue and Digital data.
11. Duplicate lines.
12. Pseudonode.

(8 × 3 = 24 marks)

**Section B**

*Answer at least five questions.  
Each question carries 5 marks.  
All questions can be attended.  
Overall Ceiling 25.*

13. Multispectral Scanner Systems.
14. Microwave radiation and attenuation.

**Turn over**

15. Satellite remote sensing scenario in India.
16. Meteorological satellites.
17. Digitizing data in GIS.
18. GIS data querying.
19. Methods of data editing in GIS.

(5 × 5 = 25 marks)

### Section C

*Answer any one question.*

*The question carries 11 marks.*

20. Describe the principles and applications of Thermal Remote Sensing.
21. Give an account of data management in GIS highlighting on the approach, the system, its designing and applications.

(1 × 11 = 11 marks)

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THIRD SEMESTER (CBCSS—UG) DEGREE EXAMINATION  
NOVEMBER 2021

Geology

GEO 3B 05—CRYSTALLOGRAPHY AND MINERALOGY

(2019—2020 Admissions)

Time : Two Hours

Maximum : 60 Marks

*Answer all questions.*

*Draw neat sketches wherever necessary.*

**Section A**

*Answer at least **eight** questions.*

*Each question carries 3 marks.*

*All questions can be attended.*

*Overall Ceiling 24.*

1. Weiss parameters.
2. Axial ratio.
3. Law of rational indices.
4. Hexoctahedron.
5. Gyroidal class.
6. Tetragonal scalenohedron.
7. Rhombohedron.
8. Macro and Brachy pinacoids.
9. Brazil law.
10. Solid solution.
11. Coupled ionic substitution.
12. Coordination number.

(8 × 3 = 24 marks)

**Turn over**

**Section B**

*Answer at least five questions.  
Each question carries 5 marks.  
All questions can be attended.  
Overall Ceiling 25.*

13. Elements of symmetry in crystals.
14. Classification of crystal forms.
15. Symmetry and forms of Normal class of Tetragonal system.
16. Typical forms of Normal class of Orthorhombic system.
17. Twin law's of Monoclinic and Triclinic system.
18. Isomorphism, Polymorphism and Pseudomorphism.
19. Classification of silicate structures.

(5 × 5 = 25 marks)

**Section C**

*Answer any one question.  
The question carries 11 marks.*

20. Describe the symmetry elements and forms present in the Normal class of Hexagonal system.
21. Give a brief account of the various physical properties of minerals with suitable examples.

(1 × 11 = 11 marks)

**THIRD SEMESTER (CUCBCSS—UG) DEGREE EXAMINATION  
NOVEMBER 2021**

Geology

GLY 3B 05—CRYSTALLOGRAPHY

(2017—2018 Admissions)

Time : Three Hours

Maximum : 80 Marks

*Draw neat sketches wherever necessary.*

**Part A (Objective Type Questions)**

*Answer all ten questions.*

*Each question carries 1 mark.*

1. What is the total number of crystal classes in the crystal kingdom ?
  - a) 30.
  - b) 36.
  - c) 32.
  - d) 26.
2. \_\_\_\_\_ crystal forms exhibit the highest degree of symmetry possible in a system.
3. What is an Octahedron ?
4. Diamond crystallizes in which crystal system ?
5. The type mineral of Sphenoidal class of Tetragonal System.
6. Give the symmetry elements of Tripyramidal class of Tetragonal system.
7. The general symbol of the rhombohedron is \_\_\_\_\_.
8. Define a Brachypinacoid.
9. The mineral gypsum crystallizes in which of the following crystal systems ?
  - a) Triclinic.
  - b) Orthorhombic.
  - c) Tetragonal.
  - d) Monoclinic.
10. What are Polysynthetic twins ?

(10 × 1 = 10 marks)

**Turn over**

**Part B (Short Answer Type Questions)**

*Answer any ten questions.  
Each question carries 2 marks.*

11. Contact goniometer.
12. Axial ratio.
13. Hemihedral and hemimorphic forms.
14. Typical forms of the crystal class in which Tetrahedrite mineral crystallizes.
15. Hexoctahedron.
16. Symmetry elements of Hemimorphic class of Tetragonal system.
17. Typical forms of Tripyramidal class of Hexagonal system.
18. Symmetry elements of Tourmaline.
19. Macrodomes and Brachydomes.
20. Pinacoids of Monoclinic system - Normal class.
21. Twin plane and composition plane.
22. Iron cross twins.

(10 × 2 = 20 marks)

**Part C (Paragraph Type Questions)**

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

23. Morphological characters of crystals.
24. Weiss and Miller systems of indices.
25. Symmetry elements and Forms of Pyritohedral class of Cubic system.
26. Tetragonal prisms and pyramids of third order.
27. Dihexagonal prism and Dihexagonal pyramid.
28. Distinguish between a scalenohedron and a trigonal trapezohedron.
29. Forms present on the Triclinic System - Normal Class.
30. Contact and penetration twins with examples.

(5 × 6 = 30 marks)

**Part D (Essay Type Questions)**

*Answer any **two** questions.*

*Each question carries 10 marks.*

31. Give an account of the important laws of crystallography. Add a note on the symmetry elements of crystals.
32. Describe the Normal class of Tetragonal system highlighting on the symmetry elements, forms and type mineral.
33. Describe the symmetry elements, forms present and type mineral of the Normal class of Monoclinic system.
34. What are Twin crystals? Explain the twin laws pertaining to the crystals of Aragonite, Staurolite, Gypsum, Augite and Feldspars.

(2 × 10 = 20 marks)

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