

TDC (CBCS) Odd Semester Exam., 2020
held in March, 2021

GEOLOGY

(5th Semester)

Course No. : GELSEC-501T

(Geochemistry)

Full Marks : 50
Pass Marks : 20

Time : 3 hours

*The figures in the margin indicate full marks
for the questions*

SECTION—A

Answer any *fifteen* of the following questions :
1×15=15

1. Define geochemistry.
2. What is unit cell of a crystal?
3. What are colloids?

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(Turn Over)

4. Define ionic radius.
5. What is radius ratio?
6. What is ionic substitution?
7. What is primary differentiation of earth?
8. Define cosmic abundance unit.
9. What is terrestrial planet?
10. Define Jovian planets.
11. Define Oddo-Harkins rule.
12. What are radio-nuclides?
13. What is partition coefficient (K_D)?
14. Define trace element.
15. What are major elements?
16. Define electronegativity.
17. What is rare earth element?
18. Define transition metal element.

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(Continued)

(3)

19. Define chemical potential.
20. What is entropy?
21. Define free energy.
22. Define isomorphism.
23. What is solid solution?
24. What is stable isotope?
25. What is meteoroid?
26. What is geochemical fractionation?
27. What is chondrule?
28. What are iron meteorites?
29. Define geochemical reservoir.
30. What is asteroid belt?

SECTION—B

Write short notes on *five* of the following : 2×5=10

31. Coordination number

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(4)

32. Colloids in geological systems
33. Composition of Mars
34. Covalent bond
35. Chemistry of cements in sedimentary rocks
36. Chemistry of metamorphic fluids
37. Gibbs phase rule
38. First law of thermodynamics
39. Tektite
40. Energy for driving geochemical cycles

SECTION—C

Answer any *five* of the following questions :

5×5=25

41. Describe various types of chemical bonds with mineralogical examples.
42. Discuss briefly the salient features of Periodic Table.

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(Continued)

(5)

43. Describe the composition of various types of meteorites.
44. Discuss the essential features of geochemical cycle.
45. Write briefly on the Goldschmidt's classification of elements with examples.
46. Discuss on the distribution of minor and trace elements in igneous rocks.
47. Discuss the concept of polymorphism. Add a note on the mechanism of polymorphic transformation.
48. Define isotope. Write a note on the radioactive isotopes of geological importance.
49. Describe the geochemical structure of the earth.
50. Discuss on the biogeochemical classification of elements.

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