E 1900 (Pages : 2) Reg. No.....

Name.....

UNDERGRADUATE (C.B.C.S.S.) EXAMINATION, OCTOBER 2015

Fifth Semester

Open Course—ENVIRONMENTAL CHEMISTRY

(Offered by the Board of Studies—Chemistry)

[2013 Admissions]

Time : Three Hours Maximum : 80 Marks

Part A

Answer **all** *questions.*
Each questions carries 1 *mark.*

1. Name two greenhouse gases.
2. Name two examples of nonconventional energy sources.
3. Name the heavy metal pollutant that caused "Itai Itai" disease.
4. Name a factor that causes eutrophication.
5. Name two cancer causing agents.
6. What is meant by BOD ?
7. The upper portion of the lithosphere is enriched with elements ——— and ———.
8. Name two macronutrients in soil.
9. Name an organochlorine pesticide.
10. Name two pollutant gases that cause acid rain.

(10 × 1 = 10)

Part B

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

11. What is meant by renewable and non-renewable energy sources ? Give examples.
12. What are the important sources of metal ion toxicity ?
13. What is radiation ? What is it due to ?
14. What are the chief factors responsble for water pollution ?
15. Explain bio-magnification using a suitable example.
16. What is meant by green chemistry ?
17. What is meant by lime status and lime requirement ?

Turn over

18. Discuss how micro-organisms can be used for the treatment of effluents.
19. How can noise pollution bicontrolled ?
20. In what way do CO_2 cause air pollution ?
21. Describe the toxic effects of pesticides.
22. What are the control measures to check air pollution ?

$(8 \times 2 = 16)$

Part C

Answer any **six** *questions.*
Each question carries 4 *marks.*

23. Discuss the use of solar radiation as a source of electrical energy.
24. What is the importance of ozone layer ? What are the causes of depletion of ozone layer ?
25. Discuss on water quality standards and water quality index.
26. What are the causes and adverse effects of global warming ?
27. Explain the briefly the effects electric and magnetic field in the environment.
28. Discuss the common techniques adopted for the treatment and disposal of hazardous wastes.
29. Differential between COD and BOD.
30. Write a note on soil pollution. What are the effects of soil pollutants ?
31. Discuss the principles of green chemistry.

$(6 \times 4 = 24)$

Part D

Answer any **two** *questions.*
Each question carries 15 *marks.*

32. Discuss in detail the advanced waste treatment processes to improve the quality of water to a point to which it can be reused.
33. What are different types of wastes ? Discuss on the possibility of reuse and recycling of waste.
34. Discuss the common techniques of sampling and analysis of CO, SO_2, H_2S and hydrocarbons.
35. Explain the sources of heavy metals such as Pb, Hg, As and Cd in water as pollutants and discuss the toxic effects on man.

$(2 \times 15 = 30)$