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Total No. of Pages : 02

Total No. of Questions : 09

M.Sc. (Chemistry) (2015 to 2017) (Sem.-4)

ENVIRONMENTAL CHEMISTRY

Subject Code : MSCH-402

M.Code : 71677

Time : 3 Hrs.

Max. Marks : 100

INSTRUCTION TO CANDIDATES :

1. Attempt FIVE questions in all including Question No.1 which is COMPULSORY and selecting ONE each from UNIT-I to IV
2. All Questions carry EQUAL marks.

1. Answer briefly :

- a) Explain briefly COD.
- b) What is Green Chemistry? Give its some applications in day to day life.
- c) Name two toxic gases that are produced due to burning of plastics.
- d) What do you mean by the term biodegradation? Give examples.
- e) Give examples of some micro and macronutrients present in soil.
- f) What are biochemical effects of oxides of sulphur?
- g) Name the pollutants of nuclear plant.
- h) What is dissolved oxygen? Give its significance.
- i) What are radionuclides?
- j) Define residual chloride.

UNIT-I

2.
 - a) Describe in details the various segments of the environment and the chemistry occurring in those segments.
 - b) Discuss biogeochemical cycle of carbon in the environment.
3.
 - a) Discuss biogeochemical cycle of nitrogen in the environment.
 - b) Illustrate the principle of biogeochemical cycling. How do the various natural cycles of the environment sustain life in biosphere?



UNIT-II

4.
 - a) Discuss the anion redox equilibria in sea water.
 - b) What are living catalysts in living systems? Discuss the mechanism and chemistry of their action.
5.
 - a) Describe in details the Winkler's method and the chemistry involved in it for the determination of dissolved oxygen in water.
 - b) Discuss with examples, some of the microbially-mediated redox reactions in natural water with their significance in environment.

UNIT-III

6.
 - a) Define and describe classical and photochemical smog formation. Discuss the chemistry involved.
 - b) Give an account of inorganic particulate matter. How is it different from organic particulate matter?
7.
 - a) Comment on the origin of a soot particle. How will you monitor toxic inorganics and organics in a soot particle?
 - b) Explain the beneficial and harmful effects of organic wastes to soil. Support your answer with suitable chemical equations.

UNIT-IV

8.
 - a) Explain the mechanism of action of insecticides and their beneficial and adverse effects on environment.
 - b) What are the environmental impacts of cement and sugar industry? Discuss the methods of the waste management produced by these industries.
9.
 - a) Discuss the aerobic oxidation of sewage. Describe briefly the activated sludge treatment.
 - b) How do you propose solid waste management? Discuss the advantages and limitations of each method proposed.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.