

**T.Y.B.SC. SEM – V (CBCS - 2016 Course) : WINTER - 2018**

**SUBJECT: CHEMISTRY: ENVIRONMENT CHEMISTRY-I**

**Day:** Tuesday  
**Date:** 23/10/2018

**W-2018-0766**

**Time:** 03.00 P.M. To 06.00 P.M  
**Max. Marks:** 60

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**N.B:**

- 1) All questions are **COMPULSORY**.
  - 2) Figures to the right indicate **FULL** marks.
  - 3) Draw neat labelled diagrams **WHEREVER** necessary.
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**Q.1** Attempt **ANY TWO** of the following: **(12)**

- a) "Carbon dioxide, a non-pollutant, is perhaps the single most important environmental problem facing us at present". Discuss in terms of the green house effect.
- b) What are the broad classification of water pollutants? Discuss.
- c) Explain the analysis of any two air pollutants in air by different methods.
  - i) CO
  - ii) NO<sub>2</sub>
  - iii) Hydrocarbons

**Q.2** Attempt **ANY TWO** of the following: **(12)**

- a) Describe in detail the evolution of the earth's atmosphere. What reasons can be given for the change from a reducing to an oxidizing atmosphere.
- b) Explain the role of humic substances in aquatic environment. Suggest the structure of humic acid. What are its degradation products?
- c) Discuss ozone hole and its effect on human health.

**Q.3** Attempt **ANY TWO** of the following: **(12)**

- a) What are primary air pollutants? Explain sources and sink of any two air pollutants.
- b) Explain the chemical speciation of any one in aquatic environment
  - i) Hg
  - ii) Cu
  - iii) Pb
- c) Write notes on:
  - i) TCDD accident
  - ii) Bhopal disaster

**Q.4** Attempt **ANY THREE** of the following: **(12)**

- a) Write a note on "Nitrogen transformation by bacteria".
- b) Describe the method for the analysis of any one parameter in water sample
  - i) NH<sub>3</sub>
  - ii) Calcium and Magnesium
  - iii) Nitrate and Nitrite
- c) Describe the "Urey and Miller experiment in detail with respect to primitive earth atmosphere.
- d) Write a note on "Acid-rain".

**Q.5** Attempt **ANY FOUR** of the following: **(12)**

- a) Write a note on "EUTROPHICATION".
- b) Define the following terms:
  - i) DO
  - ii) BOD
  - iii) Acid mine drainage
- c) Illustrate how PAN is formed in a photochemical smog producing chain reaction.
- d) Give an account of water pollution due to oil spill.
- e) Why is the pH of sea water constant at  $8.1 \pm 0.2$ ?
- f) What is El Nino? How does it affect the global climate?

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