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AR-18

Total Number of Pages : 2

M. Sc

M.Sc 3rd SEMESTER REGULAR EXAMINATIONS, NOV/DEC 2019-20

Subject code: CHE-504

Subject: Environmental and Analytical Chemistry

Time: 3 Hours

Max Marks: 80

The figures in the right hand margin indicate marks.

SECTION A

- Q.1 Answer any four of the following: [4 X4 =16]
- a Write important greenhouse gases, their % composition in the atmosphere and interaction with IR radiation.
 - b Explain the primary effect of NO_x
 - c Discuss about the classification of lake on the basis of eutrofication.
 - d Explain CBOD and NBOD of biological oxygen demand.
 - e What is principle of measurement of metallic contaminant from industrial waste water effluents.
 - f BOD of an effluent sample incubated for one day at 30 °C was found to be 100mg/liter .What will be the 5days BOD at 25°C(Given that k= 0.12 day⁻¹ at 20°C

Or

2. Answer all questions from the following [8×2 =16]
- a Write the working principle for analysis of SO₂ by using pulsed fluorescence analyser.
 - b What is the Dobson unit for ozone layer?
 - c What is bioamplification ? Explain with examples.
 - d Explain the toxic effect of Chromium in drinking water.
 - e Write down the Aluminium toxicity in plants.
 - f Write the principle of Fluoride measurement by Spectroscopic method.
 - g What is radiation fallout.
 - h What are the adverse effects of PAHs on human health?

SECTION-B

3. Answer all Questions: [4×16 =64]
- a (i)Discuss the possible pathways of ozone depletion in stratosphere and comment on the relative importance of these possible pathways.
(ii)Explain the fate of NO_x and SO_x within the atmosphere.

OR

- b Discuss the mechanism, effects of acid deposition and mitigative measures to the attack of acid deposition.
- 4.
- a (i)Discuss the measurement of turbidity by NTU unit
(ii) Write down the principle of BOD and COD .Find out the BOD of a water sample which contains 1.5gm of Urea for every 100 liter of water. The reaction between Urea and oxygen is as follows.



OR

- b (i) Discuss the principle and procedure of measurement of electrical conductivity of a water sample.
(ii) Discuss about tertiary treatment of waste water.
- 5.
- a (i) Write down the advantages and disadvantages of AAS.
(ii) Discuss the working principle of flame emission spectroscopy and its advantages.
- OR
- b (i) Write the comparative study of fluorimetry and Phosphometry.
(ii) Write the principle and instrumental components of AAS.
- 6.
- a (i) Discuss the use of radioisotope in Carbon dating and medicine.
(ii) What do you mean by instantaneous and delayed effect caused by radioactive radiation on human health

OR

- b (i) Discuss the use of radioisotope in industry and agriculture
(ii) Explain the Neutron activation analysis and radiometric titration.