

SEAT No. _____

[65]

No. of Printed Pages:02

SARDAR PATEL UNIVERSITY**M.Sc. Semester-IV: Analytical Chemistry Examination (CBCS)****April -2018, Thursday, Date: 19.04.2018****Time: 02.00 p.m. to 5.00 p.m., Paper: PS04ECHE05****Subject: Environmental Chemistry****Total Marks: 70**

*N.B.: i) The numbers of the marks carried by each question is indicated at the end of the question
ii) Assume suitable data if considered necessary and indicate the same clearly.*

Q.1**Highlight the correct option****[08]**

- Environmental composition is divided in _____ part.
 - 3
 - 2
 - 1
 - 4
- Which of the following is related to Lithosphere?
 - Water resource
 - Natural cycle
 - CO₂
 - Nitrogen cycle
- Give the name of air pollutant mainly responsible for loss of metallic luster
 - SO₂
 - CO₂
 - CO
 - NO_x
- TON value state about the _____ of water.
 - hardness
 - turbidity
 - odour
 - color
- Which of the following is a quality parameter of water?
 - TAN
 - PAN
 - SOMG
 - BOD
- Transportation and solid waste disposal maximum emitted _____ gas.
 - CO
 - both a & b
 - CO₂
 - SO₂
- An ideal temperature for pyrolysis of solid waste is.....
 - 1000 °C
 - 700 °C
 - 550 °C
 - 910 °C
- Which of the following is true for e-waste?
 - Radiation waste
 - Solid waste
 - Air pollutant
 - Sludge

Q.2**Attempt only Seven****[14]**

- Explain the scope of environmental chemistry.
- Define: Biosphere and Atmosphere.
- Discuss turbidity and hardness of water.
- Give brief note on 'EL Nino' phenomena.
- Discuss the PAN and PAH.
- Explain 'Ozone Depletion' and its causes.
- If drinking water contains 1.5 ppm of fluoride (F). How many liters of water can be fluoridated with 1 Kg NaF? (At. Wt. Na = 23, F = 19).
- Discuss the Bio-drying process.
- Give the brief detail of soil pollution.

C.P.T.O.)

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- Q.3 a) What do you mean by 'Hydrosphere'? Name its varied components. Discuss microbial mediated redox reactions in water. [06]
b) Give an account of inorganic and organic particulate matters. [06]

OR

- b) Illustrate the terms 'Pathway of Pollutants'. Write a note on source and sink of NO_x .
Q.4 a) Which method is used for the quantitative determination of atmospheric trace gases? Discuss it in detail with suitable diagram. [06]
b) Explain the analysis of $\text{NO} - \text{NO}_x$ and $\text{CO} - \text{CO}_x$. Discuss its effects. [06]

OR

- b) Discuss source of atmospheric pollutants SO_2 and its effect on environment. If SO_2 in 25 liters of air was collected by drawing the sample through 200 mL, 0.02017 M I_2 at pH 1 remaining in solution was back titrated with 42.0 mL, 0.1041 M $\text{Na}_2\text{S}_2\text{O}_3$. Calculate the concentration of SO_2 in unit mg of SO_2 per liter of air. (At.Wt. S=32)
Q.5 a) Give the detailed account on trace components of water. Discuss its analysis and significant effect. [06]
b) Illustrate the source of water pollution. Discuss the significance of BOD, COD and DO. [06]

OR

- b) Explain the environmental toxicology. Discuss the effect of pesticide in water and its biochemical effect.
Q.6 a) Illustrate the solid waste management programme and strategies. [06]
b) Why salt analysis of soil is required? How it is done? A sample of soil weighing 1.450gm was dissolved with buffer 10 pH, a few drops of EBT indicator was added and this solution required 31.62ml of 1.538×10^{-2} M EDTA solution to reach the end point. Calculate percentage of Mg in the given soil sample. (Mg = 24) [06]

OR

- b) How to measure moisture in soil? Explain various method of analysis.

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