

5. (a) Describe the instrumentation, working principle and applications of Atomic Absorption spectroscopy (AAS).

Or

- (b) Describe the theory, working principle and application of Fluorimetry. Mention the limitations of this technique.
6. (a) Explain the principle and applications of neutron activation Analysis. What are its advantages and limitations?

Or

- (b) Write the applications of radioisotopes in the study of surface area and rate of diffusion studies.
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2019

(January)

Time : 3 hours

Full Marks : 80

Answer from **both** the Sections as per direction

The figures in the right-hand margin indicate marks

Candidates are required to answer in their own words as far as practicable

**(ENVIRONMENTAL AND ANALYTICAL
CHEMISTRY)**

SECTION—A

1. Answer any *four* questions from the following : 4 × 4
- (a) Write about formation of smog in Air.
- (b) Explain water pollution due to industrial effluents.
- (c) Write the effects of pf present in water.

(2)

- (d) Write the working principle of flame emission spectroscopy.
- (e) Explain the factors affecting fluorescence.
- (f) Write one application of radioisotope in the study of reaction mechanisms.

Or

2. Answer *all* questions from the following : 16

- (a) What is greenhouse effect ?
- (b) Write the general effects of water pollution.
- (c) Write the important components and flame gases used in Atomic Absorption spectroscopy.
- (d) Define Fluorescence and phosphorescence.
- (e) Write the sensitive limits of flame emission spectroscopy for alkaline and alkali metals.

(3)

- (f) What are radio metric titrations ? Give examples.
- (g) Write the applications of radioisotopes in agriculture.

SECTION- B

Answer *all* questions : 16 × 4

3. (a) Write about the collection and monitoring of Air samples. How do you analyze carbon monoxide in Air samples.

Or

- (b) Write about the analysis of hydrocarbons and Aromatic hydrocarbons in Air samples.
4. (a) Write the determination of Dissolved oxygen (DO) and Fluoride in water samples.

Or

- (b) Write the determination of hardness of water and total suspended particles in water samples.