

This question paper contains 4 printed pages]

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S. No. of Question Paper : 2470

Unique Paper Code : 32177909/42177918 IC

Name of the Paper : **Industrial Chemicals &  
Environment**

Name of the Course : B.Sc. (Hons.)/B.Sc. (P) : DSE-3/1B

Semester : VI

Duration : 3 Hours

Maximum Marks : 75

*(Write your Roll No. on the top immediately on receipt of this question paper.)*

Attempt Five questions in all.

All questions carry 15 marks each.

Question No. 1 is compulsory.

1. (a) Fill in the blanks : 6

(i) The atmospheric region containing ions and free radicals is known as .....

(ii) Sulphuric acid is manufactured by ..... process.

(iii) Solar cell is used to harness ..... energy.

P.T.O.

- (iv) ..... bacteria converts nitrite ions into nitrate ions in the environment.
- (v) ..... method is used for concentration of sulphide ores having non-sulphide impurities.
- (vi) ..... is an example of antiknocking agent for petrol.

(b) Differentiate between the following :

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- (i) Renewable and Non-renewable source of energy
- (ii) BOD and COD
- (iii) Primary and Secondary pollutants
2. (a) Give a labeled self explanatory diagram of biogeochemical cycle of Sulphur.
- (b) Discuss the manufacturing process of acetylene gas and specify its *three* uses.
- (c) What are the pollutants present in the industrial effluent of petroleum industry ? How can these pollutants be taken care of ?

3×5=15

3. (a) Illustrate different regions of atmosphere, specifying the chemical species and the biota present in different regions.
- (b) Define DO. Discuss the method for estimation of DO in water sample.
- (c) What are the major sources of carbon monoxide ? Give methods of controlling the amount of carbon monoxide in atmosphere.  $3 \times 5 = 15$
4. (a) Discuss the method of refining an alkali metal by electrolysis.
- (b) Explain the consequences of global warming briefly.
- (c) What is the general composition of coal ? Explain the role of each element present in coal and how do they help in grading of coal ?  $3 \times 5 = 15$
5. (a) Define biocatalyst and explain its importance in chemical industry with a suitable example.
- (b) Automobiles are the major source of carbon monoxide, hydrocarbons and NO<sub>x</sub> mixture. How can this be converted to less harmful pollutants ? Discuss in detail.
- (c) Discuss the role of ion exchange method in water purification process.  $3 \times 5 = 15$

6. Write short notes on any *three* of the following :

(a) Oil spills as water pollutant

(b) Tertiary treatment of water

(c) Any case study of nuclear disaster

(d) Wind energy.

3×5=15