

## B.Tech. 2nd Semester Exam., 2014

## ENVIRONMENTAL SCIENCE

Time : 3 hours

Full Marks : 70

Instructions :

- (i) The marks are indicated in the right-hand margin.  
 (ii) There are **NINE** questions in this paper.  
 (iii) Attempt **FIVE** questions in all.  
 (iv) Question No. 1 is compulsory.

1. Answer any seven of the following as directed :  $2 \times 7 = 14$

(a) Pollution due to mercury compounds in water causes — disease. (11)

Minimise (Fill in the blank)

(b) Itai-itai disease in Japan is caused due to pollution of — in water. (14)

Lead nitrate (Fill in the blank)

(c) The gases responsible for the greenhouse effect are —. (15)

(Fill in the blank)

(d) Give the characteristics of stratosphere.

(e) The gas which caused Bhopal Disaster is —. Methyl isocyanate  $CH_3N=C$

(11) (Fill in the blank)

(f) A 50 ml sample of water contains 700 p.p.m. of dissolved oxygen. After 5 days the dissolved oxygen becomes 210 p.p.m. after the sample has been diluted to 100 ml. BOD of the sample is —.

(Fill in the blank)

(g) The range of dissolved oxygen in drinking water is —. 4-6 ppm

(1) (Fill in the blank)

(h) Give two examples each of renewable and non-renewable energy sources.

(i) For removal of  $As^{+3}$  from drinking water, water is passed through porous material. The material is made of —.

(Fill in the blank)

(j) The cyclone collector is used to remove —.

(Fill in the blank)

2. (a) Give the mechanism of ozone layer depletion. 14  
 (b) What are the adverse effects of the depletion of ozone layer? 4  
 (c) What is acid rain? Discuss its effect on environment. 5
3. (a) What are the importance of environmental studies? 4  
 (b) Describe the various environmental segments. 5  
 (c) What are the causes of Tsunami formation? Describe the damages caused by it. 5
4. (a) Define the term 'particulates'. What are the sources and effects of particulates? 5  
 (b) What are the various control devices to remove particulate from gas stream? 5  
 (c) What is the significance of BOD and COD analyses? 4
5. (a) Discuss the toxic effects of  $Pb^{+2}$ ,  $Cd^{+2}$ ,  $Hg^{+2}$ ,  $As^{+3}$ . 4  
 (b) Discuss the toxic effects of the oxides of carbon, nitrogen and sulphur. 5  
 (c) Write the method of estimation of  $As^{+3}$  ion in water. 5

6. (a) What are the various sources of noise pollution? 14  
 (b) What are the physiological and psychological effects of noise pollution? 14  
 (c) How can noise pollution be controlled? 14
7. (a) How do industrial wastes contribute to soil pollution? 14  
 (b) What are the measures to be taken to minimize soil pollution? 14  
 (c) What are the main causes of landslides? 14
8. (a) Discuss with the help of diagram trickling and filtration process for wastewater treatment. What are its merits and limitations? 8  
 (b) What is activated sludge process? What are the advantages and disadvantages of this process? 6
9. Write short notes on the following :  $3\frac{1}{2} \times 4 = 14$   
 (a) Eutrophication  
 (b) Global warming  
 (c) Conservation of biodiversity  
 (d) Green revolution