

2020

## ENVIRONMENTAL SCIENCE

[HONOURS]

Paper : XI

[PRACTICAL]

Full Marks : 80

Time : 4 Hours

*The figures in the right-hand margin indicate marks.*Answer any **four** from the following:  $4 \times 20 = 80$ 

1. What is bioassay? Mention different types of bioassays. Write down the principle and procedure of the seed germination method for assessing metal toxicity. Define the term  $LD_{50}$ . State the advantages and disadvantages of this method.

 $2+4+8+2+4=20$ 

2. How do you measure enzyme activity using various techniques? Name four stress enzymes in plant in presence of environmental toxicants. State the principle and method for the estimation of peroxidase or catalase.

 $6+4+(5+5)=20$ 

3. (a) What is the total coliform count? State the principle and procedure for the estimation of total

coliform load in water sample. Mention its acceptable limit in drinking water?

- (b) Describe the method of estimation of the chlorophyll content in a plant sample.

 $2+(5+5+1)+7=20$ 

4. Mention two pathogenic bacteria and two pathogenic fungi causing plant diseases. State the characteristic symptomatic features of the plants for each disease. Write a note on the management of such plant diseases.

 $4+10+6=20$ 

5. Write the principle and procedure of Gram staining method employed for differentiating bacteria occurring in water and soil samples. Distinguish between Gram positive and Gram negative bacteria with examples of two pathogenic and two nonpathogenic one representing each category.

 $(7+7)+6=20$ 

[Turn over]