

2016

BIOTECHNOLOGY

BIT 402

ENVIRONMENTAL BIOTECHNOLOGY

Full Marks : 80

Time : 3 Hrs

Figures in the right hand margin indicate full marks for the question

1. Answer the following: 1x8=8
- (i) What are biosurfactants?
 - (ii) Define bioremediation.
 - (iii) Name a plant employed for phytoremediation.
 - (iv) What is the enzyme system involved in Phase I reactions of biotransformation of toxicants?
 - (v) Name an inorganic pesticide.
 - (vi) What is Vermiculture?
 - (vii) Name a cryoprotectant.
 - (vii) Define Patent.
2. Answer from the following: 2x6=12
- (a) Name two drugs derived from plants.
 - (b) What are the different groups of pesticides based on the mode of entry?

- (c) Name a biopolymer and the source from where it is derived.
- (d) What is vitrification?
- (e) Write the natures of IPR.
- (f) What is composting?

3. Write short notes on **any four**: 5x4=20

- (a) Methane Production
- (b) Microbiological composition as biological indicators.
- (c) Physiological and biological methods of toxicity testing.
- (d) Cryopreservation.
- (e) Mechanism of DDT poisoning.

4. Answer **any two** from the following: 8x2=16

(a) What is phytoremediation? Write an essay on the plants available for phytoremediation naturally and also the genetically modified plants for phytoremediation purposes. 2+3+3=8

(b) What is bioprospecting? Cite the merits of bioprospecting (c) and also write the limitations of the technique. 2+3+3=8

(c) What is Cytochrome P-450? What are its components? How is it involved in oxidation of Xenobiotics? 2+2+4=8

5. Answer **any two** from the following : 12x2=24

a) Discuss how restoration of degraded lands can be carried out. Add a note on the various reforestation approaches. 6+6=12

b) What are plant secondary metabolites? Describe the process of *in vitro* production of secondary metabolites.

2+10= 12

c) Discuss the toxic effects of Xenobiotics caused through

(i) blockage of oxygen transport

(ii) interference in the synthesis and functions of nucleic acids and proteins.

6+6=12
