

E-7333

M.Sc. (IIIrd Semester) Examination, 2021

BIOTECHNOLOGY

(Environmental Biotechnology)

Time Allowed : Three Hours

Maximum Marks : 70

SECTION - A

Note : Attempt any ten questions. Each question carries one mark. **1×10=10**

Q. 1. Fill in the blanks :

- (i) World Environment Day is observed on ____.
- (ii) The use of living microorganism to degrade environmental pollutants is called ____.
- (iii) Full form of ISO ____.
- (iv) The process of extracting metals from ore bearing rock is called ____.

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P.T.O.

(2)

- (v) Example of non-conventional energy source

_____.

Multiple choice questions :

- (vi) Biobased energy company want to replace fossil fuels with renewable, raw material such as sugars. One fuel that can be made in this way is ethanol. It comes from :
 - (a) Sea weed
 - (b) Viruses
 - (c) Corn
 - (d) Rain water
- (vii) Microorganism remove metals by :
 - (a) Adsorption and complexation
 - (b) Adsorption and precipitation
 - (c) Adsorption and volatilization
 - (d) All of these

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(3)

(viii) Bioremediation uses toxin-degrading bacteria

to clean up :

- (a) Gold and silver
- (b) Hazardous material
- (c) Dirty instruments
- (d) Viral infection

(ix) The term, Biodegradable product, means :

- (a) The product can be safely eaten by humans
- (b) All the component parts of the product are made in the laboratory
- (c) The products are made up of various species of bacteria
- (d) The products break down safely by natural means and disappear into the environment

(x) What would an environmental biotechnologist use to clean up an oil spill :

(4)

(a) Ethanol

(b) Gene therapy

(c) Oil-eating bacteria

(d) Oil-dissolving detergent

(xi) Coal has long been used to produce energy. It

is classified as :

(a) Sugar

(b) Bacteria

(c) Fossil fuel

(d) Natural electric source

(xii) A company uses living organism to make product. What technology is being used :

(a) Composting

(b) Biosensing

(c) Nuclear reaction

(d) Bioprocessing

(5)

SECTION - B

Note : Attempt any five questions. Each question carries 2 marks. Maximum word limit 25-30 words. **5×2=10**

Q. 2. Write notes (very short answer) :

- (i) Sources of pollution.
- (ii) Ozone depletion.
- (iii) Industrial waste.
- (iv) Biosensors
- (v) Bioremediation
- (vi) Biomaterials
- (vii) Global warming

SECTION - C

Note : Attempt any five questions. Each question carries 4 marks. **5×4=20**

Q. 3. Write short answer in 250 words :

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P.T.O.

(6)

- (i) What is biosensor ? Sketch a labelled diagram of any one biosensor ?
- (ii) Explain aerobic and anerobic treatment, highlighting their advantages & disadvantages.
- (iii) How will you reduce environmental impact of industrial effluents ?
- (iv) Write a note on Bioremediation market.
- (v) What is compost ? How it is different from vermicompost ?
- (vi) Explain the non-convention sources of energy, only with reference to its potential in India.
- (vii) Define BOD and COD. Discuss its impact in ground water and surface water.

SECTION - D

Note : Attempt any three questions. Each question carries 10 marks. **3×10=30**

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(7)

Q. 4. Write essay type answers (more than 500 words) :

- (i) Define environmental biotechnology. Describe advantage and limitations of biotechnological innovations.
- (ii) There are many environmental friendly strategies to check soil-borne disease. Illustrate.
- (iii) Describe the role of biosensor in detection of environmental pollution.
- (iv) Discuss green house effect and ozone depletion.

OR

- (v) Give a brief account on bioremediation of both soil and ground water contamination.