

**SARDAR PATEL UNIVERSITY**  
**T. Y. B.Sc. (V SEMESTER) EXAMINATION**  
**2013**

Tuesday, 12<sup>th</sup> November

10.30 a.m. to 1.30 p.m.

**US05CENV01 ENVIRONMENTAL BIOTECHNOLOGY**

**Total Marks: 70**

**Q.1. Select the correct answer and write it in the answer sheet (10)**

1. Fine textured soils like clay has \_\_\_\_\_ permeability which prevents dispersal of oxygen and nutrients into the soil  
 (a) High (b) Medium (c) Low (d) Excess
2. Bioremediation which occurs without human intervention is called \_\_\_\_\_  
 (a) Bioaugmentation (b) Bio stimulation (c) Natural Attenuation (d) Bio-venting
3. In situ Bioremediation involves bioventing, biosparging and \_\_\_\_\_  
 (a) biostimulation (b) composting (c) land farming (d) bioslurping
4. The treatment of environmental problems with the use of plants is \_\_\_\_\_  
 (a) Bioremediation (b) Phytoremediation (c) Phyto transformation (d) Biomagnification
5. PAH are \_\_\_\_\_ compounds  
 (a) Phenolic Aromatic Hydrocarbons (b) Petroleum Aromatic Hydrocarbon  
 (c) Polycyclic Aromatic Hydrocarbons (d) Polychlorinated Aromatic Hydrocarbons
6. The plant part selected for tissue culture is called as \_\_\_\_\_  
 (a) Implant (b) tissue (c) Explant (d) Section
7. The culture medium containing orange juice is called as \_\_\_\_\_ medium  
 (a) Chemically defined (b) Chemically undefined (c) Solid (d) Liquid
8. The radioactive compounds like Cs-137 and Sr-90 were removed by treatment of \_\_\_\_\_ during Chernobyl Accident  
 (a) Sunflower (b) Sugarcane (c) Salix (d) Mustard
9. The conventional process of extracting and concentrating metal using specialized group of microbes is \_\_\_\_\_  
 (a) biofiltration (b) Biometallurgy (c) processing (d) blasting
10. Xenobiotics are the compounds of any \_\_\_\_\_ origin  
 (a) Tissue (b) Plant (c) Bacteria (d) Foreign

**Q.2 Answer the following in brief (Any Ten) (20)**

1. State the advantages of *In situ* Bioremediation
2. Explain the term Bioaugmentation
3. What is Biostimulation
4. Define 'Phyto remediation'
5. What are Hyper accumulators?
6. What is Phytostabilization ?
7. Explain the term Totipotency
8. State the use of Laminar Air Flow
9. Which are the growth hormones used in plant tissue culture?
10. What are Vectors ?
11. What are Genetically Modified Organisms?
12. Explain Restriction Endonucleases

- Q.3. (a) Explain the bioremediation of Petroleum products (05)  
(b) What are insect resistant plants? Explain giving suitable example (05)

OR

- Q.3 (a) Explain various *Ex situ* bioremediation processes. (05)  
(b) Discuss factors controlling bioremediation process (05)

- Q.4. (a) Explain the role of Hyper accumulators and give few examples of plants used for removal of Heavy metals (06)  
(b) Discuss the Phyto degradation process (04)

OR

- Q.4. (a) Discuss advantages and disadvantages of Phyto remediation (05)  
(b) What is Phytovolatilization? Explain its mechanism (05)

- Q.5. (a) Describe various methods of Organ culture (05)  
(b) Write about the applications of Tissue culture (05)

OR

- Q.5. (a) Give an account of general process of Tissue culture (06)  
(b) Mention the instruments/ equipments used in tissue culture lab (04)

- Q.6. What is r- DNA technology ? Discuss with suitable illustration (10)

OR

- Q.6.(a) What are GMO ? Discuss the risk factors associated with it . (05)  
(b) What are cloning vehicles? Describe the three types (05)

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