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SEAT No. \_\_\_\_\_

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[24/A-6]

**SARDAR PATEL UNIVERSITY**

**B.Sc. V Semester Examination 2018**

**Subject: Biotechnology (Title-Environmental Biotechnology)**

**Course: US05CBIT05**

**Date: 1<sup>st</sup> November 2018, Thursday**

Time: 10:00am to 1:00pm

Total Marks: 70

**Q.1 Multiple Choice Questions**

**[10]**

- i) If the BOD of river is high, it indicates that water is \_\_\_\_\_.
  - a) Highly polluted
  - b) Moderately polluted
  - c) Less polluted
  - d) Not polluted
- ii) Activated sludge process is an \_\_\_\_\_ growth system for wastewater treatment.
  - a) Aerobic suspended
  - b) Aerobic attached
  - c) Anaerobic suspended
  - d) Anaerobic attached
- iii) Which technique is/are used for detection of coliform bacteria present in wastewater?
  - a) Membrane filtration
  - b) Multiple Tube Fermentation
  - c) Collilert
  - d) All of these
- iv) Bioleaching is carried out mostly by \_\_\_\_\_.
  - a) Protozoa
  - b) Bacteria
  - c) Plant
  - d) Algae
- v) FeS<sub>2</sub> is an ore called \_\_\_\_\_.
  - a) Bauxite
  - b) Malachite
  - c) Pyrite
  - d) Covellite
- vi) In biostimulation the microbial activity can be enhanced by \_\_\_\_\_.
  - a) Increased supply of nutrients
  - b) Addition of electron acceptors
  - c) Addition of surfactants
  - d) All of these
- vii) \_\_\_\_\_ is the process by which organic substances is decomposed by microorganisms into simpler substances.
  - a) Biodegradation
  - b) Bioaugmentation
  - c) Bioremediation
  - d) Biomagnification
- viii) Which of the following is not recalcitrant to microbial degradation?
  - a) PHB
  - b) PVC
  - c) Polystyrene
  - d) PE
- ix) Piezoelectric biosensor is based on the principle of \_\_\_\_\_.
  - a) Acoustics
  - b) Heat
  - c) Current
  - d) Light
- x) Bioplastics are \_\_\_\_\_.
  - a) Biodegradable
  - b) Derived from renewable resources
  - c) Petrochemical based plastic
  - d) Both (a) & (b)

**P.T.O**

(1)

**Q.2 Answer the following questions in short. (Attempt any 10) [20]**

- i) Define pollutants. Enlist various air pollutants.
- ii) What is alkalinity & acidity of water?
- iii) Write the causes & control measures of land pollution.
- iv) Define Bioleaching.
- v) Give the advantages of bioleaching.
- vi) Enlist the factors affecting the process of bioleaching.
- vii) What is Ex-situ bioremediation?
- viii) Give reasons for the resistance of xenobiotics to microbial degradation.
- ix) What is phytoremediation? Enlist the types of phytoremediation.
- x) Write in brief the principle of Biosensor.
- xi) Give the properties of bioplastics.
- xii) Mention the applications of biosensor in medicine.

**Q.3 Define air pollution. Explain in detail causes & control measures of air pollution. [10]**

**OR**

- Q.3**
- a) Write short note on Trickling filters. [06]
  - b) Give an account on COD with its significance. [04]

**Q.4 Describe the methods & mechanism of bioleaching. [10]**

**OR**

- Q.4**
- a) Explain in detail the general properties of microorganisms involved in bioleaching. [05]
  - b) Discuss in detail copper bioleaching. [05]

- Q.5**
- a) Write in detail biodegradation pathway of DDT. [05]
  - b) Describe in-situ bioremediation with advantages & disadvantages. [05]

**OR**

- Q.5**
- a) Explain in detail biomagnifications. [05]
  - b) Write short note on Superbug. [05]

- Q.6**
- a) Describe the techniques used for production of bioplastic. [07]
  - b) Give the various applications of bioplastic. [03]

**OR**

- Q.6**
- a) Enlist the types of biosensors. Explain any two in detail. [07]
  - b) Give the applications of biosensor in environmental monitoring & industries. [03]