REV-01
MEV/01/05

2023/06

SET A

M.Sc. ENVIRONMENTAL Sc.
SECOND SEMESTER
ENVIRONMENTAL BIOTECHNOLOGY
MEV – 203 [REPEAT]
[USE OMR FOR OBJECTIVE PART]

Duration : 3 hrs. Full Marks : 70

Objective

Time : 30 min. Marks : 20

Choose the correct answer from the following: *1X20=20*

1. Rhizobium is used as biofertilizer in
   a. Non-leguminous crop b. Leguminous crop
   c. Both A&B d. None
2. Most disposable wastes are in the form of
   a. solids b. liquids
   c. slurries d. all of the above
3. Which one is more toxic?
   a. Cr III b. Cr VI
   c. Cr IV d. Cr V
4. The percentage of carbondioxide in the bio methane is _____
   a. 30-40 b. 32-43
   c. 35-45 d. 55-60
5. PRB technique uses
   a. Zerovalent chromium b. Covalent Iron
   c. Covalent chromium d. Zerovalent Iron
6. The bio ethanol obtained in the fermentation process has _____ purity
   a. 99% b. 99.2%
   c. 99.4% d. 99.7%
7. Feature(s) of Zero Waste Management is (are):
   a. Separation of garbage at the source b. Separate collection of each kind
   c. Involvement of the community in all activities d. all of the above
8. Acidophiles means
   a. Acid loving b. Acid hating
   c. Alkali loving d. None
9. Which fungus is used to kill milkweed vine?
   a. Gigaspora b. Phytophthora palmivora
   c. Penicillium digitatum d. AM

10. The simplest and most common method used in the cities is to collect and dump the waste in a _
    a. landfill
    b. river
    c. ocean
    d. any of the above

11. Hg(II) is reduced to _____for bioremediation
    a. Hg(III)
    b. Hg(II)
    c. Hg(I)
    d. Hg (0)

12. PHB is used in _____
    a. Agricultural applications
    b. Medical applications
    c. Manufacture of shampoo bottles
    d. Adhesives

13. Problem of solid waste disposal can be reduced through.....
    a. Recycling
    b. Lesser pollution
    c. More timber
    d. Population control

14. Arbuscular mycorrhiza forms symbiotic association with
    a. Vascular plants
    b. Non-vascular plants
    c. Paddy
    d. None

15. Tannery wastes includes
    a. Organic pollutants
    b. Inorganic pollutants
    c. Both A & B
    d. None

16. Which of the following is true?
    a. there is no real waste in nature
    b. the apparent waste from one process becomes input to another
    c. all processes of production and consumption produce waste
    d. all of the above

17. *Bacillus firmus* is an
    a. Acidophile
    b. Xerophile
    c. Alkalophile
    d. None

18. A good way of dealing with the solid waste problem is
    a. landfilling
    b. recycling
    c. both (A) and (B)
    d. none of the above

19. Atropine can be degraded by
    a. Citrobacter
    b. Aerobacter
    c. Pseudomonas
    d. Azobacter

20. Which of the following is not an example of a natural biodegradable polymer?
    a. Collagen
    b. Polyvinyl alcohol
    c. Lignin
    d. Natural rubber

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Descriptive

Time : 2 hrs. 30 min. Marks : 50

[Answer question no.1 & any four (4) from the rest]

1. Discuss about various microorganisms which are used in waste water treatment. **10**

2. i. What do you understand by radioactive materials? **1+1+1+ 4+3=10**
   ii. What is half-life?
   iii. What is radioactive decay?
   iv. What are the different types of radioactive decay?
   v. State the different sources and harmful effects of radioactive compounds.

3. Explain briefly the culture dependant and culture independent techniques in Environmental Biotechnology: ARDRA, DGGE, FAME profile analysis, G+C analysis **10**

4. Discuss briefly about SCP , enzyme production and their applications. **10**

5. i. Define Bioremediation. **1+1+4+ 4=10**
   ii. What is the need for bioremediation in the present environmental context?
   iii. Name the different types of Bioremediation techniques?
   iv. Compare the advantages and disadvantages of the In-situ and Ex-situ bioremediation techniques and give your personal opinion.

6. What are the different types of Bio-sensors? Draw relevant diagrams with the answer **10**

7. Mention the different methods of solid waste management system? Write a note on incineration. **10**

8. Write notes on along with suitable diagrams- **5×2=10**
   a. Bio-reactor
   b. Natural attenuation

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