KUMARAGURU college of technology
character is life

Register Number:……..…

M.TECH DEGREE EXAMINATIONS: JUNE 2015

(Regulation 2014)

Second Semester

BIOTECHNOLOGY

P14BTE201**:** Environmental Biotechnology

Time: Three Hours **Maximum Marks: 100**

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. The bottom up approach of ecological balance is as follows: (i) community (ii) biosophere (iii) population (iv) species [K_2]

   a) iv-iii-i-ii b) i-ii-iii-iv

   c) ii-iii-i-iv d) iii-i-iv-ii

2. Capnophiles are organisms that [K_1]

   a) Thrives in medium concentration of CO_2 b) Thrives in high concentration of CO_2

   c) Thrives in low concentration of O_2 d) Thrives in medium concentration of O_2

3. Uptake of heavy metals as a result of physic-chemical interaction of metal ions with the cellular compounds of biological species is called [K_2]

   a) Biodegradation b) Bioaccumulation

   c) Biosorption d) Bioaugmentation

4. Match the following item with multiple choice code [K_3]

List I	List II
A.Plant absorption	i.Chemisorption
B. Fungal absorption	ii.Phytosorption
C.Nano absorption	iii.Bioventing
D.Trapped contaminants	iv.Mycosorption

a) a-i, b-ii; c-iii, d-iv
b) a-ii, b-iii, c-iv, d-i
c) a-iii, b-iv, c-ii, d-i
d) a-ii, b-iv, c-I, d-iii

5. Sloughing off is a term related to [K_2]

a) Activated sludge process
b) Trickling filter
c) Oxidation pond
d) Anaerobic pond

6. Ammonia can be treated using which of the following refinery process? [K_1]

a) Hydroventing
b) Hydrocracking
c) Hydrolysis
d) Hydropacking

7. Advantages of vermicasting over chemical fertilizers is: [K_3]

i.Easy to prepare
ii.Cost effective
iii. Chemicals Increase the physical property of the soil
iv. Vermicasts has balanced C:N ratio required for plant growth

a) ii, iv is true; i, iii is false
b) i, ii is true; iii, iv is false
c) i, iii is true; ii, iv is false
d) i, iv is true; ii, iii is false

8. Substances that can be made to deposit using alum is [K_3]

a) Suspended solids
b) Soluble solids
c) Total solids
d) Semisolids

9. (i)Main drawback of biobleaching in industries is economics of treatment methods. [K_3]
(ii) Cycle time is more.

a) Both are true
b) Both are false
c) (i) is true and (ii) is false
d) (i) is fasle and (ii) is true

10. Cellulose content is more in [K_1]

a) Wood
b) Baggase
c) Cotton
d) Rice straw

PART B (10 x 2 = 20 Marks)

11. Enlist the features of psychrophilic organisms. [K_1]

12. Differentiate mutualism and commensalism with suitable examples. [K_4]

13. What are xenobiotic compounds? [K_1]

14. Define surfactants. [K_1]

15. What is ammonia stripping method? Mention its use. [K_1]

16. Distinguish between oxidation ponds and aerated lagoons. [K_4]

17. List out the waste treatment methods in pharmaceutical industries. [K_1]

18. What are basic dyes? Give an example. [K_1]

19. What is rectified spirit? How it is produced. [K_1]

20. State the uses of starch based bioplastics in industries. [K_1]

PART C (6 x 5 = 30 Marks)

21. How life forms adapt to the changing environment? Illustrate the strategy for adaptation. [K_3]

22. Describe the mechanism of environmental auditing? List its advantages. [K_2]

23. How reverse osmosis is used in water purification? [K_3]

24. What is activated sludge? How activated sludge process is used to treat municipal sewage? [K_1]

25. How bioaugmentation is done in composting process? State its advantages. [K_3]

26. Narrate the applications of biosensors in environmental monitoring. [K_2]

PART D (4 x 10 = 40 Marks)

27. What are ecological indicators? State its limitations. [K_2]

28. What is bioremediation? Elucidate a mechanism to treat heavy metal contaminated soil with suitable control measures. [K_2]

29. Explicate the treatment of pulp and paper mill effluents. [K_2]

30. Describe the microbial ore leaching process with a neat illustration. [K_2]

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