D 92261 (Pages : 2) Name................................

Reg. No............................

THIRD SEMESTER B.Sc. DEGREE EXAMINATION, NOVEMBER 2015

(CUCBCSS-UG)

Core Course—Microbiology

MB 3B 04—ENVIRONMENTAL AND SANITATION MICROBIOLOGY

Time : Three Hours   Maximum : 80 Marks

Section A

Answer **all** *questions.*
Each question carries ½ mark.

1. Among the following organisms air-borne infection is caused by :

    (a) Rhabdo virus.   (b) *Mycobaterium tuberculosis.*

    (c) *Salmonella typhi.*   (d) Polio virus.

2. Which of the following water treatment method is most likely to produce carcinogens as a byproduct ?

    (a) Chlorination.   (b) Ozonation.

    (c) Sand filtration. ⸻ ⸻   (d) UV-treatment.

3. The process of extracting metals from ore-bearing rocks by using micro-organisms is called :

    (a) Bio-extraction.   (b) Microbial extraction.

    (c) Biofiltration. ⸻ ⸻   (d) Microbial leaching.

4. BOD would be most directly affected by the presence of :

    (a) Heavy metals.   (b) Organic wastes.

    (c) Salt. ⸻ ⸻   (d) Waste minerals from mining.

5. The faecal pollution indicator in water sample is ⸻ ⸻

6. The lowermost layer of atmosphere is called ⸻ ⸻

7. The ultimate degradation and recycling of an organic molecule to its mineral constituents is called ⸻

8. Introduction of foreign organisms into natural environment for the purpose of increasing the bioremediation is called ⸻

9. Name the common filter used for air filtration.

10. Name the organism called "superbug" and used for cleaning oil spills.

11. Name the compound used as major component of anionic detergents.

12. Name the marine micro-organism considered to be the world's largest bacterium.

(12 x $\frac{1}{2}$ = 6 marks)

Turn over

Section B

Answer **all** *questions,*
Each question carries 2 *marks.*

13. BOD.

14. Cometabolism.

15. *Thiobacillus ferro-oxidans.*

16. Redfield ratio.

17. Algal blooms.

18. Biomagnification.

19. Landfills.

20. Limnology.

21. PCBs.

22. Methanogenesis.

(10 x 2 = 20 marks)

Section C

Write short notes on any **six** *of the following.*
Each question carries 5 *marks.*

23. Disease forecasting in plants.

24. Vermicompost.

25. Heavy metal tolerance in micro-organisms.

26. Factors influencing aquatic microflora.

27. Xenobiotics.

28. Estuarine microflora.

29. Microflora of indoor air.

30. Anaerobic sludge digestion.

(6 x 5 = 30 marks)

Section D

Answer any **two** *of the following questions.*
Each question carries 12 *marks.*

31 Discuss various sources of micro-organism in air. Add a note on methods used for enumeration of air microflora.

32. What is meant by bioremediation ? Discuss the role of micro-organisms in bioremediation.

33. What are the sources of micro-organisms in water bodies ? Describe the various steps involved in purification of water for municipal supplies.

(2 x 12 = 24 marks)