C 60088 (Pages : 2) Name.....

Reg. No.....

SIXTH SEMESTER B.Sc. DEGREE EXAMINATION, MARCH 2019

(CUCBCSS)

Zoology

ZOL 6B 14—BIOTECHNOLOGY, MICROBIOLOGY AND IMMUNOLOGY

Time : Three Hours Maximum : 80 Marks

Part A

I. One Word Questions. Answer *all* questions. Each question carries 1 mark :

1. Give an example for restriction endonuclease.
2. Cell cultures developed by isolating cells directly from animal tissues are called ————.
3. Who proposed enzymatic method of DNA sequencing ?
4. Name the toxin secreted by Bt. cotton.
5. Proteinaceous infectious particles are called ————.
6. Write the causative agent of leprosy.
7. The process of introducing micro-organism or suspension of micro-organisms into a culture medium is known as ————.
8. The cross linkage of antigens by antibodies is known as ————.
9. Give an example for organ specific autoimmune disease.
10. An analytical device that capture the biological signal and convert it into a detectable electrical signal is called ————.

(10 × 1 = 10 marks)

Part B

II. Short Answer Questions. Answer any *ten* questions. Each question carries 2 marks :

11. Give a short account of immunotherapy.
12. What is thermal cycler ?
13. Write the principle of flow cytometry.
14. Differentiate exogenous antigen and endogenous antigen.
15. Give a short account on chemotherapy.
16. Write short notes on single cell proteins.

Turn over

17. Write the principle and uses of negative staining.

18. What are mycoplasmas ? Mention any *one* disease caused by mycoplasma.

19. Give a short account on bioleaching.

20. What are VNTR micro satellites and mention their uses ?

21. Give a short account on knockout mice.

22. Give a short account on YAC.

(10 × 2 = 20 marks)

Part C

III. Paragraph Questions. Answer any *five* questions. Each question carries 6 marks :

23. Write the methodology involved and the applications of hybridoma technology.

24. Explain any *four* transfection methods employed in the construction of transgenic organisms.

25. Give an account on the various steps involved in DNA fingerprinting. Add a note on its applications.

26. With suitable diagram explain the structure of a typical bacterium.

27. What is industrial fermentation ? Give an account on various products of industrial fermentation.

28. Write the causative agent, sign and symptoms, and treatment of any three bacterial diseases.

29. Give an account on cells of immune system.

30. Give a detailed account on southern blotting and its applications.

(5 × 6 = 30 marks)

Part D

IV. Essay Questions. Answer any *two* questions. Each question carries 10 marks :

31. With suitable diagram explain the structure of a typical immunoglobulin. Add a note on the various classes of immunoglobulins and their biological functions.

32. Give a detailed account on various types of sterilization employed in a microbial laboratory.

33. What is gene cloning ? Explain the various types of vectors used in gene laboratory, mentioning their advantages and disadvantages.

34. Explain the various steps involved in the construction of recombinant DNA. Add a note on the various enzymes used in its construction.

(2 × 10 = 20 marks)