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**Part III — MICROBIOLOGY**

( English Version )

Time Allowed : 3 Hours ]

[ Maximum Marks : 150

- Note :
- i) Answer *all* the questions from **Part - A**.
  - ii) Answer any *fifteen* questions from **Part - B**.
  - iii) Answer only *six* questions from **Part - C** including Question No. **71** which is compulsory.
  - iv) Answer only *four* questions from **Part - D**.
  - v) Draw diagrams wherever necessary.

**PART - A**

- Note :
- i) Answer *all* the questions.
  - ii) Each question carries *one* mark.

I. Choose and write the correct answer in the answer-book : 20 × 1 = 20

1. The discovery of the microbial world of "animalcules" was made by

- |                          |                  |
|--------------------------|------------------|
| a) Robert Koch           | b) Edward Jenner |
| c) Anton von Leeuwenhoek | d) Fleming.      |

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9. Which enters the body through the bite of lice ?
- a) *Borrelia recurrentis*                      b) *Salmonella*  
c) *Taenia solium*                              d) *Mycoplasma*.
10. *Staphylococcus aureus* belongs to the family
- a) Enterobacteriaceae  
b) Micrococcaceae  
c) Lentiviridae  
d) Picornaviridae.
11. *L. donovani* is transmitted by
- a) Ticks  
b) Sand fly  
c) Mosquitoes  
d) Rat flea.
12. Which of the following is the habitat of adult *F. hepatica* ?
- a) Lungs    b) Liver  
c) Intestine                                        d) Brain.
13. Hepatitis A virus belongs to the family of
- a) Picornaviridae                                b) Caliciviridae  
c) Retroviridae                                 d) Hepadnaviridae.
14. Lyme disease is caused by
- a) *Borrelia burgdorferi*                      b) *Chlamydia psittaci*  
c) Sand fly                                        d) Mosquitoes.
15. *Brucella* species causes
- a) Typhoid fever                                b) Undulant fever  
c) Rat bite fever                                d) Viral fever.

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III. Answer the following questions by writing *True* or *False* : 10 × 1 = 10

29. The lethal effect by certain metals on bacteria is known as oligodynamic action.
30. *Bacillus thuringiensis* is not a biopesticide.
31. *Treponema pallidum* gets transmitted from the mother to the foetus and causes congenital syphilis.
32. Rebecca Lancefield introduced a classification of streptococci.
33. Diphtheria does not cause bull neck appearance.
34. *Mycoplasma* are cell wall bacteria.
35. Niclosamide and Praziquantel are effective for taeniasis.
36. RNA is the genome in Herpes Virus.
37. Substances which exhibit the phenomenon of fluorescence are called fluorochromes.
38. Tuberculin type of hypersensitivity was described by Robert Koch.

IV. Match the following : 6 × 1 = 6

- |                          |                         |
|--------------------------|-------------------------|
| 39. Streptomycin         | a) Photo-reactivation   |
| 40. Sodium benzoate      | b) Reduviid bug         |
| 41. <i>T. cruzi</i>      | c) Transduction         |
| 42. <i>Taenia solium</i> | d) Selman Walksman      |
| 43. Pyrimidine dimer     | e) Preservative         |
| 44. Bacteriophage        | f) Intestinal parasite. |

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V. Answer the following questions in one sentence each : 6 × 1 = 6

45. What is called Bactericide ?
46. What is Opisthotonos ?
47. Name the enzymes produced by Vibrio.
48. What is Candida ?
49. What is the genetic material of HIV ?
50. Which enzyme joins the DNA fragments ?

#### PART - B

Note : i) Answer any *fifteen* questions.

ii) Each question carries *two* marks.

15 × 2 = 30

51. What are the types of electron microscope ?
52. Give two uses of fluorescent microscope.
53. Define Glycolysis.
54. What is Chemotherapy ?
55. Define biogas.
56. Define aerosol.
57. Define Pasteurization.
58. What is alpha haemolysis ?
59. What are the four species of genus Shigella ?
60. Give the structure of Tetanus bacilli.
61. What is the action of exfoliative toxin ?
62. What is lyme borreliosis ?
63. Explain the two species of Brucella and their infected animals.

64. Where is *Candida albicans* present in the body ? When does it cause an infection ?
65. What are the modes through which HIV is not spread ?
66. What is Erythroblastosis foetalis ?
67. State the beneficial role of IgE.
68. Define Immunization.
69. Why should a codon have at least three nucleotides ?
70. What is Wobble hypothesis ?

### PART - C

Note : i) Answer any six questions including Question No. 71 which is compulsory.

ii) Each question carries five marks. 6 × 5 = 30

71. Give at least five points to differentiate eumycetes from actinomycetes which cause mycetoma.

OR

Describe Ti plasmid with diagram.

72. List out the controlling methods of microorganisms by chemical agents.
73. What are the raw materials required for penicillin production ?
74. Write a short note on oxidation pond.
75. Write a short note on Shiga toxin.
76. Write a short note on general characters of *Vibrio*.
77. Describe the laboratory diagnosis of Chaga's disease.
78. What are the differences between immediate and delayed type hypersensitivity reactions ?
79. Describe conjugation in bacteria.

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**PART - D**

Note : i) Answer any four questions.

ii) Each question carries ten marks.

4 × 10 = 40

80. Elaborate on the work of Louis Pasteur.
  81. Elucidate electron microscopy.
  82. What are the methods adopted for composting ? Mention the important factors influencing the compost making.
  83. Discuss the source, spread and control of bacillary dysentery.
  84. List the differences between elementary and reticulate bodies.
  85. Write the methods of laboratory diagnosis of herpes simplex virus.
  86. Describe the development of T-cells in thymus.
  87. Describe the production of Transgenic animals. Draw diagram.
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