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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 the correct answer : 20 × 1 = 20

1. The theory of spontaneous generation was finally disproved by the work of

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|------------------|-----------------------|
| a) Jenner & Koch | b) Redi & Spallazani |
| c) Flory & Chain | d) Pasteur & Tyndall. |

[Turn over

2. Postulates to establish a causal relationship between a specific micro-organism and a specific disease were laid down by
- a) Jacob Henle
 - b) Theodore Schwann
 - c) Felix Pouchet
 - d) Robert Koch.
3. Droplet nuclei are significant in the transmission of the diseases of
- a) digestive system
 - b) nervous system
 - c) reproductive system
 - d) respiratory system.
4. The water activity of food can be lowered by
- a) dehydration
 - b) acidifying solutes
 - c) freezing
 - d) all of these.
5. Adhesion of streptococcus pyogenes to pharyngeal epithelial cell is mediated by which of the following ?
- a) Fimbriae
 - b) Lipoteichoic acid
 - c) Lipopolysaccharide
 - d) Flagella.
6. Staphylococci are
- a) gram positive
 - b) gram negative
 - c) gram variable
 - d) all of these.
7. Which of the following major antigens is involved in Rheumatic fever episodes ?
- a) Flagellin
 - b) Myosin
 - c) Albumin
 - d) Globulin.
8. Necrotizing fasciitis is caused by which of the following ?
- a) Staph. aureus
 - b) Str. pyogenes
 - c) C. diphtheriae
 - d) Clostridium tetani.

9. The stool of cholera is
- a) Blood with mucous
 - b) Rice-water stool
 - c) Watery stool
 - d) Normal stool.
10. *Clostridium tetani* grows in
- a) the presence of oxygen
 - b) the absence of oxygen
 - c) both the presence and absence of oxygen
 - d) the presence of carbon dioxide.
11. Kala-azar is caused by
- a) *Trypanosoma brucei*
 - b) *Leishmania donovani*
 - c) *Bacteroides melaninogenicus*
 - d) *Listeria monocytogenes*.
12. Which of the following is the habitat of adult *F. Hepatica* ?
- a) Lungs
 - b) Intestine
 - c) Liver
 - d) Brain.
13. *Candida* is
- a) an yeast
 - b) yeast like fungus
 - c) mould
 - d) bacteria.
14. *Brucella* species causes
- a) Typhoid fever
 - b) Undulant fever
 - c) Rat bite fever
 - d) Viral fever.
15. Thymus is located in which part of the body ?
- a) Respiratory tract
 - b) Thoracic cavity
 - c) Abdomen
 - d) Intestinal tract.

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V. Answer the following questions in *one* sentence each :

6 × 1 = 6

45. Where is candida albicans present in the body ?
46. Give two examples for Beta-herpes virus.
47. Write any two sources of infection of staphylococcus aureus.
48. Where are the tetanus spores found ?
49. Who suggested the use of agar-agar for culture media ?
50. Who discovered the antibiotic streptomycin ?

PART - B

Note : i) Answer any *fifteen* questions.

ii) Each question carries *two* marks.

15 × 2 = 30

51. What is Attenuation ?
52. What are the types of electron microscope ?
53. Define Glycolysis.
54. Name two enzymes used in ELISA test.
55. What is a prototroph ?
56. Define Air pollution.
57. What are the causes for food poisoning ?
58. Give the characteristics of transient flora.
59. What is alpha haemolysis ?
60. Why do repeated episodes of Str. pyogenes infection increase the severity of rheumatic fever ?
61. Write any two characteristics of C. Diphtheriae.
62. Write about the structure of Promastigote.
63. What are the causative agents of Taeniasis ?

64. What are the modes of transmission of HIV ?
65. How does brucella enter the blood stream ?
66. Define an antigen.
67. What is Erythroblastosis Foetalis ?
68. Define Immunization.
69. What is a mutagen ?
70. Define phenotype.

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. What are the differences between immediate and delayed type hypersensitivity reactions ?

OR

Describe the pathogenesis of *Candida albicans*.

72. Write short notes on chemicals that control micro-organisms and their uses.
73. What are the methods adopted to preserve microbes in long term ?
74. What are the uses of Biogas ?
75. What are the specimens collected for the diagnosis of staphylococcal infections ?
76. Describe the life cycle of *Leishmania donovani*.
77. Write about the structure of HIV.
78. With neat diagram, describe the structure of thymus and label the various parts.
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 on Microbiology.
 81. Write about Fluorescence Microscope.
 82. What are the important methods adopted for composting ? Explain.
 83. Explain different types of botulism with clinical features.
 84. Write in detail about pathogenesis, structure and function of cholera toxin.
 85. Describe the life cycle of *Trypanosoma brucei gambiense* and the clinical aspects of the disease produced by it.
 86. Describe the development of T. Cells in thymus.
 87. Describe the principle of the Ames test for identifying chemical carcinogens (Cancer).
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