7083

Register Number | | | | | | |

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 : $20 \times 1 = 20$

1. Light microscope has a resolution of

a) 0·1 µm b) 0·5 µm

c) 0·2 µm d) 0·8 µm.

2. The theory of spontaneous generation was disproved by

a) Louis Pasteur and John Tyndall

b) Jenner and Robert Koch

c) Redi and Spallanzani

d) Flory and Chain.

3. A substance acted upon by an enzyme is called

a) cofactor b) coenzyme

c) substrate d) holoenzyme.

4. BOD limits in drinking water should be

a) below 3 ppm b) above 3 ppm

c) above 4 ppm d) none of these.

5. The low pH of fruit is likely to inhibit

a) yeast b) mould

c) actinomycetes d) bacteria.

6. The maximum number of micro-organisms is present in

a) lag phase b) log phase

c) stationary phase d) decline phase.

7. Streptococci are seen as

a) clusters b) chains

c) long rods d) club shaped form.

8. E.coli present in human intestine represents which of the following ?

a) Mutualism b) Parasitism

c) Transient flora d) Carrier.

9. Clostridium grows in

a) the presence of oxygen

b) the absence of oxygen

c) both in presence and absence of oxygen

d) presence of carbon dioxide.

10. Hyaluronidase enzyme acts on

a) cell surface b) intracellular cement substance

c) cytoplasm d) nucleic acid.

11. Chlamydia resembles which of the following bacteria ?

a) Actinomycetes b) Gram positive

c) Gram negative d) None of these.

12. Vibrios are

a) gram negative rods b) gram positive rods

c) gram variable rods d) gram negative curved rods.

13. Shigellae cause

a) amoebic dysentery b) bacillary dysentery

c) diarrhoea d) colitis.

14. Candida is

a) bacteria b) mould

c) yeast d) yeast like fungus.

15. Cryptococcosis is seen in

a) tuberculosis patients b) fever patients

c) AIDS patients d) none of these.

16. HIV attaches to the CD_4 receptor of

a) T-helper cells b) platelets

c) B-cells d) red blood cells.

17. Borrelia burgdorferi is cultivated in

a) EMJH medium b) BHI broth

c) BSK medium d) NNN medium.

18. Which chemical is used for precipitation of Gamma globulin ?

a) Ammonium chloride b) Ammonium sulphate

c) Ammonium nitrate d) Sodium chloride.

19. Which of the following is the stop codon ?

a) UGA b) GCU

c) CAG d) AAG.

20. Hepatitis 'A' virus belongs to the family

a) calciviridae b) retroviridae

c) picornaviridae d) hepadnaviridae.

II. Fill in the blanks : $8 \times 1 =$

21. Widely used coagulant in water treatment is ..... .

22. Toxin produced in cholera is ..... .

23. Brucella appears like ..... .

24. ..... is a complex and highly advanced microscope.

25. IgA is predominantly present in ..... .

26. TAB vaccines contain ..... organisms.

27. In bacteria lytic cycle is induced by ..... phage.

28. The codon on the *m*RNA and the anticodon on the *t*RNA jo during ..... .

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

29. Dark field microscope is used for examining live micro-organisms.

30. Bacteriocide is an agent that stops the growth of bacteria.

31. On blood agar staphylococcus aureus produces alpha haemolytic colonies.

32. World Environment Day is celebrated on June 5th.

33. Triclabendazole is found to be highly effective against adult Fasciola hepatica.

34. Clostridium botulinum is a gram positive monotrichous flagellated bacteria.

35. Generally HSV-1 produces lesions above the waist and HSV-2 produces below the waist.

36. BCG contains live attenuated organisms.

37. Glomerula nephritis is an antigen-antibody complex mediated disease.

38. Nirenberg-Khorana solved the structure of DNA.

IV. Match the following : $6 \times 1 = 6$

39.	Salmonella	a)	Plasma cell
40.	E. Coli	b)	Sleeping sickness
41.	L. Donavani	c)	Agrobacterium
42.	Trypanosomes	d)	Typhoid fever
43.	Antibody	e)	Traveller's disease
44.	Ti plasmid	f)	Sandfly.

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

45. Name the biofertilizer which is highly suitable for the paddy crop.

46. Name one antibiotic effective for MRSA strains.

47. Name the causative agent of Rheumatic fever.

48. For Delta agent replication which virus is required ?

49. The genetic code consists of how many codons ?

50. What is the shape of Herpes virus ?

PART – B

Note : i) Answer any *fifteen* questions.

ii) Each question carries *two* marks. 15 × 2 =

51. What is attenuation ?

52. Define fermentation.

53. What is theory of spontaneous generation ?

54. Define enzyme.

55. What is the use of scanning electron microscope ?

56. What is mycorrhiza ?

57. What is lyophilization ?

58. How does normal flora compete with pathogens ?

59. What is Gamma haemolysis ?

60. What is PPLO ?

61. Write a short note on Chaga's disease.

62. How does Brucella enter the blood stream ?

63. What is protoplast ?

64. How will you control Herpes virus infection ?

65. What is trachoma ?

66. What is cysticercosis ?

67. Explain the formula for antibody.

68. Name the enzymes used in ELISA test.

69. Define active immunization.

70. List any two general mechanisms of DNA repair.

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. Describe restriction enzyme and its action with example.

OR

What are the secondary infectious diseases in AIDS ?

72. Describe phase contrast microscope.

73. Write notes on Bio-pesticides.

74. Write the uses of Bio-gas.

75. List and explain the characteristics of enzymes in streptococcus pyogenes.

76. Describe the replication in chlamydia.

77. What is the treatment and prevention of Candida infection ?

78. Tabulate the differences between immediate type hypersensitivity and delayed type hypersensitivity.

79. Describe MHC gene classes.

PART – D

Note : i) Answer any *four* questions.

ii) Each question carries *ten* marks. 4×10

80. Explain TCA cycle.

81. Explain catabolism of protein.

82. What are the methods adopted to select industrially important micro-organis

83. Describe the normal microbial flora of human body and their role.

84. Elaborate on the laboratory diagnosis of Leishmaniasis.

85. Describe the structure of antibody with diagram.

86. Describe the method of gene transfer by plasmid in plants.

87. Describe in detail the prophylaxis of diphtheria.