



LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

M.Sc. DEGREE EXAMINATION – BIOTECHNOLOGY

FIRST SEMESTER – APRIL 2017

16PBT1MC03- MICROBIOLOGY

Date: 04-05-2017
09:00-12:00

Dept. No.

Max. : 100 Marks

PART – A

Answer ALL the Questions

I. Choose the correct answer

(5 x 1 = 5 Marks)

- Evolutionary relationships between groups of organisms are determined using which of the following type of information?
 - Comparisons of nucleotide sequences
 - Comparisons of biochemical pathways
 - Comparisons of structural features
 - All of the above
- Desulfovibrio desulfuricansis* a typical example of
 - autotroph
 - organotroph
 - chemotroph
 - mixotroph
- Gram-negative bacteria, responsible for food poisoning
 - Salmonella*
 - Pseudomonas*
 - Clostridia*
 - Corynebacteria*
- The process of erythrocytes adhering to the infected cells is called as
 - Haemagglutination
 - Haem adhering
 - Haemadsorption
 - Haem absorption
- Sexual spores are formed by
 - mitosis division
 - meiotic division
 - binary division
 - fusion.

II. State whether the following are true or false

(5x1=5 Marks)

- The three domain version of life on earth is based on the nucleic acid sequence data.
- Mesosomes are present in both gram positive and negative bacteria.
- Pneumococci* are sensitive to optochin.
- Cell line produced using oncogenic viruses are called as heteroploid.
- Chitin is a major polysaccharide in fungal cell wall.

III. Complete the following

(5 x 1 = 5 Marks)

- Haeckel proposed the kingdom _____ for unicellular organisms.
- Carboxysomes are involved in _____.
- Yaws are produced by _____.
- The protein free, virus like agents are called _____.
- The endospores seen inside sporangium are called as _____.

IV. Answer the following, each within 50 words

(5 x 1 = 5 Marks)

- What is bacteriorhodopsin? Where is it found?
- What are the modifications seen in a Phase Contrast Microscope.
- What is Quellung reaction?
- List the functions of the viral structural proteins.
- What is mycetoma?

PART – B

Answer the following, each within 500 words. Draw diagrams wherever necessary. (5×8 = 40 Marks)

21. (a) Write briefly on the experiments conducted to disprove spontaneous generation.
OR
(b) Describe Whittaker's five kingdom concept. Add a note on its merits and demerits.
22. (a) Discuss the structure of a bacterial cell wall. What are the major differences between the cell wall composition of gram positive and gram negative cell wall.
OR
(b) Write a short note on the different phases of bacterial growth curve.
23. (a) Write briefly on the virulence factors and pathogenesis of *Neisseria meningitides*.
OR
(b) Discuss the clinical manifestations of Gonorrhoea.
24. (a) Briefly describe the basic steps in the viral life cycle.
OR
(b) Discuss the structure, transmission and symptoms of TMV.
25. (a) Write a short note on candidiasis
OR
(b) What is cutaneous mucosae? Discuss with an example.

PART – C

Answer any TWO of the following, each within 1500 words. Draw diagrams wherever necessary.
(2×20 = 40 Marks)

26. Explain the structure, function of SEM and TEM. Add a note on sample preparation.
27. Enlist the virulence factors of *Staphylococcus aureus*. Describe the various conditions caused by this bacterium along with their laboratory diagnosis.
28. Write in detail on the lytic and lysogenic cycle of bacteriophages.
29. Illustrate the life cycle of malarial Parasites.

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