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Reg. No.:.....

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B.Sc.(CBCS) DEGREE EXAMINATION,
NOVEMBER 2019.

First Semester

Microbiology — Main

FUNDAMENTALS OF MICROBIOLOGY

(For those who joined in July 2016 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer

1. A bacillus bacterium with a single flagellum at each end is described as
 - (a) Monotrichous
 - (b) Amphitrichous
 - (c) Lophotrichous
 - (d) Peritrichous
2. Which of the following skin disinfectant(s) is/are most frequently used?
 - (a) Isopropyl alcohol
 - (b) Ethyl alcohol
 - (c) Both (a) and (b)
 - (d) None of these

3. The cell reproduction in bacteria may occur by
(a) Binary fission (b) Budding
(c) Fragmentation (d) All of these
4. Blood agar is an example for _____.
(a) Transport medium (b) Simple medium
(c) Differential medium (d) Enriched medium
5. Gram staining was developed by
(a) Louis Pasteur (b) Robert Koch
(c) Christian Gram (d) Gerald Gram
6. What is liquid culture medium called _____?
(a) Agar (b) Slant
(c) Broth (d) Semisolid
7. What is plasmid?
(a) Self-replicating segment of double stranded DNA
(b) Self-replicating segment of single stranded RNA
(c) A bacterial chromosome
(d) Single stranded RNA

8. Autoclave works under the principle of
- (a) Moist heat (b) Dry heat
- (c) Radiation (d) Hot air
9. Microbes can be removed from a liquid solution by the process of
- (a) Filtration (b) Freeze-drying
- (c) Osmosis (d) Desiccation
10. Which antibiotic has a beta-lactam ring?
- (a) Cephalosporin (b) Penicillin
- (c) Tetracycline (d) Streptomycin

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

Each answer should not exceed 250 words.

11. (a) List out some of the important milestones in the field of Microbiology.

Or

- (b) Briefly discuss on the major sub-disciplines of Microbiology.

12. (a) Define resolving power? Draw an instrumental diagram of dark field microscope.

Or

- (b) Write down the procedure for specimen preparation for electron microscopy.
13. (a) With a neat sketch and labelling, draw an ultra structure of a prokaryotic cell with a reference to *E. Coli*.

Or

- (b) Differentiate between the cell wall components of Gram positive and Gram negative bacterium.
14. (a) Write a note on working principle of Autoclave with its diagram.

Or

- (b) Write a brief note on the mechanism of action of enzymes on prokaryotic cellwall.
15. (a) Write a note on nutritional needs of microorganism.

Or

- (b) Write about any two differential media with suitable examples.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)

Each answer should not exceed 600 words.

16. (a) Discuss on the application of microbes in the field of soil and Medical Microbiology.

Or

- (b) Discuss the contributions of Lister, Pasteur and Koch with reference to Germ theory of diseases.

17. (a) Write a brief note on role of temperature as a physical agent of sterilization with suitable instrumentation diagrams.

Or

- (b) Write a detailed note on the ultra structure of a prokaryotic cell with a neat diagram.

18. (a) What is the significance of Lipopolysaccharide. Add a note on archaebacterial cell wall with a neat sketch.

Or

- (b) Tabulate the differences between Gram positive and Gram negative bacterium with neat diagram of their cell wall components.

19. (a) Write a detailed note on physical agents of sterilization with special reference to dry heat sterilization, supporting with a necessary diagram.

Or

- (b) Write a detailed note on various chemical agents of sterilization citing their mode of action and applications.

20. (a) Write a brief note on

- (i) Natural media components and
- (ii) Special purpose media

Or

- (b) Write the procedure of preparing Nutrient agar and Broth for cultivation of organisms.
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