(6 pages) **Reg. No. : .....**

Code No.: 20541 E **Sub. Code: CMMI 21**

B.Sc.(CBCS) DEGREE EXAMINATION, APRIL 2023.

Second Semester

Microbiology – Core

MICROBIAL PHYSIOLOGY AND BIOCHEMISTRY

(For those who joined in July 2021 onwards)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Build up of macromolecules and cell organelles are referred as _____

(a) Catabolism (b) Anabolism

(c) Metabolism (d) None of the above

2. Where does the electron transport system take place in bacteria _____

(a) Cell membrane (b) Mitochondria

(c) Ribosome (d) Cytoplasm

3. Which of the following bacteria is associated with ammonification?

(a) Rhizobium leguminosarum

(b) Bacillus mycoides

(c) Thiobacillus rhioxidans

(d) Nitrosomonas

4. Bacteriochlorophyll adsorbance is _____

(a) 650-750 nm (b) 800-1000 nm

(c) 450-570 nm (d) 350-450 nm

5. Glucose, galactose and fructose all have the same molecular formula but different arrangement of atoms and are therefore said to be _____

(a) ions (b) isotopes

(c) isomers (d) polymers

6. The basic fuel for all microbial life and the carbohydrate metabolized to yield its energy is _____

(a) glucose (b) fat

(c) starch (d) chitin

7. Proteins are used by microorganisms for the production of _____

(a) Energy compounds

(b) Enzymes and cellular parts

(c) DNA molecules and chromosomes

(d) Ions

8. The sequence of aminoacids in a protein is determined by

(a) The amount of energy in the cell

(b) The presence of RNA in the nucleus of the cell

(c) Chemical information in the chromosomal material of the cell

(d) Amount of oxygen present

9. In fat molecules, fatty acids are bound to molecules of _____

(a) Chitin (b) Cytosine

(c) Glycerol (d) Aminoacids

10. Identify the signal molecule which does not interact with cell surface receptor

(a) Insulin (b) Glucagen

(c) Testosterone (d) Gastrin

PART B — (5 × 5 = 25 marks)

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

Each answer should not exceed 250 words.

11. (a) Describe carbohydrates used by microorganisms to obtain energy.

Or

(b) Illustrate the acetyl CO A function in the Krebs cycle.

12. (a) Summerize the photosynthestic microorganism.

Or

(b) Illustrate the process of nitrogen fixation?

13. (a) Define starch and give examples?

Or

(b) State the formation of Glycogen? What is the role of glycogen?

14. (a) How do enzymes perform their functions? Summarize the Enzyme functions.

Or

(b) Define oligopeptides and write about it uses?

15. (a) Explain which type of lipid can form micelles.

Or

(b) Define the term prostaglandins and write about its function.

PART C — (5× 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b)
Each answer should not exceed 600 words.

16. (a) Illustrate the process of Alcohol fermentation.

Or

(b) Discuss about Ammonia respiration.

17. (a) Summerize the phototrophic metabolism.

Or

(b) Predict the characterization of Cyanobacteria?

18. (a) Discuss in detail about peptidoglycan.

Or

(b) Summerize the cellulose structure of functions.

19. (a) Explain about glucose acid?

Or

(b) Discuss in detail about quaternary structure of protein.

20. (a) Describe a detail note on essential fatty acid.

Or

(b) Discuss about major classes of lipids?

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