

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

Second Semester

Microbiology – Core

MICROBIAL PHYSIOLOGY AND BIOCHEMISTRY

(For those who joined in July 2021-2022 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. The fermentation is used only to regenerate
  - (a) NAD
  - (b) NADH
  - (c) ATP
  - (d) All of the above

5. The most abundant carbohydrate found in nature is
 

(a) Starch	(b) Glycogen
(c) Cellulose	(d) Chitin
6. Which of the following is a reducing sugar?
 

(a) Sucrose	(b) Trehalose
(c) Isomaltose	(d) Agar
7. Which of the following is a glucogenic amino acid?
  - (a) Glycine
  - (b) Proline
  - (c) Alanine
  - (d) All of the above
8. Which of the following interactions is crucial for the primary structure of proteins?
  - (a) Hydrogen bond
  - (b) Di-sulfide bond
  - (c) Vander Waals interactions
  - (d) Peptide bond

2. In alcoholic fermentation, the NADH reduces the pyruvate in to
  - (a) Lactic acid
  - (b) Alcohol
  - (c) Hydrogen atom
  - (d) None
3. An essential process connected with photosynthesis is
  - (a) Photolysis
  - (b) Synthesis of glucose
  - (c) Photophosphorylation
  - (d) Electron transfer
4. The process of conversion of soil NO-3 to N2 is called
  - (a) Nitrification
  - (b) Denitrification
  - (c) Ammonification
  - (d) Nitrogen fixation

9. Prostaglandins stimulate
  - (a) Aggregation of platelets
  - (b) Lipolysis in adipose tissue
  - (c) Bronchodilation
  - (d) Gastric acid secretion
10. Hydrolysis of fats by alkali is called
  - (a) Saponification number
  - (b) Saponification
  - (c) Both (a) and (b)
  - (d) None of these

PART B — (5 × 5 = 25 marks)

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

Each answer should not exceed 250 words.

11. (a) Write a brief note on EMP.  
Or  
(b) Explain the process of alcoholic fermentation.
12. (a) Write about oxygenic photosynthesis.  
Or  
(b) Write briefly about nitrogen fixation.

13. (a) How will you test reducing sugar? Explain with example.

Or

(b) Explain the structure of cellulose.

14. (a) What are the bonds which participate in the formation of protein structure?

Or

(b) Write a brief notes on non protein amino acids.

15. (a) Explain saponification with examples.

Or

(b) Write briefly about lipid micelles.

PART C — (5 × 8 = 40 marks)

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

Each answer should not exceed 600 words.

16. (a) Write a brief note on

(i) Denitrification

(ii) Ammonia respiration

Or

(b) Describe the events in the TCA cycle.

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17. (a) Write briefly about an oxygenic photosynthesis.

Or

(b) Describe photosynthesis and explain the electron yield of the process.

18. (a) Describe in detail about polysaccharides with example.

Or

(b) Differentiate the characteristics of reducing and non reducing sugar.

19. (a) Explain the secondary structure of proteins.

Or

(b) Write a brief account on enzymes.

20. (a) Explain the composition and importance of sphingolipid.

Or

(b) Write briefly about the general classification of lipids.

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