

B.Sc. Semester - 6 (CBCS) Examination
March/April-2024 (NEW COURSE)
Physiology, Biochemi, Biostat. (Core (New))

Time: 2:30 Hours**Marks: 70****Instructions:**

1. All questions are compulsory.
2. Figures to the right indicate marks.

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- Que.1(A) Answer in very short. (04)
1. What is the main driving force behind transpiration in plants?
 2. Identify the structural feature in xylem vessels that enhances the ascent of cell sap in plants.
 3. Give the term: It refers to the physiological response of plants to changes in day length.
 4. True or False: Stress physiology in plants primarily focuses on the negative impacts of stressors on plant health.
- Que.1(B) Answer in brief. (any one) (03)
1. Justify the statement: Transpiration is a necessary evil.
 2. Explain the concept of floral induction in plants and how it is influenced by photoperiodism.
- Que.1(C) Answer in detail. (any one) (07)
1. Explain the cohesion-tension theory in detail, outlining the key principles involved in the upward movement of water in plants.
 2. Describe the physiological responses of plants to drought stress, including changes in stomatal conductance, photosynthesis, and water use efficiency.
- Que.2(A) Answer in very short. (04)
1. Name a simple sugar commonly found in fruits and honey.
 2. Complete the statement: The secondary structure of a protein is stabilized by _____ bonding interactions between nearby amino acids.
 3. What is the term used to describe the type of inhibition where the inhibitor binds to the active site of the enzyme, preventing substrate binding?
 4. Write the chemical formula only: triglyceride.
- Que.2(B) Answer in brief. (any one) (03)
1. Differentiate between fibrous proteins and globular proteins, highlighting their structural features and functions. Provide examples of each type and discuss their roles in biological systems.
 2. Explain in short: General properties of alkaloids.
- Que.2(C) Answer in detail. (any one) (07)
1. Give classification of carbohydrates.
 2. Discuss: tertiary and quaternary protein.
- Que.3(A) Answer in very short. (04)
1. What is the statistical measure that represents the middle value of a dataset when arranged in ascending order?
 2. What statistical test is used to determine if there is a significant difference between observed and expected frequencies in categorical data?
 3. Define the term: Mode
 4. What does a high standard deviation indicate about a dataset?

Que.3(B) Answer in brief. (any one) (03)

1. Calculate the mode for following data.

Marks	0-10	10-20	20-30	30-40	40-50	50-60	60-70
No of students	4	9	13	15	12	8	3

2. Write Merits and Demerits of standard deviation in statistics.

Que.3(C) Answer in detail. (any one) (07)

1. Give definition, symbol, and formulae of following.
(i) Mean (ii) Median (iii) Variance, also discuss the merits and demerits of any two.
2. When a black rat (heterozygous) is crossed with another heterozygous black rat, 43 black, 15 cream and 22 albino offspring is produced in the f_2 generation. Using *chi square* test the genetic hypothesis 9:3:4 is consistent with the data. (Table value is 5.99).

Que.4(A) Answer in very short. (04)

1. What is the primary protective measure against COVID-19 transmission?
2. How does SARS-CoV-2 primarily enter the human body?
3. What color do Gram-negative bacteria stain after Gram staining?
4. What are natural culture media primarily composed of?

Que.4(B) Answer in brief. (any one) (03)

1. Write notes on symptoms of covid-19 virus infection.
2. Give outline chart of various sterilization techniques.

Que.4(C) Answer in detail. (any one) (07)

1. Discuss with diagrams: Ultrastructure of Bacteriophage.
2. Describe the Gram staining procedure in detail, including the purpose of each step and the expected outcome at each stage. Additionally, explain the significance of the Gram staining technique in microbiology and provide examples of bacteria that are classified as Gram-positive and Gram-negative.

Que.5(A) Answer in very short. (04)

1. True or False? Crop rotation can help in control of soil born disease.
2. What is aspersorium in penetration process?
3. Define: Canker
4. Death of cells, tissue or organ of host tissue due to parasitic infection known as?

Que.5(B) Answer in brief. (any one) (03)

1. Write notes on: Control measures of Citrus canker.
2. State symptoms of whip smut of Sugarcane.

Que.5(C) Answer in detail. (any one) (07)

1. Describe Necrosis as morphological symptoms.
2. Discuss red rot in *Saccharum officinarum* with three control measures.
