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Brainware University
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BRAINWARE UNIVERSITY

Term End Examination 2025-2026

Programme – B.Sc.(PA)-2022/B.Sc.(PA)-2023/B.Sc.(PA)-2024/B.Sc.(PA)-2025

Course Name – Hematology & Clinical Biochemistry

Course Code - BPAC203

(Semester II)

Full Marks : 60

Time : 2:30 Hours

[The figure in the margin indicates full marks. Candidates are required to give their answers in their own words as far as practicable.]

Group-A

(Multiple Choice Type Question)

1 x 15=15

1. Choose the correct alternative from the following :

(i) Indicate the general formula of polysaccharides out of given options.

- | | |
|-----------------------|-----------------------|
| a) $(C_6H_{10}O_5)_n$ | b) $(C_6H_{12}O_5)_n$ |
| c) $(C_6H_{10}O_6)_n$ | d) $(C_6H_{10}O_6)_n$ |

(ii) Identify the correct option. A nucleotide consists of.

- | | |
|---|--|
| a) Nitrogenous base. | b) Purine or pyrimidine base + sugar. |
| c) Purine or pyrimidine base + phosphorous. | d) Purine or pyrimidine base +sugar + phosphorous. |

(iii) Predict the right answer .Proteins contain -

- | | |
|-----------------------------------|-----------------------|
| a) Only L- α - amino acids | b) Only D-amino acids |
| c) DL-Amino acids | d) Both (A) and (B) |

(iv) Report the correct example of a saturated fatty acid -

- | | |
|------------------|----------------|
| a) Palmitic acid | b) Oleic acid |
| c) Linoleic acid | d) Erucic acid |

(v) Choose the pentose sugar present mainly in the heart muscle -

- | | |
|--------------|-------------|
| a) L- Xylose | b) ribose |
| c) Arabinose | d) D-Xylose |

(vi) Choose the right number of isomers of glucose -

- | | |
|------|-------|
| a) 2 | b) 4 |
| c) 8 | d) 16 |

(vii) Indicate the correct statement related to Fischer's 'lock and key' model of the enzyme action -

- | | |
|--|---|
| a) The active site is complementary in shape to that of substance only after interaction | b) The active site is complementary in shape to that of substance |
| c) Substrates change conformation prior to active site interaction | d) The active site is flexible and adjusts to substrate |

(viii) Report the correct option Deficiency of vitamin D causes-

- a) Ricket and osteomalacia
c) Hypothyroidism

(ix) Indicate the correct principle of ABO blood grouping :

a) precipitation
c) opsonisation

(x) Predict the true option regarding the correct anticoagulant used in the blood bag.

a) citrate
c) double oxalate

(xi) Predict the situation in which Hemolytic Disease of new born is manifested -

a) Mother is Rh Positive, Baby is Rh Negative
c) Mother is Rh Positive, Baby is Rh positive

(xii) Select the correct option. The following is produced with the combination of apoenzyme and coenzyme:

a) Holoenzyme
c) Prosthetic group

(xiii) Choose the write answer. Blocking of enzyme action by blocking its active site is called as:

a) Allosteric inhibition
c) Competitive inhibition

(xiv) Select the correct option. The most essential nutrient required for a woman during her initial stages of pregnancy for the prevention of birth defects is.

a) Thiamin
c) Folic acid

(xv) Choose the write vitamin that aids in blood clotting.

a) Vitamin K
c) Vitamin D

b) Tuberculosis of bone
d) skin cancer

b) agglutination
d) nutralisation

b) heparin
d) EDTA

b) Mother is Rh Negative, baby is Rh positive
d) Mother is Rh negative, Baby is Rh Negative

b) Enzyme substrate complex
d) Enzyme product complex

b) Feedback inhibition
d) Non-competitive inhibition

b) Vitamin C
d) Vitamin E

b) Vitamin C
d) Vitamin A

Group-B

(Short Answer Type Questions)

$$3 \times 5 = 15$$

2. Distinguish between D- and L – isomers. (3)
3. Explain the Michaelis-Menten constant. (3)
4. Write about Bombay Blood group. (3)
5. Enumerate in brief the structure of protein. (3)
6. Write a note on colorimetry. (3)

OR

Write the working principle of spectrophotometer. (3)

Group-C

(Long Answer Type Questions)

$$5 \times 6 = 30$$

7. Explain the term zwitterion with example. (5)
8. Describe the types of polysaccharides with examples. (5)
9. Write down the deficiency symptoms of Vit E and Vit K. (5)
10. Explain about Essential fatty acids. (5)
11. Enumerate the enzymes in myocardial infarction. (5)
12. Write about different type of blood grouping system. (5)

OR

Write the transfusion hazards due to mismatching of blood. (5)
