

SUBJECT CODE: 19BY/PC/BC14

M. Sc. DEGREE EXAMINATION - NOVEMBER 2022

BIOTECHNOLOGY

FIRST SEMESTER

COURSE : CORE
PAPER : BIOCHEMISTRY
TIME : 3 HOURS

MAX. MARKS:100

SECTION – A

ANSWER ALL QUESTIONS:

(10 x 2 = 20)

- The pH of the blood is maintained at 7.4 when the bicarbonate buffer pair -----is -----

a. $[\text{H}_2\text{CO}_3/\text{HCO}_3^-]$, 14
b. $[\text{HCO}_3^-/\text{H}_2\text{CO}_3]$, 14
c. $[\text{HCO}_3^-/\text{H}_2\text{CO}_3]$, 20
d. $[\text{H}_2\text{CO}_3/\text{HCO}_3^-]$, 20
- Glucose and galactose are called as ----- and glucose and mannose are called as -----

a. C4 and C2 anomers
b. C2 and C4 anomers
c. C2 and C4 epimers
d. C4 and C2 epimers
- chromatography technique is used to separate molecules based on molecular size
a. Ion exchange
b. Gel filtration
c. Affinity
d. GC
- The products of HMP shunt are ----- and -----
a. NADPH and ribose 5-po4
b. NADPH and ribulose 5-po4
c. NADH and ribose 5-po4
d. NADH and ribulose 5-po4
- The coenzyme for Lactate Dehydrogenase and aspartate transaminase is ----- and ----
a. NAD⁺ and FAD
b. NAD⁺ and PLP
c. NAD⁺ and CoA
d. NAD⁺ and biotin

ANSWER THE FOLLOWING:

- What is meant by R_f value in paper chromatography?
- Define acidosis.
- What are proteoglycans?
- Comment on catalytic amino acids.
- What is oxidative phosphorylation?

SECTION – B

ANSWER ALL THE QUESTIONS:

(5 x 8 = 40)

- (a) Explain how cellular organelles from liver homogenate are separated by centrifugation technique.

(or)

- (b) What are marker enzymes? Explain how they help in identifying various organelles.

12. (a) Discuss about the important properties of water that makes it as universal solvent.
(or)
(b) Discuss how pH is maintained by bicarbonate buffer system in extracellular fluids.
13. (a) Write notes on the types of DNA.
(or)
(b) Explain about occurrences, structure and role of glycosaminoglycans (hyaluronic acid & chondroitin sulphate)
14. (a) Elaborate on competitive and uncompetitive inhibition with examples.
(or)
(b) Discuss the role of enzymes in clinical diagnosis and pharmaceutical industries.
15. (a) What are multienzyme complexes? Explain how fatty acids are synthesized.
(or)
(b) Discuss about urea cycle with the reactions.

SECTION – C

ANSWER ANY TWO QUESTIONS:

(2 x 20 = 40)

16. Explain how enzymes are classified according to IUB nomenclature system and influence of various factors on enzyme activity (10 + 10).
17. Discuss the role of Hb and kidney in maintenance of body pH.
18. Explain the different levels of protein organisation.
19. Explain the synthesis and degradation of purine nucleotides.
