

[32/A-4] **SARDAR PATEL UNIVERSITY**

Bachelor of Science (Semester 3) Examination - 2022

Subject Code: US03CBCH52 BIOCHEMISTRY

Subject Title: BIOPHYSICAL BIOCHEMISTRY



Date: 16/11/2022 (Wednesday)

Time: 10.00 AM to 1.00 PM

Total: 70 Marks

NOTE:

1. Figure to the right indicate full marks of the questions.
2. Draw figure when necessary.

Q-1 Multiple Choice Questions:

[10]

- 1) Obligatory losses are approximately _____ ml/24hrs.
 - a) 1600 b) 1800 c) 2000 d) 700 to 800.
- 2) Which of the following is responsible for thirst mechanism?
 - a) Dehydration b) Overhydration
 - c) Renal failure d) None
- 3) _____ hormone is stimulating kidney to retain water.
 - a) GH b) ADH c) TSH d) Aldosterone
4. Most important physiological buffer present in blood is _____ buffer.
 - a) phosphate b) bicarbonate c) acetate d) proteinate
5. The ratio of alkaline phosphate to acid phosphate is _____.
 - a) 2:1 b) 4:1 c) 6:1 d) 8:1
6. Which of the following biochemical characteristic is true in uncompensated phase of metabolic alkalosis?
 - a) Disproportionate decrease in $[\text{HCO}_3^-]$ c) Decrease in pCO_2
 - b) Increase in total CO_2 content d) Decrease in H_2CO_3
7. Solution is also known as _____.
 - a) Crystalloid b) Colloid c) Bio-colloid d) Suspension
8. The viscosity of blood _____ during various diseases of blood.
 - a) remain same b) Decrease c) Increase d) None of these
9. _____ is used in a nuclear power battery to operate a heart pacemaker.
 - a) ^{238}P b) ^{15}N c) ^{13}C d) ^{133}Xe
10. Which of the following is based on excitation of solid or solution.
 - a) G. M. counter b) Autoradiography
 - c) scintillation counting d) All of above

Q-2 Short Answer Question (Attempt TEN out of TWELVE)

[20]

1. Give reason: Butanol has a high boiling point than butane.
2. Explain: Baroreceptor and chemoreceptor.
3. Draw a flow diagram of distribution of water.
4. Write formula to find pH.
5. What do you mean by buffer? Write its example.
6. Define: acid and base.
7. What do you mean by osmosis?
8. Define: Selective permeability.

P.T.O.

9. Define: Colloid.
10. Explain: Units of radioactivity.
11. What are radioisotopes?
12. Write down the principle of scintillation counter.

Q-3 Answer the following: [10]

- (A) Give an account on role of ADH and Aldosterone.
- (B) Write a note on Colligative properties of water.

OR

- (A) Explain: overhydration
- (B) Give an account on normal water balance.

Q-4 Answer the following: [10]

- (A) Give an account on alkalosis.
- (B) Write a note on titration curve of weak acid.

OR

- (A) Derive: H-H- equation.
- (B) Describe in detail: Bicarbonate buffer system.

Q-5 Answer the following: [10]

- (A) Describe in detail: classification of colloids.
- (B) Give an account on importance of diffusion.

OR

- (A) Write a note on importance of Donnan membrane equilibrium.
- (B) Write significance of surface tension.

Q-6 Answer the following: [10]

- (A) Write a note application of autoradiography.
- (B) Explain in detail: Geiger muller counter

OR

- (A) Biomedical hazards of radiation and its safety.
- (B) Write biomedical importance of radioisotopes.

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