

SEAT No. \_\_\_\_\_

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SARDAR PATEL UNIVERSITY

S.Y.B.sc. 3<sup>rd</sup> SEMESTER EXAMINATION JANUARY 2021

BIOCHEMISTRY: USO3CBCH02

TITLE: BIOPHYSICAL AND ENVIRONMENTAL BIOCHEMISTRY

Date: 7/01/2021; Thursday Time: 02:00 AM TO 1:00 PM TOTAL MARKS: 70

Q.1 Select proper option from following MCQ.

[10]

- 1) The primary defect in metabolic acidosis is due to.  
a) decrease in catabolic acid      b) decrease in bicarbonate  
c) increase in bicarbonate      d) increase in Hb buffer
- 2) Water intoxication is due to \_\_\_\_\_.  
a) Pure water dehydration      b) pure salt dehydration  
c) poor secretion of ADH      d) renal failure
- 3) Minimum excretory volume is about \_\_\_\_\_ ml / 24 hours  
a) 100-200      b) 200-400      c) 500-600      d) 700-900
- 4) Unequal distribution of diffusible ion of RBC is due to \_\_\_\_\_.  
a) surface tension      b) diffusion  
c) donnan membrane equilibrium      d) viscosity
- 5) Emulsoids are \_\_\_\_\_ colloids.  
a) liophilic      b) liophobic      c) protective      d) association
- 6) In various diseases of blood the viscosity of blood  
a) increases      b) decreases      c) remain constant      d) none
- 7) In vertical tube rotor sedimentation takes place across the \_\_\_\_\_ of the tube.  
a) bottom      b) center      c) top      d) diameter
- 8) Fixed angle rotor has an angle between \_\_\_\_\_ and \_\_\_\_\_.  
a) 14,40      b) 40,45      c) 45,60      d) 60,90
- 9) Toxicity of metal increase with  
a) consumption      b) exposure of air      c) carcinogenicity      d) none of these
- 10) Chronic exposure to arsenic leads to \_\_\_\_\_ diseases  
a) minamata      b) kidney stone      c) black foot      d) none of above

[1]

[P.T.O.]

**Q2. Fill in the blanks and true false**

[8]

1. The bond angle between H and O atom in structure of water is \_\_\_\_\_.
2. Suspensoid are example of \_\_\_\_\_ colloid.
3. Electrodes are usually made up of \_\_\_\_\_.
4. \_\_\_\_\_ catalyzes the conversion of cyanide to thiocyanate.

**True or false**

5. The most important buffer system regulating blood PH is Hb buffer.
6. In plants opening and closing of stomata is regulated by diffusion.
7. Electrophoretic mobility depends upon the viscosity of buffer .
8. Mild lead poisoning can be treated by using SDS.

**Q3. Answer in short. (Any ten)**

[20]

1. Define buffer with examples
2. Define hydrogen bond
3. Define diffusion.
4. Define viscosity
5. What is Tyndall effect?
6. What is acidosis and alkalosis?
7. Define Zone electrophoresis.
8. Enlist agents used for protein detection in electrophoresis.
9. Give symptoms of lead poisoning on nervous system.
10. What is function of rotor and write types of rotor?
11. Give sources of arsenic.
12. Explain Fanconi syndrome.

**Q4.: Long answer questions. (any four) (8 marks each)**

[32]

1. Give an account on normal water balance and its regulatory mechanism.
2. Explain physiological buffer system.
3. Explain classification of colloids.
4. Explain biological significance of osmosis.
5. Define centrifugation and derive equation for RCF.
6. Explain the factors affecting electrophoresis.
7. Write a note on biochemical effect of mercury on man?
8. Explain biochemical effect of cyanide poisoning.

X

[2]