VCD 081022 S.Y.B.Sc Sem III Biochemistry I 3 Hrs Marks 100

Note:

1. All the questions are compulsory. Choice is internal.
2. Figures to the right indicate full marks.
3. All questions carry equal marks.
4. Draw flowcharts/diagrams wherever necessary.

Q.1.A) State True or false: (04)

(i) pI is used in protein separation using PAGE.
(ii) Weak acid are proton donor.
(iii) Buffers cannot resist the change in pH.
(iv) pI stands for isoelectric permeability.

Q.1.B) Write short notes on: (Any three) (09)

(i) Formulas used for calculating pH and pOH
(ii) pK
(iii) Titration curve of lysine
(iv) pKw
(v) pH and pOH
(vi) pKa_1 and pKa_2

Q.1.C) Answer of the following: (Any two) (12)

(i) Explain what are buffers, buffering action and isoelectric point in detail.
(ii) Explain any two buffer system in detail.
(iii) Describe in detail about Henderson –Hasselbalch equation.
(iv) Explain in brief the titration curve of glycine.

Q.2 A) State True or False: (04)

(i) Colloids do not precipitate on addition of electrolyte.
(ii) Viscosity of sucrose solution is less than water.
(iii) Temperature affects osmosis.
(iv) Colloidal solutions have higher surface area than suspension solutions.

Q.2B) Answer the following: (Any three) (09)

(i) Elaborate on surface area of colloids
(ii) Explain the tyndall effect with an example.
(iii) Describe role of bile in digestion.
(iv) Explain flocculation of colloids.
(v) What is the volume percentage when 63 grams of NaCl is dissolved in 250 ml water?
(vi) Describe renal dialysis.

Q.2C) Answer the following: (Any two) (12)

(i) Calculate the ionic strength of 1M HCl solution.
(ii) Explain the mechanism of osmosis.
(iii) Methods to measure surface tension.
(iv) Elaborate on properties of colloids.

Q3 A) State True or False: **(04)**

(i) Anthony Leeuwenhoek is called the "Father of Microscopy".
(ii) In dark field microscope, the slide, stage, nose and light source should be free from small particles such as dust.
(iii)Nomarski Prism is also known as a Winston prism or condenser prism.
(iv)A rotating turret that houses the objective lenses is called as eyepiece.

Q3 B) Write short notes on: (Any three) **(09)**

(i) Explain simple microscope.
(ii) Prism used in difference interference contrast
(iii) Fluorescence stain
(iv) Scanning electron microscope
(v) Applications of microscope
(vi) Oil immersion lens.

Q3 C) Answer the following: (Any two) **(12)**

(i) Explain fluorescence microscopy in detail.
(ii) With the help of ray diagram explain differential interference contrast.
(iii) Explain the advantages and disadvantages of dark field microscope.
(iv) With the help of ray diagram explain phase contrast microscope.

Q4.A) Define and explain: (Any five) **(10)**

(i) Acid buffer (ii) Eyepeice (iii) Magnification (iv) Flocculation
(v) Ionization (vi) Prism (vii) Titration

Q4.B) Write short notes on: (Any three) **(15)**

(i) Write a short note on titration curve of aspartate.
(ii) Explain in detail the buffering system of bicarbonate.
(iii) Explain the importance of surface tension in the role of bile acid in digestion.
(iv) Enlist the importance of osmosis in physiology.
(v) With the help of diagram explain dark field microscopy.
(vi) Write in brief about the history of microscope.