[Additional Exam]

705/15 VCD / / S.Y.B.Sc-SEM IV - BIOCHEMISTRY I -75 MARKS - 2 1/2 HRS 25

Note: 1. Figures to right indicate marks.

2. All questions are compulsory.

3. Draw appropriately labeled diagrams wherever necessary.

Q I) A. Define the following (any Four) [8]

i. Gram equivalent.

ii. Isotonic solution.

iii. Capillary active substances

iv. Emulsoid

v. Diffusion coefficient.

vi Critical temperature

vii. Osmosis

viii. Osmotic pressure

B. Explain the following: (any Two) [6]

i. Write down the stalagmometric method for surface tension .

ii. What do you mean by flocculation?

iii. Briefly mentioned about any two properties of colloids?

iv. Describe percentile method of solute concentration.

C. Answer in brief : (any One) [6]

i. Explain : Van't Hoff,s law

ii. Briefly describe how different factors affecting diffusion of solute in solution.

QII) A. Answer the following (any Four) [8]

i. What is a suspension medium?

ii. Define isotonic solution

iii. Name any 2 properties of *C. elegans* which makes it a model organism.

iv. Explain the process of sonication.

v. What is osmosis?

vi. Give any 4 advantages of *D. melanogaster* as a model organism.

vii. What are tissue studies?

viii. Give examples of cell fractionation techniques.

B. Explain the following: (any Two) [6]

i. What is cell rupture?

ii. What is significance of organ studies?

iii. Importance of a model organism.

iv. What are factors of suspension medium?

C. Answer in brief : (any One) [6]

i. Write a note on significance of *Drosophila melanogaster* as model organisms in biochemical investigations.

ii. Write a brief note on tissue techniques and significance of cell disruption.

Q III) A. Answer the following (any Four) [8]

i. How does the distance between specimen affect the resolution of image formed ?

ii. What is the RI of air?

iii. Define condenser.

iv. What is the function of a prism?

v. What is the function of objective lens?

vi. Define focal length.

vii. What is the function of Dissection microscope?
viii. Name the lens used by Leewenhoek

B. Answer the following: (any Two)

i. Illustrate the working of Scanning electron microscope.
ii. Draw the focussing of light with the help of lenses.
iii. Define refractive index with an example.
iv. Explain the phenomenon of fluorescence.

C. Answer in brief : (any One)

i. Explain the working of confocal microscope
ii. Explain the working of TEM [6]

Q IV] 1.(A) Answer any one of the following:

i. What is unit of viscosity?
ii.How osmosis help in diagnosis of cerebral edema? [2]

1. (B) Answer of the following: (any Three) [3]

i. ..... is 1 mole of solute dissolved in 1000g of solvent (molality/ normality/ molarity)
ii. 9ml saline dissolved in 100 ml water means...saline.(9%/ 9gm%/ 9ml%)
iii. Gram equivalent wt of fumeric acid is ....(126gm/ 63 gm/ 64 gm)
iv. Colloidial state is denoted by particle size range from .....(1mμ-0.1μ/ 0.1mμ-1mμ/ 0.001mμ-0.1mμ)
v. Rate of diffusion is..... proportiotional to size of particle. (inversely/ directly/ diagonally)
vi. The energy of ..... denoted by γ (surface tension/ viscosity/ osmotic pressure)

2.(A) Give example of one the following [2]

i. Technique of cell rupture.
ii.Any one unicellular model organism

2. (B) Answer of the following: (any Three) [3]

i. Name a model organism which is easy to store.
ii. Name a cell rupture technique which involves freezing and crushing.
iii. Name any one eukaryotic model organism.
iv. Name any one organism which has homologous genes with human genes.
v. Give any use of homegeniser.
vi. Give any one importance of biochemical investigations

3.(A) Give application in industry of one the following: [2]

i. Microorganisms
ii. Magnification

3. (B) Answer of the following: (any Three) [3]

i. What is the function of the mechanical stage in a microscope?
ii. Give examples of simple stains used in the laboratory.
iii. What is the highest magnification of objective lens in a compound microscope?
iv. Name the lens employed in electron microscope.
v. Name the compound used in shadowing a specimen in TEM.
vi. Which kind of microscope is used in the laboratory for studying simple structures.

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