Kalyani Mahavidyalaya

Part-I Honours Test Examination-2017

Subject: Molecular Biology & Biotechnology

Paper-II

USE SEPARATE SHEETS FOR EACH GROUP

Full marks - 50 Time – 2hrs

Group A Marks: 25

1. Answer any five. 5 x 2 = 10

a) What is blebbing phase of HIV life cycle?

b) What is osmotic pressure?

c) What is the difference between apoplast and symplast?

d) What is the difference between osmosis and reverse osmosis?

e) What is flip-flop movement?

f) What is eclipsed phase?

g) Give examples of two drugs used in treatment of HIV.

h) Why HIV is also called Retrovirus?

2. Answer three. 3 x 5 = 15

a) What is carrier protein mediated transport? How sodium potassium (Na+/k+-ATPase) ATPase pump stabilizes the ionic balance in nerve impulse? 2+3=5

b) What are integral proteins? Explain the fluid mosaic model with diagram. 2+3=5

c) What is group translocation? How water moves to flower through the root? 2+3=5

d) What is stomatal opening and closing? Write a short note on factor affecting transpiration? 2+3=5

e) What are the drawbacks of five kingdom classification? Mention the features of protista and fungi. 2+3=5

Group B Marks: 25

1. Answer any five: 1×5=5

a)Define pH of a solution.

b) Write Fischer projection formula of a reducing sugar.

c) State two importances of exocytosis in biological system.

d)Why X-ray is used to study crystal structures?

e) What is Optical Density?

f)Give example of a carbohydrate which can be used as indicator in titration.

g) What will happen to a R.B.C. if it is kept in a hypertonic solution?

2. Answer any five: 2×5=10

a) Define Viscosity of a fluid? State its units.

b) Write the importances of carbohydrate in biological system.

c) What are the wavelength ranges of UV and visible lights in spectrum?

d) How can you identify a compound as a carbohydrate?

e)Define Osmotic pressure and Surface tension of a solution?

f) What is Transcytosis?

g) How concept of pH scale can be obtained from Ionic Product of water?

3. Answer any two: 5×2=10

a) Derive Henderson –Hasselbalch Equation for a buffer. State its importances. 3+2=5

b) State Lambert-Beer's Law for a colored solution. 2+3=5

You have been provided with the following datasheet of an experiment. What could be the concentration value of the sample?

Concentration(mg/ml)	0.2	0.4	0.6	0.8	Sample(??)
O.D at 560nm	0.08	0.14	0.33	0.68	0.33

c) Discuss instrumentation of (i) pH meter (ii) Colorimeter.