CITY COLLEGE (CU Intermediate Examination, 2020)

B.Sc. Part I (Hons.) (1+1+1) Examination, 2020

F.M. – 100 **Paper - I** **Writing Time – 3hours**

ATTEMPT ANY FIVE QUESTIONS

1.(a) With a suitable diagram describe the Singer-Nicolson fluid mosaic model of cell membrane structure.
(b) What are the functions of endoplasmic reticulum?
(c) Distinguish between the uniport, symport and antiport translocation across the cell membrane. **(2+4)+8+6=20**

2. (a) What is meant by signal transduction? Discuss the JAK-STAT pathway of signal transduction.
(b) What are nucleosomes? How do they help in DNA packaging?
(c) How is cell cycle regulated by cyclins? **(3+7) + (2+4) + 4=20**

3. (a) What is surface tension? Mention its importance in physiology.
(b) Deduce Henderson-Hasselbalch equation and mention its significance.
(c) Define osmotic pressure. Mention its physiological importance.
(2+3) + (8+2) + (2+3) =20

4. (a) Explain the "induced-fit model" of enzyme-substrate interaction.
(b) What is K_m? Mention its significance.
(c) Derive Michaelis-Menten equation for a single substrate reaction.
5+ (2+3) +10 =20

5. (a) Classify protein digesting enzymes of the alimentary canal with examples.
(b) Discuss the mechanism of fat absorption in the alimentary canal. **10+10=20**

6. (a) Classify carbohydrates with examples.
(b) Describe the structure of peptide bond mentioning its properties.
(c) Write a note on structure of unsaturated fatty acids. **10+6+4=20**

7.(a) Discuss the physiological functions of iron.
(b) State the physiological functions of phosphorus.
(c) What is retinoic acid? Give two important functions.
(d) State the deficiency symptoms of vitamin C. **4+4 + (2+4)+6=20**

8.(a) Discuss the excitation-contraction coupling process in skeletal muscle. Give diagram.
(b) Discuss the mechanism of nerve conduction in a myelinated nerve fiber. Give diagram. **(8+2) + (8+2) =20**

Examinees are requested to send the answer-script in pdf format to the following e-mail id arnab_c39@hotmail.com

By 3.15pm positively on the day of the examination