# 2018

## CBCS

## 1st Semester

## PHYSIOLOGY

### PAPER—C2T

### (Honours)

*Full Marks : 40*

*Time : 2 Hours*

*The figures in the right-hand margin indicate full marks.*

*Candidates are required to give their answers in their own words as far as practicable.*

*Illustrate the answers wherever necessary.*

### *Biological Physics and Enzymes*

1. Answer any *five* questions : 5×2

(a) Differentiate between moles and osmoles, citing examples. 2

(b) State Beer-Lambert's law. Give its application. 1+1

(c) Mention the bonds involved in protein structure. 2

(d) Mention the types of chromatography. 2

(e) What do you mean by resolving power of a microscope ? 2

(f) Write the biological applications of ultra centrifugation. 2

(g) Cite one example each of laminar flow and streamline flow. 2

(h) State the principle of cell fractionation. 2

**2.** Answer any *four* questions : 4×5

(a) What are meant by α particles, β particles and γ rays ? Briefly mention the use of radio nuclides in physiological studies. 2 + 3

(b) Give examples of two nano-particle, mentioning their probable sizes. Mention, in brief, the role of nano-technology in biomedical applications. 2 + 3

(c) What is surface tension ? Mention its physiological importance what is surfactant ? 2 + 2 + 1

(d) State the principle of action of phase contrast microscope, mentioning its advantages and disadvantages. 2 + 3

(e) What is entropy ? How does it differ from enthalpy ? What is Gibb's free Energy ? Give an example. 1 + 1 + 2 + 1

(f) What is immobilized enzyme ? State the clinical importance of LDH and CPK. 1 + 2 + 2

3. Answer any *one* questions : 1×10

(a) i) What is Km ? How can it be derived from hyperbolic saturation Kinetics ?

ii) Mention the merits and demerits of Km in the light of saturation Kinetics and significance of Lineweaver Burk plot. (1+2)+(2+1)+(2+2)

(b) i) Differentiate between pH and pKa, mentioning their inter relation.

ii) Outline the act of buffering by bicarbonate buffer system.

iii) Mention the significance of Henderson Hasselbach's equation in reference to biological systems. 2 + 5 + 3

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