

Roll No.

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Total No. of Pages : 02

Total No. of Questions : 09

B.Sc.(BT) (2014 to 2017) (Sem.-3)

BIOPHYSICS

Subject Code : BSBT-203

M.Code : 47036

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTION TO CANDIDATES :

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains FIVE questions carrying FIVE marks each and students have to attempt ANY FOUR questions.
3. SECTION-C contains THREE questions carrying TEN marks each and students have to attempt ANY TWO questions.

SECTION-A**1. Explain briefly :**

- a) How is blood pressure controlled in arteries?
- b) What is the total refractive power of eye?
- c) Define secondary messenger with example.
- d) What is a biophoton?
- e) What is a reciprocal lattice?
- f) What is z line in sarcomere?
- g) Give application of cobalt 60.
- h) Define atomic packing factor.
- i) Explain the term- kinesiology.
- j) Define Bragg's law.

SECTION-B

2. Explain the architecture of skeletal muscle and the sliding filament theory of muscle contraction. 5
3. Explain the mechanism for the perception of sensory event. 5
4. Explain the formation, emission and propagation of electromagnetic wave. 5
5. a) The half-life of U-238 undergoing α -decay is 4.5×10^9 years. What is the activity of 1g sample of U-238? 3
b) What is a source of gamma rays? 2
6. a) The magnetic field in a plane electromagnetic wave is given by $B_y = 2 \times 10^{-7} \sin(0.5 \times 10^3 x + 1.5 \times 10^{11} t)$ T. What is the wavelength and frequency of the wave? 3
b) What do you understand by term -dual nature of light? 2

SECTION-C

7. Explain the factors affecting diffusion potential when a membrane is permeable to numerous different ion. Discuss resting membrane potential, gradient potential and action potential in a neuron. 3+7
8. Discuss the biological and chemical aspect of radioisotope use including tracer principle, radiopharmaceuticals and mechanism of localization of radiopharmaceutical in a target organ. 10
9. Explain the underlying physics of XRD technique. What factors determine the number of peaks obtained in XRPD? How will you determine the crystal structure from XRD data? 10

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.