

**B. Sc. 6<sup>th</sup> Semester Examination, 2020****PHYSICS****(BIOLOGICAL PHYSICS)****Course ID: 62416****Paper: 603/DSE-3/ T6****Time: 1 Hour 15 Minutes****Full Marks: 20**

*The figures in the margin indicate full marks.*

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

**Section - I****1. Answer any three of the following questions:****2 x 3 = 6**

- (a) What do you understand by plasma membrane?
- (b) What is metabolism?
- (c) What do you understand by evolution and evolvability?
- (d) What is diffusion law? Write down the corresponding equation.
- (e) Briefly discuss about neurons and neural networks.
- (f) “A random walk is most easily visualized on a lattice” - explain.
- (g) Comment on feedback cycles and self- sustaining ecosystem.
- (h) What do you mean by stem cell?
- (i) What do you understand by the concept of genotype-phenotype map? Give Example.

**Section - II****2. Answer any one of the following questions:****5 x 1 = 5**

- (a) Briefly discuss different types of proteins and nucleic acid.
- (b) “Random walk leads to diffusive behavior” – Explain the statement in details.
- (c) What do you mean by the following statement “The molecules of life are polymers”, further discuss about the genetic code.

(2)

**Section – III**

**3. Answer *any one* of the following questions:**

**9 x 1=9**

(a) Discuss in details about the possible exchange of matter and energy with environment. **9**

(b) Discuss in details about different types of model of evolution. **9**

(c) Discuss the following: (i) Catalysis, (ii) Replication, (iii) Transcription and (iv) Translation.

Describe the internal and external gross anatomy of living cells.

**5+4=9**

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