Bihar Engineering University, Patna
End Semester Examination - 2022

Course: B.Tech. | *Semester: III* | *Time: 03 Hours*
Code: 100301 | *Subject: Biology for Engineers* | *Full Marks: 70*

Instructions:-
(i) The marks are indicated in the right-hand margin.
*(ii) There are **NINE** questions in this paper.*
*(iii) Attempt **FIVE** questions in all.*
*(iv) Question No. **1** is compulsory.*

Q.1 ***Choose the correct answer of the following (Any seven question only):*** **[2 x 7 = 14]**

(a) The digestive system of the cell is known as
(i) ribosome (ii) golgi body (iii) lysosome (iv) chloroplast

(b) The movement of particles in liquids and gases is observed as
(i) Brownian motion (ii) Bruneian motion
(iii) Randomium motion (iv) Blackian motion

(c) The exchange of segments of non-sister chromatids between chromosomes of a homologous pair termed as
(i) transformation (ii) translocation
(iii) crossing over (iv) chromosomal aberration

(d) Enzyme inhibition caused by a substance resembling substrate molecule is
(i) competitive inhibition (ii) non-competitive inhibition
(iii) feedback inhibition (iv) allosteric inhibition

(e) Which amino acid maintain the balance of central nervous system
(i) Glutamine (ii) Asparagine
(iii) Methionine (iv) serine

(f) Chlorophyll in chloroplast is located in
(i) grana (ii) pyrenoid (iii) stroma (iv) both(i)and (iii)

(g) The one aspect which is not a salient feature of genetic code is its being
(i) specific (ii) ambiguous (iii) degenerate (iv) universal

(h) Bacteriological media that are composed of ingredients whose exact chemical compositions are known are called:
(i) designated (ii) exact (iii) defined (iv) selective

(i) New cells generate from
(i) bacterial fermentation (ii) regeneration of old cells
(iii) pre existing cells (iv) abiotic materials

(j) DNA in virus is always:
(i) Linear (ii) Circular (iii) Both (i) and (ii) (iv) None of the these

Q.2 Write the answer in short of the following:
(a) What is the need of study of biology for an engineer? **[7]**
(b) Viruses are not included in any system of classification. Why? **[7]**

Q.3 (a) Differentiate between Prokaryotic and Eukaryotic cells. **[7]**
(b) Write significance and objections to cell theory. **[7]**

Q.4 (a) Write seven characters in pisum sativum, explain by Mendel. **[7]**
(b) Discuss about single gene disorders in humans. **[7]**

P.T.O.

Q.5 (a) Explain the structure of DNA in details. [7]

(b) Explain about types of nucleic acid and function of Nucleotides. [7]

Q.6 (a) Describe the function of proteins. [7]

(b) Discuss about the basic classification of enzymes. [7]

Q.7 (a) Differentiate between Species and Strains. [7]

(b) What are the basic properties of a model organism? [7]

Q.8 (a) Differentiate between Glycolysis and Krebs cycle. [7]

(b) Explain the laws of thermodynamics especially with relation to biological system. [7]

Q.9 Write Shorts notes on any four of the following: [3½×4=14]

(a) Brownian motion
(b) Photosynthesis
(c) Test Cross
(d) Unicellular organism
(e) RNA
(f) Meiosis