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Bihar Engineering University, Patna
End Semester Examination - 2022

Course: B.Tech.
Code: 100301

Semester: III
Subject: Biology for Engineers

Time: 03 Hours
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:

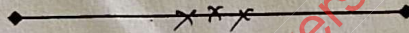
- (a) What is the need of study of biology for an engineer? [7]
- (b) Viruses are not included in any system of classification. Why? [7]

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]

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- 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 Short 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



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