First Year B. Sc. (Sem. II) (CBCS) Examination
April / May - 2017
BT-201 : Biotechnology
(Fundamentals of Biochemistry, Biocomputing & Biostatistics)
(Old Course)

Faculty Code : 003
Subject Code : 001210

Time : $2\frac{1}{2}$ Hours]   [Total Marks : **70**

Instructions : (1) All questions are compulsory.

(2) The right side figure indicates total mark of the question.

(3) Draw the figure necessary.

(4) Multiple choice questions have to be answered in answer sheet only.

SECTION - I

1   Multiple Choice Questions :   **20**

(1) Which of the characteristics below apply to amino acid Glycine?

(a) Optically inactive

(b) Hydrophilic, basic and charged

(c) Hydrophobic

(d) Hydrophilic, acidic and charged

(2) Sulphur containing amino acid is

(a) Cysteine

(b) Serine

(c) Threonine

(d) Glutamine

(3) α-D-glucose and β-D-glucose are

    (a) epimers   (b) anomers

    (c) stereomers   (d) keto-aldo pairs

(4) Carbohydrates occur naturally in

    (a) D-form

    (b) L-form

    (c) Both (a) and (b)

    (d) None of the above

(5) The primary structure of protein is maintained by

    (a) Peptide bond

    (b) Hydrogen bond

    (c) Ionic bond

    (d) Glycosidic bond

(6) Left handed DNA is

    (a) A-DNA   (b) B-DNA

    (c) C-DNA   (d) Z-DNA

(7) Bacteriophages are

    (a) Mutant bacteria

    (b) Virus that attack bacteria

    (c) Pathogenic bacteria

    (d) None of the above

(8) Ascorbic acid prevents

    (a) Scurvy   (b) Rickets

    (c) Antibody synthesis   (d) Beri-beri

(9) The codon is found on _____, and the anticodon is found on _____

   (a) tRNA, mRNA   (b) rRNA, mRNA

   (c) mRNA, tRNA   (d) mRNA, rRNA

(10) The experiment by _____ showed that DNA not protein is the genetic material

   (a) Griffith

   (b) Watson and Crick

   (c) Hershey and Chase

   (d) Mendel

(11) DNA replication is described as

   (a) Conservative

   (b) Semi-conservative

   (c) A very slow process

   (d) Dispersive

(12) The data that showed that DNA is a helix was collected by

   (a) James Watson

   (b) Rosalind Franklin

   (c) Francis Darwin

   (d) Frederick Griffith

(13) Which of the following is not a measure of central tendency?

   (a) Mean   (b) Variance

   (c) Mode   (d) Median

(14) The difference between the largest and the smallest data values is the....

   (a) Variance

   (b) Interquartile range

   (c) Range

   (d) Coefficient of variation

(15) Which is the sum of all the data values divided by the number of data values ?

    (a) Mode   (b) Median

    (c) Mean   (d) All of above

(16) Oligosaccharides linked to proteins are called

    (a) Glycoproteins   (b) Glycolipids

    (c) Galactosides   (d) Ganglioside

(17) A protocol used to control the secure sending of data on the internet is

    (a) SMTP   (b) HTTPS

    (c) TCP/IP   (d) HTTP

(18) Which is the first program run on a computer when the computer boots up?

    (a) Application software

    (b) Operating system

    (c) System operations

    (d) None

(19) An operating system

    (a) Is not required on large computers

    (b) Is always supplied with the computer

    (c) Is always supplied with the BASIC

    (d) Consists of programs that help in the operation of computer

(20) The branch of biostatistics that deals with methods of collection, organization and presentation of data is called as

    (a) Inferential biostatistics

    (b) Descriptive biostatistics

    (c) Both (a) and (b)

    (d) Comparative biostatistics

SECTION - II

2. (a) Write any three :   6

      (1) Define covalent bond and give an example of polar covalent bond.

      (2) What is Chargaff's rule.

      (3) Define pH and pKa.

      (4) Write significance of free energy in living system

      (5) Write general structure and properties of Amino acid.

      (6) Draw and explain the structure of any two disaccharides.

  (b) Write any **three** :   9

      (1) Explain properties of water.

      (2) Write a note on laws of thermodynamics.

      (3) Explain structure of computer in detail.

      (4) Write applications of spreadsheet

      (5) Write a note on classification of amino acid based on functional group

      (6) Write note on anyone polysaccharide.

  (c) Write any **two** :   10

      (1) Write a note on ANOVA and its application in biology.

      (2) Discuss structural levels of proteins.

      (3) Discuss nomenclature and significance of porphyrin.

      (4) Describe functions of carbohydrate

      (5) What is correlation? Discuss types and applications of correlation.

3 (a) Write any **three** :   **6**

    (1) Define biologically active peptides.

    (2) Define conformation and configuration.

    (3) What is composition of membrane ?

    (4) Describe window screen and enlist parts of window.

    (5) What is significance of students t-test

    (6) How to set up email address?

  (b) Write any **three** :   **9**

    (1) What is Ramachandran plot and write its significance ?

    (2) Write a note on ribozymes.

    (3) Explain functions of nucleotides.

    (4) What is PowerPoint presentation and its applications ?

    (5) Explain structure of computer in detail.

    (6) What is probability? Write in short about different theorems of probability?

  (c) Write any **two** :   **10**

    (1) Write in detail about structure and properties of nitrogen basses.

    (2) Write classification and function of lipids Discuss type of RNA and their functions.

    (3) What is computer? Write in detail about components and applications of computer

(4) What is regression analysis ? How to calculate Regression analysis ? What are the applications of regression analysis ?

(5) What is DNA and explain classical experiments which DNA as genetic material ?

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