REV-01
BBT/01/10

2023/01

SET A

B.Sc. BIOTECHNOLOGY
FIRST SEMESTER
BIOCHEMISTRY AND METABOLISM
BBT-101 (IDMj)
[USE OMR FOR OBJECTIVE PART]

Duration: 3 hrs.

Full Marks: 70

Time: 30 mins.

Objective

Marks: 20

Choose the correct answer from the following:

1×20=20

1. The synthesis of glucose from fats are called:
   a. Glycolysis
   b. Krebs cycle
   c. Glycogenolysis
   d. Gluconeogenesis
2. In Krebs Cycle a six carbon compound is formed by the combination of Acetyl CoA and:
   a. Citric acid
   b. Malic acid
   c. Oxaloacetic acid
   d. Succinic acid
3. All of the following are important electrolytes except:
   a. Potassium ions
   b. Carbon ions
   c. Chloride Ions
   d. Sodium ions
4. Which of the following enzyme catalyses the first step of glycolysis?
   a. Hexokinase
   b. Pyruvate kinase
   c. Glukokinase
   d. Phosphofructokinase I
5. The repeating units of proteins are:
   a. Glucose units
   b. Amino acids
   c. Fatty acids
   d. Peptides
6. Nutritional polysaccharide is:
   a. Starch and glycogen
   b. Starch and chitin
   c. Starch and cellulose
   d. Starch and glucose
7. Enzyme which helps in changing shape of a molecule:
   a. Ligases
   b. Dehydrogenases
   c. Hydrolases
   d. Isomerases
8. The backbone of DNA is:
   a. Hydrophilic
   b. Hydrophobic
   c. Neutral
   d. Both hydrophilic and hydrophobic
9. During one Kreb cycle number of carbondioxide molecules released is:
   a. 1
   b. 2
   c. 3
   d. 4
10. Ramachandran plot is used for:
    a. Predicting the structure of an enzyme
    b. Predicting the structure of a protein
    c. Predicting the secondary of proteins from primary sequence
    d. All the above

11. Which of the following Biomolecules simply refers to as "Staff of life"?
    a. Lipids
    b. Proteins
    c. Vitamins
    d. Carbohydrates

12. Which of the following is the general formula of Carbohydrates?
    a. $(C_4H_2O)n$
    b. $(C_6H_2O)n$
    c. $(CH_2O)n$
    d. $(C_2H_2O)n$ COOH

13. Which of the following monosaccharides is the majority found in the human body?
    a. D-type
    b. L-type
    c. LD-types
    d. None of the above

14. Which of the following techniques is used to determine the protein structures?
    a. X-ray crystallography
    b. Kryptonics X-ray vision
    c. Magnetic resonance imaging (MRI)
    d. None of the above

15. Which of the following is the smallest carbohydrate – triose?
    a. Ribose
    b. Glucose
    c. Glyceraldehyde
    d. Dihydroxyacetone

16. A short length of DNA molecule has 80 thiamine and 80 guanine bases. The total number of nucleotide in the DNA fragment is:
    a. 160
    b. 40
    c. 320
    d. 640

17. All of the reactant will be converted to products:
    a. Will never reach equilibrium
    b. Will not occur spontaneously
    c. Will proceed at a rapid rate
    d. Will not proceed at a rapid rate

18. ATP is a:
    a. Nucleoside
    b. Nucleotide
    c. Vitamin
    d. Nucleic acid

19. Metal ions that temporary binds substrate and active site of 'enzyme' is called:
    a. Inhibitors
    b. Coenzymes
    c. Prosthetic group
    d. Cofactors

20. Sphingomyelins are found in:
    a. Muscles
    b. Nephrons
    c. Brain tissues
    d. Hepatocytes

-- --- --

(Descriptive)

Time : 2 hr. 30 mins. Marks : 50

[Answer question no.1 & any four (4) from the rest]

1.	Describe glycolysis in detail.	10
2.	Where does TCA cycle takes place? Describe it in detail.	2+8=10
3.	What are lipids and how are they classified?	2+8=10
4.	Define Proteins. What are the forces stabilizing the structure of proteins?	3+7=10
5.	Describe electron transport chain in brief.	10
6.	Differentiate between A-DNA and B-DNA.	5+5=10
7.	Write a note on: a) Enzyme nomenclature according to Enzyme commission. b) Write short note on Holoenzyme and Apoenzyme.	5+5=10
8.	Write a note on: a) Essential and Nonessential amino acids. b) Fibrous and Globular proteins.	5+5=10

= = *** = =