

**B.SC. BIOTECHNOLOGY  
SEMESTER-1<sup>ST</sup>  
BIOCHEMISTRY & METABOLISM  
BBT-101**

**Duration: 3 Hrs.**

**Marks: 70**

**Part : A (Objective) = 20**

**Part : B (Descriptive) = 50**

[ PART-B : Descriptive ]

**Duration: 2 Hrs. 40 Mins.**

**Marks: 50**

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

1. What are proteins and describe the forces responsible for maintaining the structure and shape of the proteins? 10
2. Write a note on the different techniques used in the extraction and isolation of proteins from living tissue? 10
3. What are carbohydrates how are the classified based on their structure give an example of each type? 10
4. What is the composition of triglycerides? What is meant by saturation and unsaturation when referring to oils and fats? 10
5. Write a note on the classification of enzymes and highlight the importance of enzymes on activation energy? 10
6. Write the steps of glycolysis and explain its energetics? 10
7. Write a note on double helical structure of DNA and what are the forces responsible for denaturing DNA? 10
8. What is glycogenolysis? Write the importance of Electron transport chain? 10

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**[ PART-A : Objective ]**

**I.Choose the correct answer from the following :**

**1X20=20**

1. Enzymes are
  - a. Carbohydrate
  - b. RNA
  - c. Proteins
  - d. Fats
2. The term Apoenzyme is applicable to
  - a. Simple enzyme
  - b. Protein part of conjugate enzyme
  - c. Organic cofactor of a conjugate enzyme
  - d. Inorganic cofactor of a conjugate enzyme
3. The negative charge of DNA is due to
  - a. Sugar, Phosphate and amino acid
  - b. Deoxyribose sugar
  - c. Nitrogenous bases specifically adenine
  - d. Phosphate group
4. In which of the following forms glucose is present in plants?
  - a. Glycogen
  - b. Starch
  - c. Dextrin
  - d. Cellulose
5. Which of the following is a carbohydrate with no nutritional value
  - a. Starch
  - b. Glycogen
  - c. Dextrin
  - d. Cellulose
6. The compounds having the same structural formula but differing in configuration around one carbon atom are called
  - a. Optical isomer
  - b. Anomers
  - c. Stereoisomers
  - d. Epimers
7.  $\alpha$ - D Glucose and  $\beta$ -D Glucose are
  - a. Epimers
  - b. Keto aldose isomers
  - c. Anomers
  - d. Optical isomers
8. In gel electrophoresis what fragments will move most quickly through a gel
  - a. Large fragments
  - b. Small fragments
  - c. Large genome
  - d. None of these
9. Nucleoside is a pyrimidine or purine base
  - a. Covalently bonded to a sugar
  - b. Ionically bonded to a sugar
  - c. Hydrogen bonded to a sugar
  - d. None of the above
10. In the intestine the dietary fats are hydrolysed by
  - a. Triacylglycerol lipase
  - b. Adenylate cyclase
  - c. Pancreatic lipase
  - d. Protein kinase
11. How many ATP molecules can be derived from each molecule of Acetyl CoA that enters the Krebs cycle
  - a. 6
  - b. 12
  - c. 18
  - d. 38
12. Which of the following is not an intermediate of citric cycle
  - a. Acetoacetate
  - b. Citrate
  - c. Oxalosuccinate
  - d. Succinyl CoA
13. The enzyme involved in the feed back inhibition are called
  - a. Allosteric enzymes
  - b. Holoenzymes
  - c. Apoenzymes
  - d. Coenzyme
14. An enzyme used in both glycolysis and gluconeogenesis
  - a. 3-Phosphoglycerate kinase
  - b. Glucose 6-Phosphatase
  - c. Hexokinase
  - d. Phospho fructokinase 1
15. HDL are synthesized in
  - a. Blood
  - b. Liver
  - c. Intestine
  - d. Pancreas

16. In eukaryotes fatty acid breakdown occurs in

- a. Mitochondrial matrix
- b. Cytosol
- c. Cellmembrane
- d. Endoplasmic reticulum

17. Nucleotide bases and aromatic amino acid absorb light respectively at

- a. 280 and 260 nm
- b. 260 and 280 nm
- c. 270 and 260 nm
- d. 260 and 270 nm

18. The most stabilizing force for nucleic acids is

- a. Hydrogen bond
- b. Electrostatic bond
- c. Vanderwalls force
- d. Conformational entropy

19. Phosphorous is taken by the cell during the process of

- a. Carbohydrate synthesis
- b. Protein synthesis
- c. Lipid synthesis
- d. ATP-Synthesis

20. The enzyme in the regulation of fatty acid synthesis

- a. Acetyl CoA
- b. AMP activated protein kinase
- c. Protein phosphatase
- d. None of these

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## UNIVERSITY OF SCIENCE & TECHNOLOGY, MEGHALAYA



**[PART (A) : OBJECTIVE]**

Duration : 20 Minutes

Serial no. of the  
main Answer sheet

Course : .....

Semester : ..... Roll No : .....

Enrollment No : ..... Course code : .....

Course Title : .....

Session : ..... 2017-18 ..... Date : .....

### Instructions / Guidelines

- The paper contains twenty (20) / ten (10) questions.
- Students shall tick (✓) the correct answer.
- No marks shall be given for overwrite / erasing.
- Students have to submit the Objective Part (Part-A) to the invigilator just after completion of the allotted time from the starting of examination.

Full Marks	Marks Obtained
20	

Scrutinizer's Signature

Examiner's Signature

Invigilator's Signature