#### B.Sc. BIOTECHNOLOGY

First Semester Biochemistry-I (BBT-04)

Duration: 3Hrs.

Full Marks: 70

Part-A (Objective) =20 Part-B (Descriptive)=50

(PART-B: Descriptive)

Duration: 2 hrs. 40 mins.

Marks: 50

## Write short notes on the following: (any five)

2×5=10

- a) Photosynthetic apparatus
- b) Saponification
- c) Cholesterol
- a) Basic amino acids
- e) Peptide bond
- f) Forces involved in tertiary structure of proteins
- g) Light reaction

### 2) Answer the following questions: (any five)

 $3 \times 5 = 15$ 

- a) What are the steps involved in the Calvin cycle of photosynthesis?
- b) Write in short about the mitochondrial respiratory chain
- c) What are essential fatty acids? Explain their importance in animals.
- d) Describe the regulation of Pentose Phosphate Pathway
- e) What are phospholipids? Explain their biological importances.
- f) Differentiate between glycogen and starch
- g). What are disaccharides? Explain with suitable examples

#### 3) Answer the following: (any five)

- a) Describe TCA cycle. How many ATP is generated from four molecule of acetyl CoA?
  - 4+1=5
- (4) What is photosynthesis? Describe the Z-scheme
- 2+3=5 1+4=5
- c) What is the importance of glycolysis? Describe the process
- 5

d) Describe the biological roles of carbohydrates.

- . .
- e) Where does glyoxylate cycle occur? Describe and mention it's importance in plants.
  - 1+4=5
- f) Describe gluconeogenesis. State it's importance in plants and animals.
- 3+2=5
- g) What are the different levels of organisation of proteins? Explain with examples.

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# **B.Sc. BIOTECHNOLOGY**

# First Semester Biochemistry-I

(BBT- 04)

(The figures in the margin indicate full marks for the questions)

<b>Duration: 20 minutes</b>			Marks - 20
	PART	A- Objective Type	
I. All the questions are co	mnulsory		1×20=20
1.7 An the questions are co	inpuisory.		1~20-20
1) Enzymes requiring ATP			
a) Na <sup>+</sup>	b) Mg <sup>2+</sup>	c) Ca <sup>2+</sup>	d) K <sup>+</sup>
2) Which of the following a	are coenzymes?		
a) ATP, NAD, TPP	b)	FAD, FADH, AMP	
*c) NAD.ATP.NADP	d)	None of the above	
3) Total no. of ATP general	ted in TCA-		
a) 21	b) 28	c) 24	d) 25
4) What is produced during	light reaction of photo	synthesis	
a) ATP and NADPH	b) Starch	c) CO <sub>2</sub>	d) H <sub>2</sub> O
5) Photosynthetic apparatus	s is-		
a) Mitochondria	b) Lysosome	c) Chloroplast	d) Ribosome
Plants store glucose in the	e form of		
a) Starch	b) Glycogen	c) Agar	d) Glycolipids
7) Which of the following a	mino acid is aromatic	in nature?	
a) Phenylalanine	b) Leucine	c) Valine	d) Methionine
8) Which of the following p	oigments are characteris	stically not found in chloroplasts?	
a) Chlorophyll	b) Carotene	c) Xanthophylls	d) Anthocyanin
© I.:'4'-1	and the		
9) Initial enzyme of Calvin a) PEP	b) PEPCO	c) COA	d) RUBISCO
a) 1 L1	b) I LI CO	c) cox	d) Robisco
10) Glucose and mannose a		sthat	
a) They are mirror images			
<ul><li>b) One is an aldose and of</li><li>c) They rotate plane polar</li></ul>		irection	
c) They rotate plane polar	ized fight in opposite d	il ection.	

d) They differ only in the configuration of one carbon atom.

c) Glycosides forms when sugard) Acetal forms when hemiace		nol.	
<ul><li>12) The sugar residues of Amylo</li><li>a) α (1→4) linkages</li><li>b)</li></ul>	ose are $\beta (1 \rightarrow 4)$ linkages	c) Galactose units only	d) Fructose units only
<ul><li>13) Which of the following is not</li><li>a) Essential component of plant</li><li>c) Acts as intracellular second</li></ul>	sma membrane	b) Stored as trigly	veerols in the body as odd no. of carbons
<ul><li>14) Which of the following lipid</li><li>a) Phosphatidyl choline</li><li>c) Phosphatidyl serine</li></ul>	b) Choles		
<ul><li>15) Gangliosides contain-</li><li>a) A ceramide structure</li><li>c) Sialic acid</li></ul>	b) Glucos d) All of t	e or Galactose the above	
<ul><li>16) Which of the following does</li><li>a) Cerebrosides</li><li>c) Globosides</li></ul>	not belong to glyco b) Gangli d) Sphing	osides	
<ul><li>17) Which of the following state</li><li>a) Fatty acid synthesis occurs</li><li>b) Fatty acid desaturation and</li><li>c) In diabetes mellitus ketone</li><li>d) None of the above.</li></ul>	in cytosol of animal elongation occurs in	n ER	acidosis
<ul><li>18) Cholesterol is essential for n</li><li>a) Cannot be made by higher o</li><li>b) Spans the thickness of the b</li><li>c) Keeps membrane fluidity</li><li>d) Catalyses lipid flip flop in t</li></ul>	organism oilayer		
<ul><li>19) High solubility of amino acid</li><li>a) Presence of side chain</li><li>c) Unipolarity</li></ul>	b) Dip	olar ion structure Prophilic nature of the amino	o group
<ul><li>20) An α helix represents</li><li>a) Primary structure of a prote</li><li>c) Tertiary structure of a prote</li></ul>		ondary structure of a protein egation of proteins.	and of the following pigmen Chemosteyll uses convene of Calvin cycle of P
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11) Choose the mismatch

a) Amylose contains  $\alpha$  (1 $\rightarrow$ 4) glycosidic bond b) D-glucose 1- phosphate phosphoric acid ester of glucose.