Nan	ne : .						
Roll	No.	:				A Grand of Employ and Explant	
Invi	gilato	or's Si	ignature :		• • • • •		
	CS/I	B.Sc.(F	I)(Genetics/BT/Mo	ol.Bio/Micro	o.Bio)/SEM-1/MSA-101/2011-12	
				2011			
MA	CR	OMO	OLECULAR :	STRUC	TU:	RE AND ANALYSIS	
Time	e Allo	otted	: 3 Hours			Full Marks: 70	
		Th	ne figures in the	margin in	dica	te full marks.	
Can	dida	tes aı	-	ve their ar r as pract		ers in their own words as ole.	
			G	ROUP – A	A		
			(Multiple Ch	oice Typ	e Qı	nestions)	
1.	1. Choose the correct alternatives for any <i>ten</i> of the following :						
						10 × 1 = 10	
	i)	Wh	ich of the follow	ring is a n	on-	reducing sugar ?	
		a)	Trehalose		b)	Maltose	
		c)	Lactose		d)	Cellobiose.	
	ii)	The non-protein part of a holoenzyme is					
		a)	Apoenzyme		b)	Coenzyme	
		c)	Isoenzvme		d)	None of these.	

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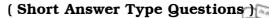
CS/B	s.Sc.(H	I)(Gen	etics/BT/Mol.Bio/Micro.Bio)/SEN	л-1/MSA-101/ 201 12			
	iii)	The amino acid found in protein structure is						
		a)	Alanine	b)	Proline Annual of Countries and Confession			
		c)	Leucine	d)	Serine.			
	iv)	Which of the following is an ether lipid?						
		a)	Sphingomylin	b)	Tripalmitin			
		c)	Plasmalogen	d)	Lecithin.			
	v)	Galactose and Glucose are						
		a)	Anomer	b)	Epimer			
		c)	Tautomer	d)	Functional isomers.			
	vi)	Which of the following is an unsaturated fatty acid?						
		a)	Palmitic acid	b)	Arachidonic acid			
		c)	Stearic acid	d)	Myristic acid.			
	vii)	The chemical(s) which break(s) hydrogen bonding is/are						
		a)	urea	b)	beta marcapto ethanol			
		c)	SDS	d)	all of these.			
	viii)	In beta turn hydrogen bonding is between i^{th} residue						
		and						

a) i + 2nd residue b) i + 1st residue

c) i + 3rd residue d) i + nth residue.

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ix)	The amino acids in proteins are linked by							
	a)	hydrogen bond	b)	peptide bond				
	c)	sulphide bond	d)	none of these.				
x)	Rea	action between	aldose o	r ketose and phenyl				
	hydrazine is discovered by							
	a)	Amadori	b)	Weygand				
	c)	Fischer	d)	Shemyakin.				
xi)	Wh	at kind of mutatio	n is occurr	ing here ?				
	original word : The fat cat ate the wee rat							
	mutation : The fat tar eew eht eta tac							
	a)	Deletion	b)	Insertion				
	c)	Inversion	d)	Point mutation.				
xii)	In a Lineweaver-Burke plot a non-competitive inhibitor							
	will have point on the x -axis.							
	a)	same	b)	different				
	c)	any	d)	none of these.				
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GROUP - B



Answer any three of the following.



- 2. a) What are introns and exons?
 - b) Given the following sequence for one strand of a double stranded oligonucleotide :

⁵ ACCGTAACTTTAG ³

- i) Write the sequence for complementary DNA strand.
- ii) Write the sequence of RNA complementary to the above mentioned stand. $2 + (1\frac{1}{2} + 1\frac{1}{2})$
- 3. a) Write down the chemical names of Purine bases found in nucleic acid.
 - b) The two strands of DNA are anti-parallel. Explain with proper diagram. 2+3
- 4. Discuss the structure of alpha helix.
- 5. Discuss epimerisation.
- 6. Write short notes on site specific recombination.

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GROUP - C

(Long Answer Type Questions)

Answer any three of the following.

 $3 \times 15 = 45$

- 7. a) What are polypeptides?
 - b) What do you mean by denaturation of protein?
 - c) Give diagrammatic representation of parallel and antiparallel β -sheets in a polypeptide chain.
 - d) How can you determine the amino acid sequence in a polypeptide using Edman's or Sanger's reagent.
 - e) Discuss about the types of bond that provide stability to the protein structure.
 - f) What is pronase?

1 + 2 + 4 + 3 + 4 + 1

- 8. a) Give the reaction of glucose with
 - i) Phenyl hydrazine
 - ii) Nitric acid
 - iii) Bromine water.



- b) Differentiate between:
 - i) anomer and epimer
 - ii) amylose and amylopectin.
- c) Write down the structures of $\,\alpha\text{-}D$ glucopyranose and $\,\alpha\text{-}D$ fructopyranose.
- d) What is the position of anomeric carbon in ribose?
- e) What is invert sugar? Why is it called so?

$$(2+1+1)+(2+2)+3+1+(1+2)$$

- 9. a) What are enzymes? Classify enzymes with examples.
 - b) Give an account of influence of concentration of substrate on enzyme activity.
 - c) Give one example from each of the following classes :
 - i) Sulphur containing amino acid
 - ii) Phospholipids
 - iii) Homo polysaccharide. (1+6)+5+(1+1+1)

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- 10. a) What are point mutations?
 - b) How does reverse mutation occur?
 - c) How does insertion cause mutation?
 - d) What are lethal mutation, nonsense mutation, silent mutation? 3 + 3 + 3 + (2 + 2 + 2)
- 11. What was Griffith's experiment? Describe the experiment of Avery, McLeod and McCarty. What was their conclusion? How exact nature of the transforming principle was verified in the experiment of Hershey and Chase? 5 + 4 + 1 + 5

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