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Part III — BIO-CHEMISTRY

(English Version)

Time Allowed: 3 Hours

[Maximum Marks: 150

Note: Draw diagrams and write equations wherever necessary.

PART - I

Note: Answer all the questions. $50 \times 1 = 50$

- Choose and write the correct answers in the answer-book:
 - 1. The major buffer in plasma is
 - Acetate buffer
 - b) Bicarbonate buffer
 - Phosphate buffer
 - d) Hemoglobin buffer.
 - Who was the pioneer to postulate the structure of cell membrane?
 - Gorten

Grendel b)

Overton

- Robertson. d)
- 3. The optimum pH for salivary amylase is
 - a) pH 6 7

- pH 7 8 b)
- c) pH 8·2 8·6
- d) pH 8·1 8·5.

| Turn over

4.	L-amino acids are absorbed by			
	a)	passive diffusion	b)	active transport
	c)	both (a) and (b)	d)	none of these.
5.	Hov	w many irreversible steps do occ	ur in	glycolysis?
	a)	2	b)	4
	c)	3	d)	5.
6	Wh	ich of the following enzymes link	s glyc	olysis and TCA cycle ?
	a)	Glucokinase		
	b)	PFK		
31	c)	LDH endlessing side to		A stol
	d)	Pyruvate dehydrogenase.		
7.	Thy	roxine means		
	a)	mono-iodotyrosine	b)	di-iodotyrosine
-	c)	tri-iodotyrosine	d)	tetra-iodotyrosine.
8.	. Wh	ich one of the following is stop c	odon '	?
	a)	AUG	b)	UAG
	c)	GTC	d)	GUA.
9.	GP	Γ requires cofactor		no was the pleaser to p
	a)	NADH	b)	NADPH
	c)	Pyridoxal phosphate	d)	FAD.
10.	Nui	mber of double bonds in arachid	onic a	cid is
	a)	1 8 - 18 Hg Id	b)	2
	c)	3 88-14 14 6	d)	4. 88 - 28 Hg

11.	The	single enzyme replicates one	strand	in continuous manner in which		
	direc	etion ?		ENTER A SERVE		
	a)	3 ' → 5 '	b)	5' → 3'		
	c)	1 ' → 3 '	d)	$3' \rightarrow 1'$.		
12.	Whic	ch are the fundamental units o	f nuclei	c acids ?		
	a)	Nucleosides	b)	Nucleotides		
	c)	D-oxyribonucleic acid	d)	Ribonucleic acid.		
13.	Whic	ch was identified as the first gl	ycogen	storage disease?		
	a)	Galactosemia disease	b)	von Gierke's disease		
	c)	Hemophilia disease	d)	Alkaptonuria disease.		
14.	14. Which disease occurs due to the deficiency of an en					
	Hexosaminidase A?					
	a)	Galactosemia disease	b)	von Gierke's disease		
	c)	Tay-Sachs disease	d)	Alkaptonuria disease.		
15.	The	redox potential of H^+/H_2 is		23 Translocation to extalped		
	a)	+ 0.82 volt	b)	+ 0.29 volt		
	c)	- 0.42 volt	d) .	- 0·32 volt.		
16.	Mon	o-amine oxidase enzyme in mit	ochond	ria is a marker of		
	a)	inner membrane		26. Alkaptoraria discas		
	b)	outer membrane	7			
	c)	inter-membrane space		bellen		
	d)	matrix.		28. The equivalence agent of it		

	1.4	. vv.	ital is the value of V max i	n Michaelis-M	lenten equation?
		a)	K ₃ [Et] [S]	b)	K ₃ [Et]
		c)	$K_m + [S]$	d)	K ₂ + K ₃ [ES].
	18	. Wh	nich of the following is th	e unit of k_m ?	1964
		a)	moles / m.litre	b)	moles/m.gram
		c)	moles/litre	d)	moles/gram.
	19	. An	example of endemic dise	ase is	c) D-bayribonucieto ac
		a)	Pox	b)	Tonsils
		c)	Plague	d)	Typhoid.
	20.	Nar	me of the macrophages lo	cated in brain	is
		a)	Kupffer's cells	b)	Microglial cells
		c)	Mesangial cells	d)	Splenic macrophages.
B.	Fill	in th	e blanks :		
	21.	Uni	t membrane model was s	haped by	esch autoenhaue)
	22. Secretin is a polypeptide with amino acids.				
	23.	23. Translocation is catalyzed by the enzyme			
	24.	24. The red blood cell membrane devoid of cytosol is called as			
	25. One of the skin diseases which is caused by the deficiency of essential fat acids is			by the deficiency of essential fatty	
	26.		aptonuria disease i	s caused	by the deficiency of an
	27.		region of the enzym	e that com	plexes with the substrate is
	28.	The	causative agent of ringwo	rm of the smo	ooth skin is

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C. Write True or False:

- 29. The buffering action of haemoglobin is due to the lysine residues present in it.
- 30. The enzyme sucrase converts sucrose into glucose and galactose.
- 31. 24 molecules of ATP are formed in TCA cycle.
- 32. Epinephrine is also called as adrenaline.
- 33. Cephalin is otherwise called as phaphatidyl ethanolamine.
- 34. RNA primer is not required for transcription.
- 35. Benign tumour can spread from one part of the body to another.
- 36. The high energy compound is 1, 3-diphosphoglycerate.
- 37. Malonate is the competitive inhibitor of succinate dehydrogenase.
- 38. IgE is otherwise called as reaginic antibody.

D. Match the following:

- 39. Secretin a) Codon 40. mRNA b) GM 2 41. Transcription Secretory antibody c) 42. Tay-Sachs disease ATP synthetase d) 43. F₀ F₁ Monomer possesses ribose moiety e) 44. IgA f Gastrointestinal hormone.
- E. Give answer in one or two word(s):
 - 45. What is meant by carrier protein?
 - 46. Which ions are needed for the effective action of ptyalin?
 - 47. Name the end product of anaerobic glycolysis.
 - 48. Which is known as powerhouse of the cell?
 - 49. Name the inhibition caused by sulfa drugs.
 - 50. What is the other name of metal requiring enzymes?

PART - II

Note: Answer any fifteen questions.

 $15 \times 2 = 30$

- 51. What is meant by endocytosis?
- 52. Write any two biological applications of viscosity.
- 53. 'Membrane lipids are amphipathic.' Explain.
- 54. What is meant by satiety value of lipids?
- 55. Write any two intestinal juice enzymes involved in the digestion of nucleic acids.
- 56. Write any two factors affecting the absorption of carbohydrates.
- 57. Why is pancreatic amylase more powerful than salivary amylase?
- 58. What are glucogenic amino acids? Give example.
- 59. Write the differences between NADPH and NADH.
- 60. How is methionine activated?
- 61. What are essential fatty acids? Give example.
- 62. Write the importance of bile salts.
- 63. What is the effect of lysolecithin?
- 64. State Chargaff's rule.
- 65. Write a note on exonucleases.
- 66. Give the characteristic features of cancer cells.
- 67. What is meant by monophosphate cleavage?

- 68. The irreversible inhibitor dissociates very slowly from its target enzyme. Why?
- 69. Write the pathogen (causative agent) for the following:
 - i) Syphilis

- ii) Leprosy.
- 70. What are antigen presenting cells?

PART - III

Note: Answer Question No. 71 in Section-A which is compulsory and any five questions from Section-B. $6 \times 5 = 30$

SECTION - A

71. Write the similarities and differences between facilitated diffusion and active transport.

OR

Write short notes on Donnan membrane equilibrium.

SECTION - B

- 72. Write short notes on any two gastro-intestinal hormones.
- 73. Write a note on HMP.
- 74. Explain the conversion of Tryptophan into Niacin in liver.
- 75. Explain the biosynthesis of cholesterol.
- 76. What are the biological functions of lipids (any five only)?
- 77. Write about the causes and symptoms of Albinism.
- 78. Explain the pathology of von Gierke's disease.
- 79. Explain about the inhibitors of electron transport chain.
- 80. Write the factors influencing the antigenicity of antigens.

PART - IV

Answer any four of the following questions. $4 \times 10 = 40$

- 81. How are catecholamines synthesised?
- 82. What are the reaction sequences of glycolysis?
- 83. Write about the role of tRNA in protein synthesis.
- 84. List out the members of electron transport chain with their arrangement.

What are the biological functions of lipids (any five only)

Septem the participacy of con Viteries discose.

- 85. Define and derive Michaelis-Menten equation.
- 86. Explain cell mediated immunity.

a facilitated diffrasion and active