

633

## **Biochemistry**

å ì					
7		wer Sheet		***************************************	******************
Roll No. (W	rite the dia	its in words)	·	Name on Albana	
Roll No.					
· · ·	(To be	filled up by th	e candidate	by blue/black ball-point pen)	
1				Question Booklet No	• • • • • • • • • • • • • • • • • • • •

#### INSTRUCTIONS TO CANDIDATES

(Use only blue/black ball-point pen in the space above and on both sides of the Answer Sheet)

- 1. Within 10 minutes of the issue of the Question Booklet, Please ensure that you have got the correct booklet and it contains all the pages in correct sequence and no page/question is missing. In case of faulty Question Booklet, bring it to the notice of the Superintendent/Invigilators immediately to obtain a fresh Question Booklet.
- 2. Do not bring any loose paper, written or blank, inside the Examination Hall except the Admit Card without its envelope.
- 3. A separate Answer Sheet is given. It should not be folded or mutilated. A second Answer Sheet shall not be provided.
- 4. Write your Roll Number and Serial Number of the Answer Sheet by pen in the space provided above.
- 5. On the front page of the Answer Sheet, write by pen your Roll Number in the space provided at the top, and by darkening the circles at the bottom. Also, wherever applicable, write the Question Booklet Number and the Set Number in appropriate places.
- 6. No overwriting is allowed in the entries of Roll No., Question Booklet No. and Set No. (if any) on OMR sheet and Roll No. and OMR sheet No. on the Question Booklet.
- 7. Any changes in the aforesaid-entries is to be verified by the invigilator, otherwise it will be taken as unfair means.
- 8. This Booklet contains 40 multiple choice questions followed by 10 short answer questions. For each MCQ, you are to record the correct option on the Answer Sheet by darkening the appropriate circle in the corresponding row of the Answer Sheet, by pen as mentioned in the guidelines given on the first page of the Answer Sheet. For answering any five short Answer Questions use five Blank pages attached at the end of this Question Booklet.
- 9. For each question, darken only one circle on the Answer Sheet. If you darken more than one circle or darken a circle partially, the answer will be treated as incorrect.
- 10. Note that the answer once filled in ink cannot be changed. If you do not wish to attempt a question, leave all the circles in the corresponding row blank (such question will be awarded zero marks).
- 11. For rough work, use the inner back page of the title cover and the blank page at the end of this Booklet.
- 12. Deposit both OMR Answer Sheet and Question Booklet at the end of the Test.
- 13. You are not permitted to leave the Examination Hall until the end of the Test.
- 14. If a candidate attempts to use any form of unfair means, he/she shall be liable to such punishment as the University may determine and impose on him/her.

Total No. of Printed Pages: 15

### FOR ROUGH WORK

### Research Entrance Test - 2014

No. of Questions: 50

Time : 2 Hours

Full Marks: 200

Note: (i) This Question Booklet contains 40 Multiple Choice Questions followed by 10 Short Answer Questions.

- (ii) Attempt as many MCQs as you can. Each MCQ carries 3 (Three) marks.

  1 (One) mark will be deducted for each incorrect answer. Zero mark will be awarded for each unattempted question. If more than one alternative answers of MCQs seem to be approximate to the correct answer, choose the closest one.
- (iii) Answer only 5 Short Answer Questions. Each question carries 16 (Sixteen) marks and should be answered in 150-200 words. Blank 5 (Five) pages attached with this booklet shall only be used for the purpose. Answer each question on separate page, after writing Question No.

1.	Decrease in biodiversity in tropical countries is mainly due to:				
	(1) Urbanization	(2)	Deforestation		
	(3) Pollution	(4)	Soil erosion		
2.	Where does glycolysis occur in	a cell ?			
	(1) Chloroplast (2) Mitoch	ondria (3)	Cytoplasm	(4) Golgibody	
3.	The process that accounts for tris called as:	ansfer of ger	etic information	from DNA to RNA	
	(1) Translocation (2) Translo	ation (3)	Transformation	(4) Transcription	
4.	Leydig's cells produce:		*		
	(1) Thyroxine	(2)	Growth hormon	ne	
	(3) Testosterone	(4)	Progesterone	e *	
5.	A tumor suppressor gene which	h is known a	s "Guardian of th	ne genome" is :	
	(1) myc (2) $P^{53}$	(3)	Sr C	(4) H-Ras	
6.	Which is the function of interle	ukins?		2	
	(1) Stimulation of wound heal	ng			
	(2) Treatment of infertility	Ψ			
	(3) Dissolving blood clot	<b>36</b>	2		
	(4) Enhancement of action of it	mmune syste	m	•	
7.	Which of the following is <i>not</i> a	n anticoagula	ant?	8	
	(1) Heparin	(2)	Protamine sulp	hate	
85	(3) Warfarin	(4)	Hirudin	40	
8.	Which of the following is <i>not</i> a	part of triple	response?	ž.	
	(1) White reaction (2) Red re	action (3)	Wheal	(4) Flare	
		8	rit.	*	

	9.	Virus envelope is l	know	n ás :		15		7 2
		(1) Capsid	(2)	Virion	(3)	) Nucleoprotein	(4)	Core
	10.	Peptide synthesis i	nsid	e a cell takes p	olaće i:	n:		
	31.	(1) Mitochondria	(2)	Chloroplast	(3)	Ribosomes	(4)	Chromoplast
	11.	Sarcosine is a meta	bolic	product deriv	ved fr	om:		
		(1) Glycine	(2)	Methionine	(3	) Arginine	(4)	Alanine
	12.	BLAST (Basic loca	l alig	nment search	tool) i	s not employed	for a	nalysis of :
		(1) Proteins		DNA	3 5	RNA	(4)	Lipids
950	13.	Sequencing of the f	irst l	numan genom	e was	completed in :		•
		(1) 2003	(2)	2004	(3)	2001	(4)	2007
S	14.	Which of the follow	ving	organ is <i>not</i> ir	volve	d in calcium me	tabo	lism ?
		(1) Kidney	(2)	Gut	(3)	Pancreas	(4)	Bone
	15.	Which class of MH	C ani	tigen is prima	rily ex	pressed on B lyn	npho	ocytes?
		(1) I	(2)	Π	(3)	Ш	(4)	All
	16.	Deamination of cyt	osine	produces:				
		(1) Uracil	(2)	Inosine	(3)	Thymine	(4)	Adenine
V.	17.	Which amino acid i	s mo	st likely to be	found	in the interior o	fap	rotein?
39		(1) Glutamic Acid	(2)	Lysine	(3)	Histidine	(4)	Leucine
	18.	Which of the follow	ing i	s responsible i	for Al:	zheimer's disease	e ?	**
	13 17	(1) PrP <sub>sc</sub> Protein	(2)	PrP <sub>c</sub> Protein	(3)	Amyloid β	(4)	Parkin
TR 8	19.	Which of the follow stop codon?	ing l	DNA mutation	ns resi	ults in insertion	of ar	inappropriate
		(1) Frameshift mut	ation		(2)	Nonsense mutai	tion	*
		(3) Missense mutat	ion	ě	(4)	Silent mutation	*	26
R	ET/1	I/Test B/633		(3)	M	¥	- 12	P. T. O.
	200			****** *		£ 2		
	7		33					
								51

2	0.	Alpha-	·linolenic acid i	is:		្		N.
		(1) Or	nega-3 fatty ac	id	(2)	Omega-	fatty acid	
		(3) Sa	turated fatty ac	cid	(4)	Trans fa	ty acid	
. 2	1.	Which	of these prome	otes class-s	witching of	antibodie	s?	
		(1) Int	terferon Gamm	ıa	(2)	Tumour	Necrosis Factor	
		(3) In	terleukin 1		(4)	Interleu	kin 4	
2	2.	Which	of these is a m	arker for B	cells?	•		
		(1) CI	D59		(2)	CD19		
		(3) CI	D28		(4)	CD25		8
2	3.	All are	true about G-	protein cou	ipled recep	ors excep	t:	8
			-protein couple ceptors	ed receptor	s are larges	superfan	nily of cell surface	
		(2) Th	ney typically ha	ave six heli	ces that trai	sverse th	e membrane	
			- protein act as Ibunit	s inhibitory	and excitat	ory becau	se of difference ir	alpha
		(0)	ne function of ( the environment		transduce s	ignals tha	t induce a cellular	response
2	24.	An ex	ample of a tun	our suppr	essor gene i	s:	3	
		(1) m	ус	(2) fos	(3	) Ras	(4) Rb	
2	25.	Vitam	in B <sub>12</sub> acts as c	o-enzyme t	o which on	e of the fo	llowing enzyme?	
		(1) Is	ocitrate dehyd	rogenase	€.	69	e e e e e e e e e e e e e e e e e e e	
		10/50 51	lomocysteine n		sferase			
	V.		lycogen syntha			d e		89
			lucose-6-phos	* 10	drogenase	ean.		
:	26.	51 75	¥* **			c mobility	and lowest trigly	ceride
		conte		· · · · · · · · · · · · · · · · · · ·	······		*	
		(1) V	LDL	(2) IDL	(3	) LDL	(4) HDL	
RI	ET/1	14/Test			(4)	,	(-,	

	9 9				
27.	Proteins targeted	for destruction in eu	karyotes are covale	ently linked to:	73
E. C.	(1) Clathrin	(2) Pepsin	(3) Laminin	(4) Ubiquitin	el el
28.	Which of the follo	owing substance is re	sponsible for carcin	noid syndrome ?	
	(1) Serotonin	(2) Tryptamine	(3) Tyramine	(4) Histamine	5 1
29.	Which of the follo	wing elements is kno stress ?	own to enhance the	e body's ability to	
a :	(1) Calcium	(2) Iron	(3) Potassium	· (4) Selenium	
30.	All of the following	ng tissues are capable	of using ketone bo	odies except :	
	(1) Brain	*	(2) Renal cortex	l.	18 40
	(3) Red blood cel	ls	(4) Cardiac Mus	scle	
31.	The buffering cap	acity of a buffer is ma	aximum at pH equ	al to	
	(1) 0.5	(2) pKa	(3) pKa+1	(4) 2pKa	*
32.	All is true about g	lutathione except :		s x	*6 M
	(1) It is a tripeption	de			
	(2) It converts her	moglobin to methem	oglobin		
	(3) It conjugates	kenobiotics	£ 5		27
THE CHILDREN	(4) It scavenges fr	ree radicals and supe	roxide ions	8	
33.		aration technique de	pends on the mole	cular size of the	s <sup>2</sup>
8	protein:			3	
To a second	(1) Thin-layer chi	omatography	25 935		* S
5 2 2 2	(2) Isoelectric foc	using		* ***	65 20
e de la companya de l	(3) Gel Filtration	chromatography			e n
0 mm	(4) Chromatograp	ohy on a diethylamin	oethyl (DEAE) cell	ulose column	:2
RET/	4/Test B/633	(5)		P.T.	O
9				¥	
		* * **	· ·		
				# E	

34.	A competitive inhibitor of an enzyme	e:
	(1) Increases Km without affecting V	Vmax
	(2) Decreases Km without affecting	Vmax
	(3) Increases Vmax without affecting	g Km
	(4) Decreases both Vmax and Km	
35.	Which of the following enzyme is sta	able at acid pH?
	(1) Pepsin	(2) Chymotrypsin
	(3) Trypsin *	(4) Carboxypeptidase
36.	Dinitrophenol causes:	
	(1) Inhibition of ATP synthase	* * *
	(2) Inhibition of electron transport	
	(3) Uncoupling of oxidation and ph	osphorylation
	(4) Accumulation of ATP	
37.	Phenylalanine is the precursor of the	e following molecules, except :
	(1) Tyrosine (2) Epinephrine	e (3) Thyroxin (4) Melatonia
38.	Sources of the nitrogen in the urea co	ycle are :
	(1) Aspartate and ammonia	(2) Glutamate and ammonia
	(3) Arginine and ammonia	(4) Uric acid and ammonia
39.	If urine sample darkens on the stand	ling, the most likely condition is :
	(1) Phenylketonuria	(2) Alkaptonuria
	(3) Maple syrup urine disease	(4) Tyrosinemia
40.	Pyruvate can be converted directly i	nto all the following except :
	(1) Phosphoenol pyruvate	(2) Alanine
	(3) Acetyl CoA	(4) Lactate
	5 g	

Attempt any five questions. Write answer in 150-200 words. Each question carries 16 marks. Answer each question on separate page, after writing Question Number.

- 1. Metabolism of high density lipoproteins.
- 2. Micro RNA.
- 3. Gene Cloning.
- 4. Applications of flow cytometry.
- 5. Inhibitors of respiratory chain.
- **6.** Super-secondary structure of proteins.
- 7. Real-time PCR.
- 8. Proteasome.
- 9. Regulation of intracellular calcium.
- 10. Post-translational modification of proteins.

		92992	
$\mathbf{p}_{\Delta}$	11	No.	
INU	u	110	

Q. No.:

Q. No. :

Roll	No.	***************************************	
Truth .	ITU.	******************************	•••

Q. No. :

Roll	No.:

Q. No. :

Roll	No.	:	***************************************

Q, No. :

# FOR ROUGH WORK

.