#### Module Name : PhD Bioinformatics-E Exam Date : 18-Sep-2020 Batch : 12:30-14:30

Sr. No.	Client Question ID	Question Body and Alternatives	Marks	Negative Marks
Object	ive Question			
1	1	The lowest energy point on a potential energy surface is termed as	4.0	1.00
		A1 : Global minima		
		A2 Local minima		
		A3 Optimum minima		
		A4 Saddle point		
Object	ive Question			
2	2	Which of the following is not an energy minimization method	4.0	1.00
		A1 Conjugate gradient		
		A2 : Steven – Jhonson		
		A3 : Newton - Raphson		
		A4 : Monte – Carlo		
Ohiaat	ing Ougsting			
3	3	Quantum mechanical methods refer to	4.0	1.00
		A1 Ab initio		
		A2 : Semi empirical		
		A3 : Empirical		
		A4 Both Ab initio and Semi empirical		
Object	ive Question			
4	4	Molecular dynamics differs from molecular mechanics by taking into account	4.0	1.00
		A1 : The velocities of the constituent particles		

	1			
		A2 The effect of the solvent medium :		
		A3 The non – bonded interactions		
		A4 The periodic boundary condition		
Obje	ective Question			
5	5	RMSD between the coordinates of the amino acid gly and its mirror image after super position will be	4.0	1.00
		· 0.0 Angstrom		
		A2 More than 1.5 Angstrom		
		A3 More than 3.5 Angstrom		
		A4 More than 6.0 Angetrom		
Ohia				
6	6	In protein modeling, molecular mechanics force field is used, because	4.0	1.00
		A1 It takes less time as compared to others		
		A2 It is more accurate		
		A3 It guarantees global minimum		
		44		
		It explicitly represents the electrons in a calculation		
Obje 7	ective Question	In melanular dynamics simulation the dense dense is an	4.0	1.00
ĺ		In molecular dynamics simulation the dependence is on		1.00
		A1 Position only		
		A2 Manuatan arka		
		:		
		A2		
		Both position and momentum		
		A4 Either position or momentum		
Obje	ective Question			
8	8	Molecular dynamics simulation is carried out for	4.0	1.00
		A1. Obtaining ensemble of structures at physiological condition		
		A rotanning ensempte of structures at physiological condition		

		:		
		A2 Obtaining the structure at global energy minimum		
		A3 Fitting prospective drug candidate molecules to a receptor		
		A4 Modeling a protein structure from a sequence alone		
Object	tive Question			
9	9	Which of the following terms will have to be taken into consideration for developing a potential function for docking simulation?	4.0	1.00
		A1 Hydrogen bonding, van der Waal's and electrostatic interaction terms		
		A2 Bond, angle and dihedral terms		
		A3 Dihedral and hydrogen bonding terms		
		A4 Bond, angle and hydrogen bonding terms :		
Object	tive Question			
10	10	refers loosely to the process of semi-automatically analysing large databases to find useful patterns.	4.0	1.00
		A1 Data Mining		
		A2 : Data Warehousing		
		A3 DBMS		
		A4 Data mirroring		
Object	tive Question			
11	11	A person is stung by a bee and experiences serious respiratory problems within minutes. This process is most likely mediated by:	4.0	1.00
		A1 IgG antibodies		
		A2 IgE antibodies		
		A3 IgM antibodies		
		A4 NK cells		

Object	ive Question			
12	12	Which statement is most correct?	4.0	1.00
		A1 The MHC is polygenic and evolved 250.000 years ago.		
		A2 The MHC regulates innate immune responses and is polymorphic		
		A3 The MHC is present in Fruit flies and regulates antibody responses		
		A4 The MHC is polymorphic and evolved about 450 million years ago		
Ohian	ing Organting			
13	13	Mast chimpanzaas are naturally resistant to AIDS because	4.0	1.00
10	10	Most enimpanzees are naturally resistent to ATD's because		1.00
		A1 they have a skewed MHC class I repertoire		
		A2 CD4 molecules on chimpanzee T cells evolved resistantance to SIV infection		
		A3 they have autoantibodies that provide resistance to SIV :		
		A4 they are homozygous in CCR5 deletions that also in humans provide resistance to HIV infection.		
Object	ive Question			
14	14	Which statement is most correct?	4.0	1.00
		A1 The thymus is involved in regulating central tolerance		
		A2 : The spleen is a primary lymphoid organ		
		A3 T cells rearrange their receptors in the bone marrow		
		A4 MHC class II molecules preferentially bind peptides from intracellular pathogens.		
Object	ive Question			
15	15	Which of the following characteristics is common to both T-cell receptors and immunoglobulins?	4.0	1.00
		A1 Somatic hypermutation changes the affinity of antigen-binding sites and contributes to further diversification.		
		A2 Class switching enables a change in effector function.		
		A3 The antigen receptor is composed of two identical heavy chains and two identical light chains.		
		A4 Somatic and J segments forms the basis for the diversity of antigenbinding.		

Ohio stive Ower			
16 16	Which is the most likely reason that HIV-infected people with heterozygous HLA loci have a delayed progression to AIDS compared with patients who are homozygous at one or more HLA loci?	4.0	1.00
	A1 The greater number of HLA alleles provides a wider variety of HIV-derived peptides presented to CD8 T cells even if : HIV mutates during the course of infection.		
	A2 Heterozygotes have more opportunity for interallelic conversion and can therefore express novel MHC alleles.		
	A3 Being heterozygous in HLA helps selecting a partner that is not HIV infected.		
	A4 As heterozygosity increases, so does the concentration of alloantibodies in the serum, some of which cross-react with : and neutralize HIV.		
Objective Quest	ion		
17 17	Why are lymphocytes so specific?	4.0	1.00
	A1 to recognize many different pathogens		
	A2 to avoid apoptosis during self tolerance		
	A3 they are not specific, they are crossreactive		
	A4 to increase the affinity of each immune response.		
Objective Oues	ion		
18 18	What is the best explanation for the immunodominance ranking within a host?	4.0	1.00
	A1 some clones proliferate faster than others		
	A2 some clones die less than others		
	A3 some clones start with more naive cells than others		
	A4 none of these		
Objective Quest	What is the advantage of having a low diversity of MHC molecules per individual?	4.0	1.00
	A1 too many MHC molecules would delete too many T cells by negative selection		
	A2 too many MHC molecules would select for an autoreactive repertoire by positive selection		
	A3 too few MHC molecules would select a too narrow repertoire.		

		: A4 the diversity in a host is not low because of the MHC polymorphism.		
Object	ive Question			
20	20	IgM and IgD are co-expressed on naive B cells by a process called:	4.0	1.00
		A1 isotype switching		
		A2 somatic recombination		
		A3 somatic hypermutation		
		A4 alternative mRNA splicing		
Obiect	ive Ouestion			
21	21	Which disease is associated with noncense point mutation	4.0	1.00
		which disease is associated with nonsense point mutation		1100
		A1 Cystic fibrosis		
		A2 : mandibuloacral dysplasia		
		A3 progeria syndrome		
		A4 all of these :		
Object	ive Question			
22	22	Database describes the association between polymorphisms and diseases	4.0	1.00
		A2 dbSNP		
		A3 International HapMap Project		
		A4 SNPedia :		
Obiect	ive Question			
23	23	It is necessary to normalize microarray data because:	4.0	1.00
		Al Gene expression values are not normally distributed.		
		A2 Some experiments use cDNA labeled with fluorescence while others employ cDNA labeled with radioactivity.		

A3 The efficiency of dye incorporation (or radioactivity incorporation) may vary for different samples.

 $\overset{A4}{\cdot}$  Housekeeping genes (such as action) may be expressed as varying levels between samples.

Objec	tive Question			
24	24	Microarray data analysis can be performed with scatter plots. The information you get from a scatter plot includes all of the following EXCEPT:	4.0	1.00
		A1 You can tell whether a gene is expressed at a relatively high level or a low level.		
		A2 You can tell whether a gene has been upregulated or downregulated.		
		A3 You can tell whether a gene forms a cluster with other genes on the microarray.		
		$^{A4}$ You can tell whether a gene is among the 5% most regulated genes in that experiment.		
Objec	tive Question			
25	25		4.0	1.00

25	25	Epistasis:	4.0	1.00
		A1 : the effect of one gene being dependent on the presence of one or more 'modifier genes'.		
		A2 : the effect of one gene being independent.		
		A3 : the effect of one gene being dependent on the presence of only one 'modifier genes'.		
		A4 : all of these		

Object	ive Question			
26	26	Example of co-dominance	4.0	1.00
		Al hair color		
		A2 : blood group		
		A3 : eye color		
		A4 all of these		
Object	ive Question			
27	27	Which kind of mutation not present in insertion and deletion.	4.0	1.00
		A1 : missense		

	A2 nonsense		
	A3 frameshift		
	A4 silent		
Objective Questi	מר		
28 28	mutation does not change to the amino acid sequence of a protein or replaced with similar properties amino acid, does not even change the phenotype.	4.0	1.00
	A1 : missense		
	A2 nonsense		
	A3 : frameshift		
	A4 silent		
Objective Questi			
29 29	What can't be the effect of single gene mutation on drug metabolism	4.0	1.00
	Al no metabolism		
	A2 Reduced metabolism		
	A3 : other metabolites possibly formed		
	A4 increased metabolism :		
Objective Questi			
30 30	Find the wrong match	4.0	1.00
	A1 NAT2 : hydralazine		
	A2 : GST : D-Penicillamine		
	A3 TPMT : 6-MP		
	A4 : UGT1A1: Isoniazid		
Objective Overt			
31 31	If $ \vec{a}  +  \vec{b}  =  \vec{c} $ and $\vec{a} + \vec{b} = \vec{c}$ then the angle between $\vec{a}$ and $\vec{b}$ is	4.0	1.00

	$\begin{array}{c} A1\\ \vdots\\ \Theta=0^{0}\end{array}$	
	$\stackrel{A2}{:} \Theta = \pi$	
	$\stackrel{A3}{:} \theta = \pi/3$	
	$ \overset{A4}{:} \Theta = 2\pi $	
Objective Question		

	· · ·			
32	32	The difference between compound interest and simple interest on an amount of Rs. 15,000 for 2 years is Rs. 96. What is the rate of interest per annum? A1 8 A2 10 A3 12 A3 12 A3 12 A3 12 A4 A5	4.0	1.00
		A4 : 16		
Objec	tive Question			
33	33	A hollow iron pipe is 21 cm long and its external diameter is 8 cm. If the thickness of the pipe is 1 cm and iron weighs 8 g/cm <sup>3</sup> , then the weight of the pipe is A1 36.9 kg A2 36 kg	4.0	1.00

	A3 3.696 kg	
	A4 3.6 kg	
Objective Ouestion		

34	34	If $tanA+tanB = a$ and $cotA+cotB=b$ then $cot(A+B)$	4.0	1.00
		A1 = 1/a + 1/b		
		A2 1/a -1/b		
		A3 a+b		
		A4 a-b :		

Objective Question       Image: A large A lar					
$35$ $15$ Let ALC be there mutually adependent events. Consider the two subtements S1 and S2 S1 $\times$ and HUC are independent. Then $40$ $100$ $31$ $31$ both S1 and S2 are rine $\frac{1}{2}$ only S2 is true $\frac{1}{2}$ only S2 is true $\frac{1}{4}$ indiffer S1 nor S2 is true $40$ $100$ Objective Questor $100$ $100$ $100$ $100$ Objective Questor $110$ $110$ $100$ $100$ $110$	Objec	tive Question			
$ \frac{1}{2} = \frac{1}{2} + 1$	35	35	Let A,B, C be three mutually independent events. Consider the two statements S1 and S2 S1 : A and B∪C are independent S2 :A and B∩C are independent Then	4.0	1.00
$ \begin{vmatrix} A_{1}^{2} & \text{only S1 is true} \\ A_{2}^{3} & \text{only S2 is true} \\ A_{1}^{3} & \text{only S2 is true} \\ \hline A_{1}^{3} & \text{only S2 is true} \\ \hline A_{1}^{4} & \text{neither S1 nor S2 is true} \\ \hline A_{1}^{4} & \text{neither S1 nor S2 is true} \\ \hline A_{1}^{4} & \text{neither Name S1 only S2 is true} \\ \hline A_{1}^{3} & \text{neither S1 nor S2 is true} \\ \hline A_{1}^{3} & \text{neither Name S1 only S2 is true} \\ \hline A_{1}^{3} & \text{neither Name S1 only S2 is true} \\ \hline A_{1}^{3} & \text{neither S1 nor S2 is true} \\ \hline A_{1}^{3} & \text{neither Name S1 only S2 is true} \\ \hline A_{1}^{3} & \text{neither Name S1 only S2 is true} \\ \hline A_{1}^{3} & \text{neither Name S1 only S2 is true} \\ \hline A_{1}^{3} & \text{neither Name S1 only S2 is true} \\ \hline A_{1}^{3} & \text{neither Name S1 only S2 is true} \\ \hline A_{1}^{3} & \text{neither Name S1 only S2 is true} \\ \hline A_{1}^{3} & \text{neither Name S1 only S2 is true} \\ \hline A_{1}^{3} & \text{neither Name S1 only S2 is true} \\ \hline A_{1}^{3} & \text{neither Name S1 only S2 is true} \\ \hline A_{1}^{3} & \text{neither Name S1 only S2 is true} \\ \hline A_{1}^{3} & \text{neither Name S2 only S2 is true} \\ \hline A_{1}^{3} & neither Name S2 only S2 is t$			A1 both S1 and S2 are true		
$ \begin{array}{ c c c } \hline & A^3 & \text{unly S2 is true} \\ & A^4 & \text{neither S1 nor S2 is true} \\ \hline & A^4 & \text{neither S1 nor S2 is true} \\ \hline & A & finder has 3 children with at least one boy. What is probability that he has 2 hoys and 1 girl 7 \\ & A & \text{finder has 3 children with at least one boy. What is probability that he has 2 hoys and 1 girl 7 \\ & A & A & A & A & A & A & A & A & A &$			A2 only S1 is true		
$ \begin{array}{ c c } \hline A^4 & \operatorname{neither S1 nor S2 is true} \\ \hline Objective Question \\ \hline A^6 & 1 & 1/4 \\ \hline A^2 & 1/3 \\ \hline A^3 & 2/3 \\ \hline A^4 & 1/2 \\ \hline Objective Question \\ \hline A^1 & 1/4 \\ \hline A^2 & 1/3 \\ \hline A^3 & 2/3 \\ \hline A^4 & 1/2 \\ \hline Objective Question \\ \hline A^1 & 1/2 \\ \hline Difference Question \\ \hline A^1 & 1/2 \\ \hline A^1 & $			A3 only S2 is true		
Objective Question       Image: Control of the control			A4 : neither S1 nor S2 is true		
36       36       A farther has 3 children with at least one boy. What is probability that he has 2 boys and 1 girl ?       4.0       1.00         A1       1/4             A2       1/3             Objective Question              37       37       If (4,1) is one extremity of a diameter of the circle $x^2 + y^2 \cdot 2x + 6y \cdot 15 = 0$ then the other extremity is       4.0       1.00         A1            1.00         A2                Objective Question                37       37       If (4,1) is one extremity of a diameter of the circle $x^2 + y^2 \cdot 2x + 6y \cdot 15 = 0$ then the other extremity is       4.0           A1                00                00	Objec	tive Question			
$\begin{array}{ c c c c } \hline A_{1} & 1/4 & & & \\ A_{2} & 1/3 & & & \\ A_{3} & 2/3 & & & \\ A_{3} & 2/3 & & & \\ A_{4} & 1/2 & & & \\ \hline Objective Question & & & & \\ \hline \hline \hline \\ \hline \\ \hline \\ \hline \\ \hline \\ \hline \\ \hline$	36	36	A father has 3 children with at least one boy. What is probability that he has 2 boys and 1 girl ?	4.0	1.00
$ \begin{array}{ c c c c } & A_{1}^{2} & 1/3 & & & \\ A_{1}^{3} & 2/3 & & & \\ A_{1}^{3} & 2/3 & & & \\ A_{1}^{3} & 2/3 & & & \\ A_{1}^{3} & 1/2 & & & \\ \hline \end{array} $			A1 1/4 :		
$\begin{array}{ c c c c } \hline A_{1}^{A_{2}} & _{2/3} & & \\ & & A_{1/2}^{A_{1}} & _{1/2}^{A_{2}} & \\ \hline \\$			A2 1/3		
Aff Objective QuestionIf (4,1) is one extremity of a diameter of the circle $x^2 + y^2 - 2x + 6y - 15 = 0$ then the other extremity is $4.0$ $1.00$ $3^7$ $3^7$ $1^5$ $1^4$ (.3,-7) $1^2$ (.2,7) $1^2$ (.2,7) $1^3$ (.2,7) $4^4$ (.2,-7) $1^4$ (.2,-7) $1^4$ (.2,-7) $1^4$ (.2,-7)Objective QuestionTo true variables x and y with the same mean, the regression equations are, $y = 2x + b$ and $x = 3y + \beta$ then $b / \beta$ is $1.00$ $1^3$ $3^8$ $1^3$ (.2, 2) $1^2$ (.2, 2) $1^3$ $1^3$ (.2, 2) $1^2$ (.2, 2)Colspan="4">Colspan="4">Colspan="4">Colspan="4">Colspan="4">Colspan="4">Colspan="4">Colspan="4">Colspan="4">Colspan="4">Colspan="4">Colspan="4">Colspan="4"Co			A3 2/3		
Objective Question       If (4,1) is one extremity of a diameter of the circle $x^2 + y^2 - 2x + 6y - 15 = 0$ then the other extremity is       4.0       1.00 $A^1$ $(-3, -7)$ $A^2$ $(2, 7)$ $A^2$ $(2, 7)$ $A^3$ $(-2, -7)$ $A^4$ $(-2, -7)$ $(-2, -7)$ $(-2, -7)$ $(-2, -7)$ $(-2, -7)$ $(-2, -7)$ $(-2, -7)$ <			A4 : 1/2		
$\begin{array}{c c c c c c c } 37 & & & & & & & & & & & & & & & & & & $	Objec	tive Question			
$\frac{A_{1}}{A_{2}}^{(3,-7)}$ $\frac{A_{2}}{A_{2}}^{(2,7)}$ $\frac{A_{3}}{A_{2}}^{(2,7)}$ $\frac{A_{4}}{A_{2}}^{(2,-7)}$ $\frac{A_{4}}{A_{2}}^{(2,-7)}$ $\frac{A_{4}}{A_{2}}^{(2,-7)}$ $\frac{A_{4}}{A_{2}}^{(2,-7)}$ $\frac{A_{4}}{A_{2}}^{(2,-7)}$ $\frac{A_{2}}{A_{2}}^{(2,-7)}$	37	37	If (4,1) is one extremity of a diameter of the circle $x^2 + y^2 - 2x + 6y - 15 = 0$ then the other extremity is	4.0	1.00
$\frac{A^{2}}{2} (2,7)$ $\frac{A^{3}}{2} (-2,7)$ $\frac{A^{4}}{2} (-2,-7)$ $\frac{A^{4}}{2} (-2,-7)$ $\frac{A^{4}}{2} (-2,-7)$ $\frac{A^{2}}{2} (-2,-7)$ $\frac$			A1 (-3,-7)		
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $			A2 (2,7)		
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $			A3 (-2,7)		
Objective Question       Solution       For two variables x and y with the same mean, the regression equations are, $4.0$ $1.00$ 38       38       For two variables x and y with the same mean, the regression equations are, $y=2x+b$ and $x=3y+\beta$ then b/ $\beta$ is $1.00$ A1 $3/2$ $1.2$ $1.00$ A2 $1/2$ $1/2$			A4 : (-2,-7)		
$\begin{array}{c c} 38 \\ 38 \\ \hline 38 \\ \hline 8 \\ \hline 8 \\ \hline 9 \\ 2x+b and x = 3y+\beta then b/\beta is \\ \hline A1 \\ \vdots \\ A2 \\ 1/2 \\ \hline 1.00 \\ $	Obiec	tive Question			
A1 3/2 : A2 1/2 :	38	38	For two variables x and y with the same mean, the regression equations are, y= 2x+b and x = $3y+\beta$ then b/ $\beta$ is	4.0	1.00
A2 1/2			A1 3/2		
			A2 1/2		

		A3 1/4		
		A4 2/3		
Objec	tive Question			
39	39	There are n locks and n matching keys. If all the locks and keys are to be perfectly matched, then what is the maximum number of trials required to open a lock?	4.0	1.00
		$\frac{A1}{2} \frac{n(n+1)}{2}$		
		$\frac{A2}{2} \frac{(n+1)}{2}$		
		$A3 \frac{n}{2}$		
		$\frac{A4}{2} \frac{n(n-1)}{2}$		
Obiec	tive Ouestion			
40	40	The normal rate of infection of a certain disease in animals is known to be 40%. In an experiment with 6 animals injected with a new vaccine it was observed that none of the animals caught infection. What is the probability of the observed result?	4.0	1.00
		A1 0.0467 :		
		A2 0.0041		
		A3 0.4670		
		A4 0.001 :		
Ођес 41	41	The T $\psi$ C arm in the tRNA molecule possesses the sequence	4.0	1.00
		A1 T, pseudouridine and C		
		A2 T, uridine and C		
		A3 T, dihydrouridine and C		
		A4 T, adenine and C		
01.				
	42		4.0	1.00

	A1 3-Amino 3-hydroxypropanoic acid :	
	A2 2-Amino 3-hydroxybutanoic acid	
	A3 2-Amino 4-mercaptobutanoic acid	
	A4 2-Amino 3-mercaptobutanoic acid	
Objective Ouestion		

5	· ·			
43	43	Which of the following information is responsible to specify the three-dimensional shape of a protein?	4.0	1.00
		A1 : The proteins peptide bond		
		A2 : The proteins amino acid sequence		
		A3 : The protein's interaction with other polypeptides		
		A4 : The protein's interaction with molecular chaperons		
Object	ive Question			
44	44	Which of the following is true?	4.0	1.00
		A1 the disulfide bridges formed by reduction of the sulfhydryl groups on cysteine stabilize protein tertiary structure		
		A2 : the disulfide bridges formed by oxidation of the sulfhydryl groups on cysteine destabilize protein tertiary structure		
		A3 : the disulfide bridges formed by oxidation of the sulfhydryl groups on cysteine stabilizes protein tertiary structure		
		A4 the disulfide bridges formed by reduction of the sulfhydryl groups on cysteine destabilizes protein tertiary structure		

Obje	Objective Question					
45	45	Some proteins contain additional amino acids that arise by modification of an amino acid already present in a peptide, examples include	4.0	1.00		
		A1 4 -hydroxyproline				
		A2 : 5- hydroxy Lysine				
		A3 Gamma Amino Butyric Acid				
		A4 All of these				

46 46	Choose the right set of amino acids in the structure of Glutathione	4.0	1.00
	A1 Glutamine-Glycine-Cysteine		
	A2 Cysteine-Glycine-Glutamic acid		
	A3 Glutamic acid-Glycine-Cysteine		
	A4 : Glutamic acid-Glycine-Glycine		
Objective Oue	stion		
47 47	Cellulase is indigestible by humans because we lack the enzyme that hydrolyzes	4.0	1.00
	$^{A1}_{:}$ β-1,4 glycosidic bonds		
	$^{A2}_{\pm}$ $\alpha$ -1,6 glycosidic bonds		
	A3 α-1,4 glycosidic bonds		
	A4 long chain polysachharide		
Objective Que	stion		
48 48	pH (isoelectric pH) of alanine is	4.0	1.00
	A1 6.02		
	A2 6.6		
	A3 6.8		
	A4 7.2		
Objective Que		4.0	1.00
., ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Somatostatin is secreted in islets of Langerhans by:	-1.0	1.00
	$\stackrel{A1}{:} \alpha \text{-cell}$		
	$\frac{A2}{\gamma}$ -cell		
	A3 δ-cell		

Image: Signal				
0	50	The $\varphi$ and $\psi$ values of a $\beta$ -strand composed of all D-amino acids will mainly occupy which quadrant in the Ramachandran plot?	4.0	1.00
		Al upper left		
		A2 upper right		
		A3 lower left		
		A4 lower right		
A4 lower right       Objective Question       51     51       Which one of the following amino acid is basic       A1 Gln				
1	51	Which one of the following amino acid is basic	4.0	1.00
		A1 Gln		
		A2 Arg		
		A3 Tyr		
		A4 Asn		
Dhiad	tive Question			
2	52	α-helix in coiled coil has per tum	4.0	1.00
		A1 3.5 residue		
		A2 3.6 residue		
		A3 3 residue		
		A4 3.4 residue		
bjec	tive Question			
3	53	The following is classified as essential amino acid	4.0	1.00
		Al Asp		

		A3 Proline		
		A4 : Tyrosine		
Objec 54	tive Question	Naturally producing amino acid has the form of	4.0	1.00
		A1 L form		
		A2 D form		
		A3 R&S form		
		A4 R form		
Objec	tive Question			
55	55	Using the following approach one can build model of sequence haveing less than 20% identity	4.0	1.00
		A1 Homology modeling :		
		A2 : Threading		
		A3 : ab initio method		
		A4 fold recognition		
Objec	tive Question			
56	56	The rise of the $\alpha$ -helix is	4.0	1.00
		<sup>A1</sup> 4.5 Å		
		<sup>A2</sup> 5.4 Å		
		<sup>A3</sup> 3.5 Å		
		<sup>A4</sup> 5.0 Å		
Objec	tive Question			
57	57	Which of the following hybrid is more stable	4.0	1.00
		A1 GATCGC : CTAGCG		
		A2 AATGGC		

		: TTACCG		
		A3 ATAGGG : TATCCC		
		A4 GACTGA : CTGACT		
Objec	tive Question			
58	58	Which of the following statement is true about the basic chemistry of cell is true?	4.0	1.00
		Al All organisms contain the same gene		
		A2 The genetic instructions in all cells are stored in DNA		
		A3 All cells contain exactly the same proteins		
		A4 All proteins are constructed from same 20 amino acids except the rare amino acid Tyrosine :		
Objec	tive Question			
59	59	The basic difference between eukaryote and prokaryote is	4.0	1.00
		A1 Presence of nucleus in prokaryote		
		A2 Presence of nucleus in eukaryote		
		A3 Presence of plasma membrane in eukaryote		
		A4 Presence of DNA in prokaryote		
Objec	tive Question			
60	60	Mention which one of the following is IR active	4.0	1.00
		A1 CH <sub>2</sub> =CH <sub>2</sub> , CH <sub>2</sub> twist		
		A2 CH <sub>2</sub> =CHCl		
		A3 CH <sub>3</sub> -CH <sub>3</sub>		
		A4 CH <sub>2</sub> =CH <sub>2</sub> , CH Stretching		
Objec	tive Question			
61	61	The following program is not used for phylogenetic analysis	4.0	1.00
		A1 MEGA		

		A2 PHYLIP		
		A3 PAUP		
		A4 GROMACS		
Ohiao	tive Question			
62	62	The ratio between nonsumenumous and sumenumous substitutions (emerge) of a gene is estimated as 0.002. The gene is	4.0	1.00
02		evolving under		
		A1 Neutral evolution		
		A2 Purifying selection		
		A3 Positive selection		
		A4 Balanced selection		
Ohiaa	tive Question			
63	63	The functional constraint in conclusion of a constraint to	4.0	1.00
05	05	The functional constraint in evolution of a gene is due to	1.0	1.00
		A1 Neutral evolution		
		A2 Purifying selection		
		A3 Positive selection		
		A4 Balanced selection		
Objec	tive Question		4.0	1.00
64	64	Neutral theory of evolution was proposed by	4.0	1.00
		A1 Sewall Wright		
		A2 : Motoo Kimura		
		A3 Tomoko Ohta		
		A4 Masatoshi Nei :		
Objec	tive Question		4.0	1.00
05	00	Stoichiometric matrix is computed during	4.0	1.00

		A1 Flux-balance analysis			
		A2 Network analysis			
		A3 Principle component analysis			
		A4 Fourier analysis			
Objec	tive Question				
66	66	A phylogenetic reconstruction method based on molecular clock is	4.0	1.00	
		A1 Neighbor-joining			
		A2 UPGMA			
		A3 Maximum parsimony			
		A4 Maximum likelihood			
Objec	Dejective Question				
67	67	A phylogenetic tree with a time scale is known as	4.0	1.00	
		A1 Cladogram :			
		A2 Phylogram			
		A3 Chronogram			
		A4 Dendrogram :			
Objec	tive Question				
68	68	A R package widely used for network analysis is:	4.0	1.00	
		A1 Cytoscape			
		A2 igraph			
		A3 pamr			
		A4 MVN			

69	69	Molecular clock hypothesis was proposed by	4.0	1.00
		Al Line Deulies and Zelashard		
		Einus Pauling and Zukerkandi		
		A2 Linus Pauling and Felsenstein		
		A3 Linus Pauling and Nei		
		A4 Einus Pauling and Kimura		
Object	tive Question			
70	70	Assembly of short reads of a novel genome is known as:	4.0	1.00
		A1 Reference-based assembly		
		A2 : de novo assembly		
		A3 <i>in silico</i> assembly		
		A4 <i>in situ</i> assembly		
Obiect	tive Ouestion			
71	71	A long string is stretched by 2 cm and the potential energy is E. if the spring is stretched by 10 cm. its potential energy will be	4.0	1.00
		A1 E/25		
		A2 E/5		
		A3 25E		
		<sup>A4</sup> 5E		
01	in On the			
Object	T2	A body of mass 4 kg is accelerated upon by a constant force, travels a distance of 5 m in the first eccand and a distance of 2	4.0	1.00
		m in the third second. The force acting on the body is		
		A1 2 N		
		A2 4 N		
		A3 8 N :		

Obje	ective Quest	on
73	73	A capacitor and an inductance co

73	73	A capacitor and an inductance coil are connected in separate AC circuits with a bulb glowing in both the circuits. The bulb glows more brightly when	4.0	1.00
		A1 separation between the plates of the capacitor is increased.		
		A2 : a dielectric is introduced into the gap between the plates of the capacitor.		
		A3 : an iron rod is introduced into the inductance coil.		
		A4 the number of turns in the inductance coil is increased.		
01.1				

#### Objective Question

74	74	A certain current on passing through a galvanometer produces a deflection of 100 divisions. When a shunt of one ohm is connected, the deflection reduces to 1 division. The galvanometer resistance (in ohms) is	4.0	1.00
		A1 9 :		
		A2 99		
		A3 0.9		
		A4 0.09 :		

## Objective Questio

Objective Question				
75	75	If E and B represent the electric and magnetic vectors, then the direction of propagation of a light wave is along	4.0	1.00
		A1 The direction of E :		
		A2 the direction of B		
		A3 along the direction of E x B		
		A4 E x (E x B)		

76	76	A body of mass m hits normally a rigid wall with velocity v and bounces back with the same velocity. The impulse experienced by the body is	4.0	1.00
		Al Zero		
		A2 mv		

	11			11
		A3 1.5 mv		
		A4 2 mv		
biec	tive Question			
7	77	A charge Q is enclosed by a Gaussian spherical surface of radius R. If the radius is doubled, then the outward electric flux will	4.0	1.00
		A1 Be doubled		
		A2 Increase four times		
		A3 Be reduced to half		
		A4 Remain the same		
Object	tive Question			
78	78	A simple pendulum is suspended from the ceiling of a lift. When the lift is at rest its time period is T. With what acceleration should the lift be accelerated upwards in order to reduce its period to T /2? (g is acceleration due to gravity).	4.0	1.00
		Al 2g		
		A2 3g		
		A3 4g		
		A4 g		
Obiect	tive Ouestion			
9	79	Electromagnetic wave consists of periodically oscillating electric and magnetic vectors	4.0	1.00
		A1 in randomly oriented planes but vibrating in phase.		
		A2 in mutually perpendicular planes but vibrating in phase.		
		A3 in mutually perpendicular planes but vibrating with a phase difference of p		
		A4 in mutually perpendicular planes but vibrating with a phase difference of p/f		
hier	tive Operation			
0	80	If an electron and a proton have the same de-Broglie wavelength, then the kinetic energy of the proton is	4.0	1.00
		Al zero		

		:		
		A2 less than that of the electron		
		A3 more than that of the electron		
		A4 : equal to that of the electron		
Object	tive Question			
81	81	An E-mail address is composed of	4.0	1.00
		A1 : Two parts		
		A2 Four parts		
		A3 Three parts		
		A4 Five parts		
Objec	tive Question			
82	82	Operating system, editors, and debuggers come under	4.0	1.00
		A1 : System software		
		A2 : Application software		
		A3 Communication software		
		A4 : Utilities		
Object	tive Question			
83	83	Which one of the following loop in programming language is called an exit-controlled loop	4.0	1.00
		A1 Do – while		
		A2 While		
		A3 For		
		A4 : Nested loop		

		and seats available. The primary key (unique key to identify the record) is		
		A1 : Flight number		
		A2 : Flight number + place of departure		
		A3 : Flight number + date		
		A4 : Flight number + destination		
Object	tive Question			
85	85	Student and courses enrolled is an example of	4.0	1.00
		Al One-to-one relationship		
		A2 : One-one-many relationship		
		A3 Many-to-one relationship		
		A4 : Many-to-many relationship		
Object	tive Question			
86	86	In JAVA language, String is a	4.0	1.00
		A1 : Data type		
		A2 : Class		
		A3 : Label		
		A4 : Interface		
Object	tive Question			
87	87	In any programming language, the following code produces int $c = 4.3$ , $a=0$ ; int $d = c/a$ ;	4.0	1.00
		A1 Error		
		A2 : Throws exception		
		A3 Compiles correct		
		A4 None of these		

Objec	tive Question			
88	88	The network which have a single communication channel that is shared by all the machine on the network is	4.0	1.00
		A1 Point-to-point network		
		A2 Personal area network		
		A3 Broadcast network		
		A4 Virtual network		
Ohia	tive Operation			
89	89	The process of semi automatically analyzing large databases to find useful patterns is called	4.0	1.00
		Al Data analysis		
		A2 : Semi data analysis		
		A3 Data mining		
		A4 : Data access		
Objec	ctive Question	In DEDI Januara (*) muchal dan da fan	4.0	1.00
	50	In PERL language * symbol stands for	1.0	1.00
		A1 Multiplier		
		A2 Addition list		
		A3 Squaring		
		A4 No action		
Obiec	tive Question			
91	91	During Drug discovery process, NDA need to be applied	4.0	1.00
		A1 before testing the drug in animals		
		A2 before testing the drug in humans		
		A3 before marketing the drug		

A4 before discovering the drug

### Objective Question

Object	Jojective Question					
92	92	In ADME, M stands for	4.0	1.00		
		A1 : membrane				
		A2 : metabolism				
		A3 : metabolite				
		A4 : mechanism				
Object	tive Question					
Object						
93	93	Which of the following statements is true about a portide hand (PCONUP)?	4.0	11.00		

93	93	Which of the following statements is true about a peptide bond (RCONHR')?	4.0	1.00
		A1 It is non planar		
		A2 : It is capable of forming a hydrogen bond		
		A3 : The <i>cis</i> configuration is favoured over the <i>trans</i> configuration		
		A4 Single bond rotation is permitted between nitrogen and the carbonyl group		

# Objective Question

objective Question					
94	94	Identify the strongest form of intermolecular bonding that could be formed involving the residue of the amino acid serine.	4.0	1.00	
		A1 ionic bond			
		A2 hydrogen bond			
		A3 van der Waals interactions			
		A4 : none of these			

objective Question					
95	95	Identify the strongest form of intermolecular bonding that could be formed involving the residue of the amino acid valine.	4.0	1.00	
		A1 ionic bond			
		A2 hydrogen bond			
		A3 van der Waals interactions			

		A4 none of these	
t	ve Question		
	96	Identify the strongest form of intermolecular bonding that could be formed involving the residue of the amino acid glutamic acid.	4.0

1.00

Objec	tive Question	
96	96	Identify the strongest form of intermolecular bonding that could be formed involving the residue of the amino acid glu acid.
		A1 ionic bond
		A2 : hydrogen bond
		A3 van der Waals interactions
		A4 : none of these

97	97	What is the term used for drugs that are similar in structure to a known drug and which are used for the same purpose?	4.0	1.00
		A1 'copycat' drugs		
		A2 'me-too' drugs		
		A3 'derivative' drugs		
		A4 'analogue' drugs		

Objective Question				
98	98	Which of the following terms is used to describe the dose of a drug required to produce a measurable effect in 50% of the animals tested?	4.0	1.00
		A1 LD <sub>50</sub>		
		A2 MD <sub>50</sub>		
		A3 SD <sub>50</sub>		
		A4 ED <sub>50</sub>		
Object	tive Question			
99	99	Which of the intermolecular bonding interactions below are possible for a ketone?	4.0	1.00
		A1 Hydrogen bonding only.		

		A2 van der Waals interactions only. :		
		A3 : Ionic bonding only.		
		A4 Both hydrogen bonding and ionic bonding.		
Object	ive Question			
100	100	Which of the following statements is true?	4.0	1.00
		A1 Energy minimisation is carried out using quantum mechanics.		
		A2 Energy minimisation is used to find a stable conformation for a molecule.		
		A3 Energy minimisation is carried out by varying only bond angles and bond lengths.		
		A4 Energy minimisation stops when a structure is formed with a much greater stability than the previous one in the process		