Module Name : MSc Bioinformatics-E
Exam Date : 18-Sep-2020 Batch : 16:00-18:00

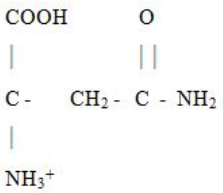
Sr. No.	Client Question ID	Question Body and Alternatives	Marks	Negative Marks
Objective Question				
1	1	The approximate number of nucleotides in a microRNA is: A1 : 12 A2 : 22 A3 : 32 A4 : 42	4.0	1.00
Objective Question				
2	2	Sertoli cells are present in: A1 : ovarian stroma A2 : prostate glands A3 : germinal epithelium A4 : seminiferous tubules	4.0	1.00
Objective Question				
3	3	DNA replication and synthesis of histone proteins occur in: A1 : G1 phase A2 : G2 phase A3 : S phase A4 : M phase	4.0	1.00
Objective Question				
4	4	The rate of synonymous nucleotide substitution is high at: A1 : First codon position	4.0	1.00

		A2 : Second codon position A3 : Third codon position A4 : Fourth codon position		
Objective Question				
5	5	The phylogenetic method may generate multiple trees: A1 : Neighbour joining A2 : Maximum parsimony A3 : Maximum likelihood A4 : UPGMA	4.0	1.00
Objective Question				
6	6	Paralogous genes have: A1 : Same function in different organisms. A2 : Same function in one organism. A3 : Different functions in different organisms. A4 : Different functions in one organism.	4.0	1.00
Objective Question				
7	7	During eukaryotic DNA replication, lagging strand is formed by A1 : DNA fragments A2 : Okazaki fragments A3 : RNA fragments A4 : Nucleotide fragments	4.0	1.00
Objective Question				
8	8	NOR (Nucleolus organizing regions) occurs in the region of A1 Secondary constriction	4.0	1.00

		: A2 : primary constriction A3 : telomer A4 : centromere		
Objective Question				
9	9	The main control point in glycolysis is: A1 : Phosphofructokinase A2 : Hexokinase A3 : Phosphoglucoisomerase A4 : Enolase	4.0	1.00
Objective Question				
10	10	The main control point in citric acid cycle (Krebs cycle) is: A1 : Isocitrate dehydrogenase A2 : Malate dehydrogenase A3 : Succinic dehydrogenase A4 : Aconitase	4.0	1.00
Objective Question				
11	11	If a nucleotide sequence encoding a protein is known and a homologous protein to be identified, which of the following will be the best analysis tool A1 : BLASTp A2 : BLASTn A3 : BLASTx A4 : tBLASTn	4.0	1.00
Objective Question				

12	12	Which is the best annotated database? A1 : Genbank A2 : PDB A3 : Prodom A4 : Swissprot	4.0	1.00
Objective Question				
13	13	Which is the default scoring matrix used in BLAST? A1 : PAM62 A2 : BLOSUM 62 A3 : BLOSUM 60 A4 : BLOSUM 80	4.0	1.00
Objective Question				
14	14	PAM matrices are derived by noting evolutionary changes in protein sequences that are more than: A1 : 80% similar A2 : 60% similar A3 : 40% similar A4 : 25% similar	4.0	1.00
Objective Question				
15	15	In Molecular Dynamics simulation, the dependence is on: A1 : only position A2 : only momentum A3 : both position and momentum A4 : either position or momentum	4.0	1.00

Objective Question				
16	16	In Needleman Wunsch algorithm of pairwise alignment of sequences with lengths n and m, the computational time is proportional to: A1 : n x m A2 : (n+1) x (m+1) A3 : n + m A4 : n x (m+1)	4.0	1.00
Objective Question				
17	17	In a PHYLIP output, the first line is two numbers, what do they indicate? A1 : Number of sequences, length of alignment A2 : Length of alignment, number of sequences A3 : Number of gaps, number of sequences A4 : Number of sequences, number of gaps	4.0	1.00
Objective Question				
18	18	BLAT is used to find: A1 : regions of higher identity within genomic assemblies A2 : regions of higher differences within genomic assemblies A3 : folds in a RNA sequence A4 : secondary structures in a given protein	4.0	1.00
Objective Question				
19	19	Homology modeling may be distinguished from ab initio prediction because: A1 : Homology modeling requires a model to be built A2 : Homology modeling requires alignment of a target to a template A3 : Homology modeling is usefully applied to any protein sequence	4.0	1.00

		A4 : The accuracy of homology modeling is independent of the percent identity between the target and the template		
Objective Question				
20	20	A left handed alpha helix falls in the Ramachandran plot under: A1 : allowed region A2 : partially allowed region A3 : disallowed region A4 : line joining allowed and partially allowed region	4.0	1.00
Objective Question				
21	21	Enantiomers are: A1 : stereoisomers A2 : distinguished by plane polarized light A3 : are not superimposible on their mirror images A4 : Are superimposable on their mirror images	4.0	1.00
Objective Question				
22	22	The following structure is the amino acid:  A1 : asparagine A2 : leucine A3 : lysine A4 : Glutamate	4.0	1.00
Objective Question				
23	23	The term “SALTING IN” refers to?	4.0	1.00

		A1: Changes in an amino acid's isoelectric point. A2: Increasing the solubility of a protein in solution by adding ions. A3: The use of a liquid bridge in an electrochemical cell. A4: The ionization of a strong acid.		
Objective Question				
24	24	The van der Waals radius is: A1: The radius of gyration for a macromolecule. A2: The distance separating the system and its surroundings. A3: The distance over which a dipole moment is exhibited. A4: the space filling dimension of an atom.	4.0	1.00
Objective Question				
25	25	The three "mechanisms" by which existing proteins can be changed over the course of time to produce new proteins: A1: transcription, translation, transposition A2: inversion, dispersion, concentration A3: denaturation, renaturation, saltation A4: gene duplication, mutation/evolution, protein modules	4.0	1.00
Objective Question				
26	26	A correct sequence(s) of the electro negativities of atoms from greatest to least is (are): A1: O > N > C A2: Na > F > Fe A3: H > C > O A4: C > H > O.	4.0	1.00

Objective Question				
27	27	The local spatial arrangement of a polypeptide's backbone atoms without regard to the conformation of its side chains can be called? A1 : Primary structure A2 : Secondary structure A3 : Tertiary structure A4 : Quaternary structure	4.0	1.00
Objective Question				
28	28	The ionic strength of a 0.015 M solution of $CaCl_2$ is: A1 : 0.037 A2 : 0.090 A3 : 0.045 A4 : 0.030	4.0	1.00
Objective Question				
29	29	What is the correct name for this biochemical functional group? $-C(=NH)-$	4.0	1.00
		A1 : amino A2 : imidazole A3 : amido A4 : imino		
Objective Question				
30	30	Clathrate is the name given to: A1 : An ionized amino acid side chain A2 : the secondary structure of a membrane-bound protein	4.0	1.00

		A3 : the physical structure of water molecules around a nonpolar molecule. A4 : a plasma membrane structure.		
Objective Question				
31	31	A stone of mass 500 gram, attached to the end of a string of length 1 m is whirled in a horizontal circle at a speed of 10 m/s. What is the tension in the string? A1 : 25 N A2 : 50 N A3 : 25,000 N A4 : 50,000 N	4.0	1.00
Objective Question				
32	32	In the case of uniform circular motion, the physical quantity that does not remains constant is A1 : mass A2 : speed A3 : linear momentum A4 : kinetic energy	4.0	1.00
Objective Question				
33	33	If $\Phi = x^2 - xyz$, then $\nabla\Phi$ at (4, 3, 2) is A1 : 4 i – 3 j + 2 k A2 : 16 i – 3 j + 2 k A3 : 2 i – 8 j + 12 k A4 : 2 i – 3 j + 2 k	4.0	1.00
Objective Question				
34	34	The emissive power of a perfect black body is A1 : 0	4.0	1.00

		A2 : 0.5 A3 : 1 A4 : 0.75		
Objective Question				
35	35	Two thermometers A and B exposed to sunlight. The value of A is painted black but that of B is not painted. The correct statement regarding this case is A1 : Temperature of B will rise faster and shows higher than temperature A A2 : Temperature of A will remain more than temperature B A3 : Both of A and B show equal rise from the beginning A4 : Temperature of A will rise faster than B but the final temperature will be same in both	4.0	1.00
Objective Question				
36	36	Speed of three molecules of a gas are 3 ms^{-1}, 4 ms^{-1} and 5 ms^{-1}. The r.m.s. speed of these molecule is, A1 : 4 ms^{-1} A2 : 4.08 ms^{-1} A3 : 7.1 ms^{-1} A4 : 5 ms^{-1}	4.0	1.00
Objective Question				
37	37	When a source is going away from a stationary observer, with a velocity equal to that of sound in air, then the frequency heard by the observer will be A1 : Same A2 : Half A3 : Double A4 : One third	4.0	1.00
Objective Question				
38	38	Velocity of sound in air is	4.0	1.00

		A1 : 300 m/s A2 : 3.8 x 10^{10} m/s A3 : 3 x 10^{8} m/s A4 : 9 x 10^{19} m/s		
Objective Question				
39	39	If a capacitor of capacity C is charged with charge Q at a potential of V, then the potential energy stored in the capacitor is A1 : 1/2 QV A2 : 1/2 CV A3 : QV A4 : CV	4.0	1.00
Objective Question				
40	40	Which of the following phenomenon cannot take place with sound wave? A1 : Reflection A2 : Interference A3 : Diffraction A4 : Polarization	4.0	1.00
Objective Question				
41	41	Interactions which hold and stabilize sub units in quratnery structure of proteins are A1 : Hydrophilic interactions A2 : Hydrophobic interactions A3 : Hydrogen bonding A4 : Ionic bonding	4.0	1.00

Objective Question				
42	42	Process of folding depends upon the A1 : Solvent A2 : The concentration of salts A3 : pH A4 : All of these	4.0	1.00
Objective Question				
43	43	If entropy is increased than overall reaction is A1 : non spontaneous A2 : spontaneous A3 : no reaction A4 : displacement reaction	4.0	1.00
Objective Question				
44	44	Disulphide bonds are formed between A1 : cysteine residues that are close together A2 : glycine residues that are close together A3 : proline residues that are close together A4 : histidine residues that are close together	4.0	1.00
Objective Question				
45	45	Cleaving of peptide chain is done by A1 : Tyrosine A2 : Trypsin A3 : Tryptophan A4 Arginine	4.0	1.00

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Objective Question				
46	46	The molecular formula for deoxyribose sugar and ribose sugar respectively are A1 : $C_5H_{10}O_4$ and $C_5H_{10}O_6$ A2 : $C_5H_{10}O_4$ and $C_5H_{10}O_5$ A3 : $C_5H_{10}O_5$ and $C_5H_{10}O_4$ A4 : $C_5H_{10}O_5$ and $C_6H_{10}O_4$	4.0	1.00
Objective Question				
47	47	Predominant interactions between phospholipids that stabilize a biological membrane include A1 : Hydrogen bonds and covalent interactions. A2 : Van der Waal and ionic interactions. A3 : Hydrophobic interactions and hydrogen bonding. A4 : Covalent and hydrophobic interactions.	4.0	1.00
Objective Question				
48	48	The two amino acids having R groups with a negative net charge at pH 7.0 are A1 : Aspartate and glutamate A2 : Arginine and histidine A3 : Cysteine and methionine A4 : Proline and valine	4.0	1.00
Objective Question				
49	49	Two chains of amino acids in an insulin molecule are held together by A1 : Sulfide bridges A2 : Disulfide bridges A3 : Peptide bond	4.0	1.00

		A4 : Covalent linkage		
Objective Question				
50	50	Which of the following is first determined as oligomer? A1 : Myoglobin A2 : Collagen A3 : Keratin A4 : Hemoglobin	4.0	1.00
Objective Question				
51	51	How many dechlorinated isomers would form in presence of light with $CH_3CH_2CH_2CH_3$ and Cl_2 A1 : 8 A2 : 6 A3 : 5 A4 : 2	4.0	1.00
Objective Question				
52	52	Halogenation of alkynes generally obey A1 : Chargoff's rule A2 : Markonikov's rule A3 : Anti-Markonikov's rule A4 : Newman projection	4.0	1.00
Objective Question				
53	53	Which of the following is a balanced equation A1 : $CH_3OH + HCl \rightarrow CH_3Cl + H_2O$ A2 : $Na_2CO_3 + HCl \rightarrow 2NaCl + CO_2 + H_2O$	4.0	1.00

		A3 : $C_2H_6 + 3O_2 \rightarrow CO_2 + 3H_2O$ A4 : $C_3H_8 + 4O_2 \rightarrow 4H_2O + 3CO_2$		
Objective Question				
54	54	Natural amino acids found in following conformation A1 : L and D A2 : D and R A3 : L A4 : D and S	4.0	1.00
Objective Question				
55	55	Compounds without Chiral center is called A1 : Enantiomer A2 : Diastereoisomer A3 : Mesomer A4 : Geometric Isomer	4.0	1.00
Objective Question				
56	56	Which one of the following is NOT a keyword in C Language? A1 : for A2 : case A3 : process A4 : break	4.0	1.00
Objective Question				
57	57	The size of each atom is determined by A1 : Valence shell A2 Effective nuclear charge	4.0	1.00

		: A3 : Lower atomic weight A4 : radiation		
Objective Question				
58	58	Which of the following are iso electronic species A1 : O^{2-}, Na, Cl^{2-} A2 : Li^{+}, Be^{2+}, B^{3+} A3 : Mn^{2+}, Na^{+}, K^{2+} A4 : Cl, Br, I	4.0	1.00
Objective Question				
59	59	Oxygen radical can cause A1 : Removal of toxins from our body A2 : Promote oxygen supply to blood cells A3 : Tissue damage A4 : Removal of kidney stone	4.0	1.00
Objective Question				
60	60	The SQL command used to modify existing records of a table is A1 : UPDATE A2 : SHOW A3 : CHANGE A4 : MODIFY	4.0	1.00
Objective Question				
61	61	If α, β, γ be the roots of the equation $x^3+px+q = 0$ then the value of $\sum \alpha^2 \beta$ is A1 3pq	4.0	1.00

		: A2 : 3p A3 : 3q A4 : 3		
Objective Question				
62	62	The straight lines x+y = 0, 3x+y-4 = 0, and x+3y-4 = 0 form a triangle which is A1 : equilateral A2 : isosceles A3 : right angled A4 : none of these	4.0	1.00
Objective Question				
63	63	If the binomial expansion of $(a-b)^n$, $n \geq 5$, the sum of the 5th and 6th terms is zero, then the value of $\frac{a}{b}$ is A1 : (n-5)/6 A2 : 5/(n-4) A3 : 6/(n-5) A4 : (n-4)/5	4.0	1.00
Objective Question				
64	64	In how many different ways can the letters of the word 'MATHEMATICS' be arranged so that the vowels always come together? A1 : 10080 A2 : 120960 A3 : 120940 A4 : 4989600	4.0	1.00

Objective Question				
65	65	A number consists of 3 digits whose sum is 10. The middle digit is equal to the sum of the other two and the number will be increased by 99 if its digits are reversed. The number is A1 : 253 A2 : 352 A3 : 370 A4 : 145	4.0	1.00
Objective Question				
66	66	If A+B = 45^o then (1+tanA)(1+tanB) equals A1 : 2 A2 : $\sqrt{3}$ A3 : 2/3 A4 : -2	4.0	1.00
Objective Question				
67	67	The equation of the plane passing through the point (2,3,-1) and perpendicular to the vector (3,-4,7) is A1 : 3x-4y+7z+13 = 0 A2 : 3x+4y+7z+13 = 0 A3 : 3x+4y-7z+13 = 0 A4 : 3x-4y+7z-13 = 0	4.0	1.00
Objective Question				
68	68	In what ratio must a grocer mix two varieties of pulses costing Rs. 15 and Rs. 20 per kg respectively so as to get a mixture worth Rs. 16.50 kg? A1 : 7:3 A2 : 3:7 A3 5:7	4.0	1.00

		: A4 : 7:5		
Objective Question				
69	69	The coordinates of the points which divide the line segment joining the points (2,-4,3), (-4,5,6) in the ratio 2:1 is A1 : 2,2,5 A2 : -2,2,5 A3 : 2,-2,-5 A4 : -2,2,-5	4.0	1.00
Objective Question				
70	70	If log a/(b-c) = log b/(c-a)= log c/(a-b) then the value of abc is A1 : -1 A2 : 1 A3 : 2 A4 : -2	4.0	1.00
Objective Question				
71	71	A glass rod rubbed with silk acquires a charge of 8 x 10-12C. The number of electrons it has gained or lost A1 : 5 x 10^{-7} (gained) A2 : 5 x 10^{7} (lost) A3 : 2 x 10^{-8} (lost) A4 : -8 x 10^{-12} (lost)	4.0	1.00
Objective Question				
72	72	The electrostatic force between two point charges kept at a distance d apart, in a medium εr = 6, is 0.3 N. The force between them at the same separation in vacuum is A1 : 20 N	4.0	1.00

		A2 : 0.5 N A3 : 1.8 N A4 : 2 N		
Objective Question				
73	73	Electric field intensity is 400Vm^{-1} at a distance of 2m from a point charge. It will be 100 Vm^{-1} at a distance? A1 : 50 cm A2 : 4 cm A3 : 4 m A4 : 1.5 m	4.0	1.00
Objective Question				
74	74	Two point charges +4q and +q are placed 30 cm apart. At what point on the line joining them the electric field is zero ? A1 : 15cm from the charge q A2 : 7.5cm from the charge q A3 : 20cm from the charge 4q A4 : 5cm from the charge q	4.0	1.00
Objective Question				
75	75	A dipole is placed in a uniform electric field with its axis parallel to the field. It experiences A1 : only a net force A2 : only a torque A3 : both a net force and torque A4 : neither a net force nor a torque	4.0	1.00
Objective Question				
76	76	If a point lies at a distance x from the midpoint of the dipole, the electric potential at this point is proportional to	4.0	1.00

		A1 : $1/x^2$ A2 : $1/x^3$ A3 : $1/x^4$ A4 : $1/x^{3/2}$		
Objective Question				
77	77	Four charges +q, +q, -q and –q respectively are placed at the corners A, B, C and D of a square of side a. The electric potential at the centre O of the square is A1 : $1/4\pi\varepsilon o(q/a)$ A2 : $1/4\pi\varepsilon o(2q/a)$ A3 : $1/4\pi\varepsilon o(4q/a)$ A4 : zero	4.0	1.00
Objective Question				
78	78	Electric potential energy (U) of two point charges is A1 : $q_1q_2/4\pi\varepsilon_0r^2$ A2 : $q_1q_2/4\pi\varepsilon_0r$ A3 : $pE\cos\theta$ A4 : $pE\sin\theta$	4.0	1.00
Objective Question				
79	79	The work done in moving 500μC charge between two points on equipotential surface is A1 : zero A2 : finite positive A3 : finite negative A4 : infinite	4.0	1.00

Objective Question				
80	80	which of the following quantities is scalar? A1 : dipole moment A2 : finite positive A3 : electric field A4 : electric potential	4.0	1.00
Objective Question				
81	81	The difference between memory and storage is that the memory is _____ and storage is _____ A1 : Permanent , Temporary A2 : Temporary, Permanent A3 : Slow, Fast A4 : Large, Less	4.0	1.00
Objective Question				
82	82	The background of any word document A1 : Is always white colour A2 : Is the colour you preset under the options menu A3 : Is always the same for the entire document A4 : Can have any colour you choose	4.0	1.00
Objective Question				
83	83	The PC (Personal Computer) and the Apple Macintosh are examples of two different A1 : Platforms A2 : Applications A3 : Programs A4 Techniques	4.0	1.00

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Objective Question				
84	84	Terminal is a A1 : Device used to give supply to a computer A2 : Point at which data may leave or enter the computer A3 : Input/Output device A4 : Point where wires are interconnected	4.0	1.00
Objective Question				
85	85	Which one of the following programming construct divides the problem into sub problem? A1 : Iteration A2 : Selection A3 : Modularity A4 : Sequence	4.0	1.00
Objective Question				
86	86	Which one of the following is a commercial Anti-Virus software? A1 : AVAST! Home edition A2 : AVG Anti-Virus A3 : Kaspersky Anti-Virus A4 : Nortan Anti-Virus	4.0	1.00
Objective Question				
87	87	_____ to transmit information on the World Wide Web. A1 : TPPH A2 : HTTP A3 : HPTT	4.0	1.00

		A4 : HTPT		
Objective Question				
88	88	Which is the slowest Internet connection service? A1 : Cable modem A2 : Land line A3 : Dial up service A4 : Digital subscriber line	4.0	1.00
Objective Question				
89	89	Junk E-mail is also called A1 : Copple crumbs A2 : Sniffer script A3 : Spoof A4 : Spam	4.0	1.00
Objective Question				
90	90	The concept of electronic cash is to execute payment by A1 : Cheque A2 : Debit card A3 : Credit ard A4 : ATM card	4.0	1.00
Objective Question				
91	91	The mass number of an atom is equal to A1 : The number of protons A2 : The number of protons and electrons	4.0	1.00

		A3 : The number of neutrons A4 : The number of nucleons		
Objective Question				
92	92	The pH of a solution is determined by A1 : concentration of salt A2 : relative concentration of acids and bases A3 : dielectric constant of the medium A4 : environmental effect	4.0	1.00
Objective Question				
93	93	Among the following, the compound that contains ionic, covalent and coordinate linkage is A1 : NaC1 A2 : CaO A3 : NH_3 A4 : NH_4Cl	4.0	1.00
Objective Question				
94	94	Which compounds are isomers? A1 : methanol and methanal A2 : n-propanol and iso-propanol A3 : ethane and ethanol A4 : ethanol and methanol	4.0	1.00
Objective Question				
95	95	Which of the following amino acid contain an imidazolium moiety? A1 : Alanine A2 Valine	4.0	1.00

		: A3 : Cysteine A4 : Histidine		
Objective Question				
96	96	Chlorophyll is a naturally occurring chelate compound in which central metal is A1 : copper A2 : magnesium A3 : iron A4 : calcium	4.0	1.00
Objective Question				
97	97	Pubchem has information regarding A1 : Chemical structure A2 : Bio-activity A3 : DNA A4 : Both Chemical structure and Bio-activity	4.0	1.00
Objective Question				
98	98	Which pair of amino acids absorbs the most UV light at 280 nm? A1 : Threonine & Histidine A2 : Trp& Tyrosine A3 : Cystein& Asparagine A4 : Phenylalnine& Proline	4.0	1.00
Objective Question				
99	99	Protein fluorescence arises primarily from which residue? A1 : Arginine	4.0	1.00

		A2 : Tryptophan A3 : Tyrosine A4 : Phenylalanine		
Objective Question				
100	100	The sequence of letters 'WYQN' will represent A1 : Tryptophan, tyrosine, glutamic acid, asparagine A2 : Tryptophan, tyrosine, glutamine, asparagine A3 : Tryptophan, glutamine, tryptophan, asparagine A4 : Glutamine, tyrosine, tryptophan, aspartic acid	4.0	1.00