

DU MPhil PhD in Bio Physics N

Sr.No	Question Id	Question Description	Question Body	Options
1	1	DU_J19_MP HIL_BIOPHY _New6july_ Q01	Which of the following is an organelle enclosed by a single membrane:	1:Lysosomes, 2: ribosomes, 3: mitochondria, 4:chloroplast,
2	2	DU_J19_MP HIL_BIOPHY _New6july_ Q02	Chlorophyll consists of two parts, a metal ion of Magnesium and an organic portion termed as:	5:dextran, 6: globin, 7:porphyrin, 8:sphingolipid,
3	3	DU_J19_MP HIL_BIOPHY _New6july_ Q03	Intellectual Property rights granted over creations like music, novels, paintings and cinematic work is classified as:	10: Copyright, 11: Trademarks, 12:Certification marks, 9:Creative patent,
4	4	DU_J19_MP HIL_BIOPHY _New6july_ Q04	"Dextrose" is an example of which type of macromolecule:	13:protein, 14: carbohydrate, 15: lipid, 16:vitamin,
5	5	DU_J19_MP HIL_BIOPHY _New6july_ Q05	The secondary structure of proteins is stabilized mainly via :	17:hydrogen bonds between the main chain atoms of the amino acids . 18: hydrogen bonds between the side chains of aminoacids , 19: hydrogen bonds between the main chain and side atoms of the aminoacids . 20:ionic bonds between side chain atoms of aminoacids,
6	6	DU_J19_MP HIL_BIOPHY _New6july_ Q06	The genetic code is known to be degenerate with several three letter codons coding for the same amino acid. How many codons code for the Methionine amino acid :	21:3, 22: 1, 23: 2, 24:0,

7	7	DU_J19_MP HIL_BIOPHY _New6july_ Q07	Which of the following is a method for determining the three dimensional structure of proteins.	25:Isothermal Titration Calorimetry, 26: X-ray crystallography , 27: Dynamic light Scattering, 28:Optical microscopy,
8	8	DU_J19_MP HIL_BIOPHY _New6july_ Q08	In a NATIVE-PAGE experiment, the proteins are separated:	29:only on basis of their pI, 30: only on basis of their size , 31: only on the basis of their quaternary structure, 32:both the basis of charge and size,
9	9	DU_J19_MP HIL_BIOPHY _New6july_ Q09	A mRNA of about 1.5kb is expected to code for a protein of the following length:	33:~ 500 amino acids, 34: ~ 200 amino acids, 35: ~1000 amino acids, 36:~ 1500 amino acids,
10	10	DU_J19_MP HIL_BIOPHY _New6july_ Q10	Which of the following model organisms is used routinely in biological sciences is actually a Frog:	37:Caenorhabditis elegans , 38: Xenopus tropicalis , 39: Saccharomyces cerevisiae , 40:Danio Rerio,
11	11	DU_J19_MP HIL_BIOPHY _New6july_ Q11	The bacterial genome typically codes for about _____ genes.	41:4,000, 42: 1,500, 43: 15,000 , 44:40,000,
12	12	DU_J19_MP HIL_BIOPHY _New6july_ Q12	Which of the followings DOES NOT have a membrane-enclosed nucleus in the cell:	45:Archaea, 46: Fungi, 47: Yeast, 48:Protist,
13	13	DU_J19_MP HIL_BIOPHY _New6july_ Q13	You need a protein sample with concentration of 50mg/ml for your experiment. You have 1000 μ L of this sample with protein concentration of 5 mg/mL. Which of the following would lead you to the desired concentration?	49:Concentrate the sample to 500 μ L, 50: Concentrate the sample to 100 μ L, 51: Concentrate the sample to 0.05 L, 52:Concentrate the sample to 0.01 L,

14	14	DU_J19_MP HIL_BIOPHY _New6july_ Q14	You have a 5 M solution of NaCl, which needs to be diluted to 1 M concentration. How much water do we add to 100 ml of such solution to make it correct molarity?	53:0.5 L, 54: 0.4 L, 55: 300 mL, 56:500 mL,
15	15	DU_J19_MP HIL_BIOPHY _New6july_ Q15	Proteins are known to undergo various modifications after their synthesis, known as post-translational modifications. How many such variations are currently known:	57: ~20, 58: ~200, 59: ~2000, 60: ~5,
16	16	DU_J19_MP HIL_BIOPHY _New6july_ Q16	Some proteins are known to carry out multiple functions in an organism. Such proteins are known as:	61: Universal proteins, 62: Sunny proteins, 63: Moonlighting proteins, 64: Twinkling proteins,
17	17	DU_J19_MP HIL_BIOPHY _New6july_ Q17	In the acronym "siRNA", the letter "si" stands for:	65: small ingestible, 66: small interfering, 67: short inhibiting, 68: short mRNA interacting,
18	18	DU_J19_MP HIL_BIOPHY _New6july_ Q18	In protein structure visualization programs, the nitrogen atoms are usually depicted in this color:	69: Grey, 70: Yellow, 71: Red, 72: Blue,
19	19	DU_J19_MP HIL_BIOPHY _New6july_ Q19	In prokaryotes, the genes for related function are often present in genetic units that are regulated together. This arrangement is called as:	73: a linkage group, 74: an Operon, 75: a cistron, 76: a CDS,
20	20	DU_J19_MP HIL_BIOPHY _New6july_ Q20	Which of the following techniques can be used to find the secondary structure content of a protein molecule without any information of the three-dimensional structure information?	77:NMR (Nuclear Magnetic Resonance), 78: Circular dichroism spectroscopy, 79: Size exclusion chromatography, 80:X-ray crystallography,
21	21	DU_J19_MP HIL_BIOPHY _New6july_ Q21	Which of the following statements is CORRECT for double-stranded nucleic acids i. Two strands are associated by hydrogen bonds ii. Sequences are complementary and antiparallel iii. The back-bones are made of phosphor-diester bonds iv. Numbers of hydrogen bonds between two nucleotides are not uniform	81:All of the above, 82: All of the above except (ii), 83: All of the above except (iv),

				84:Only (i) and (iii),
22	22	DU_J19_MP HIL_BIOPHY _New6july_ Q22	A double-stranded RNA genome isolated from a virus in the stool of a child with gastroenteritis was found to contain 15% uracil. What is the percentage of guanine in the viral genome?	85:15, 86: 25 , 87: 35 , 88:75,
23	23	DU_J19_MP HIL_BIOPHY _New6july_ Q23	A gene encodes a protein with 150 amino acids. There is one intron of 1000bps, a 5'-untranslated region of 100bps and a 3'-untranslated region of 200bps. In the final processed mRNA, how many bases lie between the start and final termination codon?	89:1750, 90: 750, 91: 650, 92:450,
24	24	DU_J19_MP HIL_BIOPHY _New6july_ Q24	Western blot is used to probe	93:DNA, 94: RNA, 95:Protein, 96:Single stranded RNA,
25	25	DU_J19_MP HIL_BIOPHY _New6july_ Q25	Some cells in the adult animals do not divide (e.g., heart cells). These cells enter an inactive stage of the cell cycle called as	100:G2 phase, 97:G0 phase, 98: G1 phase, 99: S phase,
26	26	DU_J19_MP HIL_BIOPHY _New6july_ Q26	Which of following is not a protein	101: Spider web, 102: Rhino horn, 103: Cobra venom, 104: Jute,
27	27	DU_J19_MP HIL_BIOPHY _New6july_ Q27	In which of the following cases, drug resistance is known to occur	105: Mycobacterium tuberculosis, 106: HIV, 107: Cancer, 108: All of the above,
28	28	DU_J19_MP HIL_BIOPHY _New6july_ Q28	What does pH 0 indicate?	109: 1 molar concentration of H+, 110: 1 molar concentration of OH- , 111: A very strong base, 112: A buffer solution in which acid is aced,
29	29	DU_J19_MP HIL_BIOPHY _New6july_ Q29	What is the advantage of glycolysis, since it taps only a small fraction of the energy available in the glucose molecule?	113:It may be used when oxygen is unavailable.,

		New6july Q29		114: It is cyclical, so that less substrate is require, 115: It requires no investment of ATP., 116:It is composed only of spontaneous reactions.,
30	30	DU_J19_MP HIL_BIOPHY _New6july_ Q30	Which of the following statements are correctly describing the transport system found in plants? i) Xylem: water and nutrients from root to shoots:: Phloem: food synthesized in leaves to other parts ii) Xylem: upward movement only :: Phloem: Both up and down movement iii) Xylem: outside of vascular bundle :: Phloem: centre of vascular bundle iv) Xylem: centre of vascular bundle : : Phloem: outside of vascular bundle	117:Statements (i), (ii) and (iii) , 118: Statements (i), (ii) and (iv) , 119: Statements (i) and (iv) only , 120:Statements (ii) and (iii) only ,
31	31	DU_J19_MP HIL_BIOPHY _New6july_ Q31	The attachment site for RNA polymerase on the DNA template is called as	121:Cistron, 122: Regulator, 123: Promoter, 124:Intron,
32	32	DU_J19_MP HIL_BIOPHY _New6july_ Q32	High level of one hormone/protein results in diminution of a second hormone/protein. This phenomena is called as	125:Negative feedback, 126: Hermaphroditism, 127: Positive feedback, 128:Covariance,
33	33	DU_J19_MP HIL_BIOPHY _New6july_ Q33	The variable region of an antibody is primarily responsible for	129:Specificity to match the antigen, 130: Three-dimensional structure of antibody, 131: Transport of antibody to distant locations of body, 132:Disulfide bond formation,
34	34	DU_J19_MP HIL_BIOPHY _New6july_ Q34	Gram staining is an example of	133:Differential staining, 134: Acid fast staining, 135: Negative staining, 136:Spore staining,
35	35	DU_J19_MP HIL_BIOPHY	Kinetic Theory of Gases deals with	137: macroscopic properties of the system.,

		New6july Q35		138: microscopic properties of the system., 139: both microscopic & properties of the system., 140: neither microscopic nor macroscopic properties of the system.
36	36	DU_J19_MP HIL_BIOPHY _New6july_ Q36	Thermodynamics deals with	141:macroscopic properties of the system., 142: microscopic properties of the system., 143: both microscopic & properties of the system., 144:neither microscopic nor macroscopic properties of the system.
37	37	DU_J19_MP HIL_BIOPHY _New6july_ Q37	A system of ideal gas has undergone change from one state to another state. While undergoing the change in state, the work done in a reversible process	145:Is equal to the work done in an irreversible process , 146: Is greater than the work done in an irreversible process , 147: Is lesser than the work done in an irreversible process , 148:Is either greater or lesser than the work done in an irreversible process..
38	38	DU_J19_MP HIL_BIOPHY _New6july_ Q38	The First Law of Thermodynamics deals with	149:Flow of energy and its direction, 150: Increase in entropy of a system and the universe, 151:Conservation of energy during work on or by a system, 152:None,
39	39	DU_J19_MP HIL_BIOPHY _New6july_ Q39	Van der Waals distance between two molecules in a gas arises due to	153:Strong electrostatic interaction between the molecules,

		Q39		<p>154: Strong interaction between the nuclei of the molecules, ,</p> <p>155: Non-negligible volume of the molecules, ,</p> <p>156:Negligible volume of the molecules.,</p>
40	40	DU_J19_MP HIL_BIOPHY _New6july_ Q40	Maxwell Boltzmann distribution of kinetic energy of molecules is based on	<p>157:Random distribution of velocities.,</p> <p>158: Equal distribution of velocities.,</p> <p>159: Linear distribution of velocities.,</p> <p>160:Power law distribution of velocities.,</p>
41	41	DU_J19_MP HIL_BIOPHY _New6july_ Q41	Resonance occurs when	<p>161:Component waves have different wavelengths.,</p> <p>162: Component waves have same wavelengths, but different phases.,</p> <p>163: Component waves have different wavelengths and same phases..</p> <p>164:Component waves have same wavelengths and same phases. ,</p>
42	42	DU_J19_MP HIL_BIOPHY _New6july_ Q42	Oxygen Molecule (O ₂) is	<p>165:Diamagnetic,</p> <p>166: Paramagnetic,</p> <p>167: Ferromagnetic,</p> <p>168:None. ,</p>
43	43	DU_J19_MP HIL_BIOPHY _New6july_ Q43	Purine is	<p>169:An aliphatic compound,</p> <p>170: A homocyclic aromatic compound ,</p> <p>171: A heterocyclic aromatic compound,</p>

				172:A heterocyclic non-aromatic compound ,
44	44	DU_J19_MP HIL_BIOPHY _New6july_ Q44	Optically active organic compounds must have	173:Symmetric carbon atoms., 174: Asymmetric carbon atoms., 175: No carbon atoms., 176:Double bonded carbon atoms.,
45	45	DU_J19_MP HIL_BIOPHY _New6july_ Q45	The frequencies of the following electromagnetic radiations are of the order	177:Visible> ultraviolet> X-ray, 178: X-ray > ultraviolet> visible, 179: Ultraviolet>X ray> visible, 180:X ray > visible > ultraviolet,
46	46	DU_J19_MP HIL_BIOPHY _New6july_ Q46	The sum of the series 1,2,4,8,16,.....2 ⁿ is	181: N ₂ , 182: 2 ⁿ , 183: 2 ⁿ -1, 184: None,
47	47	DU_J19_MP HIL_BIOPHY _New6july_ Q47	Three resistors 1Ω, 2 Ω, 3Ω are combined in series. What is the equivalent resistance of the combinations?	185: 10 Ω, 186: 6 Ω, 187: 5 Ω, 188:25 Ω,
48	48	DU_J19_MP HIL_BIOPHY _New6july_ Q48	The curve $x^2/4 + y^2/9 = 1$ has major & minor axes	189:2 & 2 respectively, 190: 3 & 3 respectively, 191: 2 & 3 respectively, 192:3 & 2 respectively,
49	49	DU_J19_MP HIL_BIOPHY _New6july_ Q49	For a chemical reaction the Equilibrium constant is related to the Forward Rate Constant k_f and Backward Rate Constant k_b as below.	193:K= $k_f + k_b$, 194: K= $k_f - k_b$, 195:K= k_f / k_b , 196:K= $k_f \times k_b$,
50	50	DU_J19_MP HIL_BIOPHY _New6july_ Q50	The total change in entropy for an irreversible process is	197:0, , 198: Positive, , 199: Negative, , 200:both positive & negative.,