PREVIEW QUESTION BANK

Module Name : GAT- B 2024-ENG
Exam Date : 20-Apr-2024 Batch : 09:00-12:00

Sr. No.	Client Question ID	Question Body and Alternatives	Marks	Negative Marks
Objective Question				
1	11001	Assume that a narrow tunnel is dug between two diametrically opposite points on the earth's surface. If a particle is released in this tunnel, it will execute a simple harmonic motion. What will be the time period of SHM of this particle ? (1) $\frac{1}{2\pi}\sqrt{\frac{R^3}{GM}}$ (2) $\frac{1}{2\pi}\sqrt{\frac{GM}{R^3}}$ (3) $2\pi\sqrt{\frac{R^3}{GM}}$ (4) $2\pi R\sqrt{\frac{1}{GM}}$ A1 : 1 A2 : 2 A3 : 3 A4 : 4	1.0	0.50
Objective Question				
2	11002	If a body is performing uniform circular motion with velocity v and radius R, then identify the true statements from the following : A. Its velocity v is constant. B. Acceleration is always directed towards the centre and its magnitude is $a = v^2/R$. C. Angular momentum is constant in magnitude but its direction keeps changing. D. Angular velocity of the body $\omega = v/R$. Choose the most appropriate answer from the options given below. (1) A and C only (2) B and D only (3) A, B and D only (4) A and D only A1 : 1 A2 : 2 A3 : 3 A4 : 4	1.0	0.50
Objective Question				
3	11003		1.0	0.50

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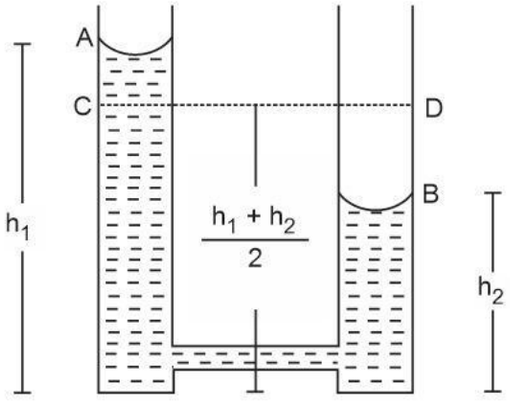
		A proton and a deuteron moving with equal kinetic energy enter perpendicularly into a magnetic field. What will be the ratio of radii of the circular path of the proton to that of the deuteron ? (1) 1 (2) 2 (3) $\frac{1}{2}$ (4) $\frac{1}{\sqrt{2}}$ A1 : 1 A2 : 2 A3 : 3 A4 : 4		
Objective Question				
4	11004	A big oil droplet of radius 10 cm is broken into a thousand equal droplets. What will be the gain in surface energy ? (Surface tension of the oil is 0.1 Nm^{-1}) (1) 5 J (2) 10 J (3) 0.11 J (4) 0.25 J A1 : 1 A2 : 2 A3 : 3 A4 : 4	1.0	0.50
Objective Question				
5	11005	Two parallel rail tracks run east-west. Train P moves in east direction with a speed of 36 kmh^{-1} and train Q moves with a speed of 72 kmh^{-1} in west direction. What is the velocity of Q with respect to P ? (1) 30 m/s from east to west (2) 30 m/s from west to east (3) 36 m/s from west to east (4) 10 m/s from east to west A1 : 1 A2 : 2 A3 : 3 A4 : 4	1.0	0.50

Objective Question				
6	11006	Identify the statement which in NOT true for a 'conservative force' (1) The work done by the conservative force depends only on the end points. (2) The work done by a conservative force in a closed path is zero. (3) Spring force and frictional force are conservative. (4) The total mechanical energy of a system is conserved if forces doing work on it are conservative. A1 : 1 A2 : 2 A3 : 3 A4 : 4	1.0	0.50
Objective Question				
7	11007	A boy sitting on a surface inside a satellite moving around the earth feels weightless because (1) the earth does not attract the object in a satellite (2) the reaction on the person balances the gravitational force (3) a person sitting in the satellite is not accelerated (4) the normal force (reaction) is zero A1 : 1 A2 : 2 A3 : 3 A4 : 4	1.0	0.50
Objective Question				
8	11008		1.0	0.50

Two cylindrical vessels of equal cross-sectional area A contain water up to height h_1 and h_2. The vessels are interconnected so that the levels in them become equal. What is the work done during this process if ρ is the density of water ?



(1) $\rho.A.(h_1 - h_2)$

(2) $\rho.A.(h_1 - h_2)/2$

(3) $\rho.A.(h_1 - h_2)^2.g$

(4) $\rho.A.[(h_1 - h_2)/2]^2.g$

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

9	11009	A bullet of mass 20 g, moving at 50 m/s penetrates 20 cm into a wooden block. What is the magnitude of the force exerted on the wooden block ? (1) 625 N (2) 225 N (3) 125 N (4) 725 N A1 : 1 A2 : 2 A3 : 3 A4 : 4	1.0	0.50

Objective Question

10	11010		1.0	0.50

		Identify which of the following statements regarding significant figures are correct A. 6.405 has four significant figures B. 12300 has five significant figures C. 0.00421 has five significant figures D. 4.500 has four significant figures Choose the most appropriate answer from the options given below. (1) A, B and C only (2) A and D only (3) C and D only (4) B and D only A1 : 1 A2 : 2 A3 : 3 A4 : 4		
Objective Question				
11	11011	The cross product of vector $\vec{A}$ and vector $\vec{B}$ has a magnitude of 50 unit, where vector $\vec{A}$ has a magnitude of 10. The angle between vector $\vec{A}$ and $\vec{B}$ is 60 degrees. What is the magnitude of vector $\vec{B}$? (1) $\frac{5}{\sqrt{2}}$ (2) $\frac{10}{\sqrt{2}}$ (3) $\frac{10}{\sqrt{3}}$ (4) $\frac{5}{\sqrt{3}}$ A1 : 1 A2 : 2 A3 : 3 A4 : 4	1.0	0.50
Objective Question				
12	11012	A resistor R dissipates power P when connected to a generator. If another resistor Q is put in series with R, the power dissipated by R will (1) Increase (2) Decrease (3) Remain the same (4) Increase or decrease depending on the values of R and Q A1 : 1	1.0	0.50

A2 : 2

A3 : 3

A4 : 4

Objective Question

13 | 11013 | 1.0 | 0.50

The electric charge on a body is always an integral multiple of 'e' where 'e' is the charge that an electron or proton carries. This concept is known as

(1) Additivity of charges
(2) Quantization of charges
(3) Conservation of charges
(4) Principle of superposition

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

14 | 11014 | 1.0 | 0.50

Match items in List I with items in List II

	List I (Type of thermodynamic process)		List II (Work done)
A.	Isotermal	I.	Zero
B.	Adiabatic	II.	$\mu R (T_2-T_1)$
C.	Isochoric	III.	$\mu RT \ ln\ V_2/V_1$
D.	Isobaric	IV.	$\mu R (T_1-T_2) / (\gamma-1)$

Choose the correct answer from the options given below :

(1) A-III, B-IV, C-I, D-II
(2) A-IV, B-III, C-I, D-II
(3) A-III, B-IV, C-II, D-I
(4) A-III, B-I, C-IV, D-II

A1 : 1

A2 : 2

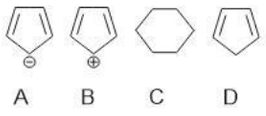
A3 : 3

A4 : 4

Objective Question

15 | 11015 | 1.0 | 0.50

		Two parrallel plate capacitors each of 15 μF capacity are connected in series. The space between the plates of one capacitor is filled with a dielectric material of dielectric constant K = 2. The equivalent capacitance of the system will be (1) 45 μF (2) 30 μF (3) 10 μF (4) 15 μF A1 : 1 A2 : 2 A3 : 3 A4 : 4		
Objective Question				
16	11016	Many enzymes catalyze both forward and reverse reactions. Which one of the following statement is NOT correct ? (1) An equilibrium is established after some time. (2) It is possible to control the directions of the reaction by suitably removing the formed product. (3) These reactions are both temperature and concentration dependent. (4) The forward and reverse reactions proceed via different activation complexes. A1 : 1 A2 : 2 A3 : 3 A4 : 4	1.0	0.50
Objective Question				
17	11017	Sanger reaction (Sequencing) is an example of (1) electrophilic substitution (2) hydrolysis (3) esterification (4) nucleophilic substitution A1 : 1 A2 : 2 A3 : 3 A4 : 4	1.0	0.50
Objective Question				

18	11018	Which one of the following is an aromatic compound ?  A B C D (1) A (2) B (3) C (4) D A1 : 1 A2 : 2 A3 : 3 A4 : 4	1.0	0.50
Objective Question				
19	11019	Given below are two statements Statement I : Precision refers to the closeness of various measurements for the same quantity. Statement II : Accuracy is the agreement of the obtained value with the known or true value of the quantity. In light of the above statements, choose the correct answer from the options given below : (1) Both Statement I and Statement II are correct (2) Both Statement I and Statement II are NOT correct (3) Statement I is correct, but Statement II is not correct (4) Statement I is not correct, but Statement II is correct A1 : 1 A2 : 2 A3 : 3 A4 : 4	1.0	0.50
Objective Question				
20	11020	Which one of the following transition metals is present in Vitamin B12 ? (1) Mn (2) Co (3) Zn (4) Cu A1 : 1 A2 : 2	1.0	0.50

		A3 : 3 A4 : 4		
Objective Question				
21	11021	Which one of the following drugs contains β-lactam structure ? (1) Penicillin (2) Sulphanilamide (3) Erythromycin (4) Chloramphenicol A1 : 1 A2 : 2 A3 : 3 A4 : 4	1.0	0.50
Objective Question				
22	11022	Which law of thermodynamics states that “energy of an isolated system is constant” ? (1) First (2) Second (3) Third (4) Zeroth A1 : 1 A2 : 2 A3 : 3 A4 : 4	1.0	0.50
Objective Question				
23	11023	According to the molecular orbital theory, which of the following molecules should exhibit paramagnetism ? (1) O_2 (2) N_2 (3) F_2 (4) C_2 A1 : 1 A2 : 2 A3 : 3 A4 : 4	1.0	0.50

Objective Question				
24	11024	It is possible to separate o-nitrophenol and p-nitrophenol using steam distillation because o-nitrophenol has (1) Van der Waals force (2) Steric hindrance (3) Intermolecular H-bonding (4) Intramolecular H-bonding A1 : 1 A2 : 2 A3 : 3 A4 : 4	1.0	0.50
Objective Question				
25	11025	Natural rubber is a polymer of _____ while synthetic rubber neoprene is formed by polymerization of _____. (1) 1,3-butadiene; acrylonitrile (2) 2-chloro-1,3-butadiene;1,3-butadiene (3) 2-methyl-1,3-butadiene;2-chloro-1,3-butadiene (4) Acrylonitrile;2-methyl-1,3-butadiene A1 : 1 A2 : 2 A3 : 3 A4 : 4	1.0	0.50
Objective Question				
26	11026	Arrange the following in decreasing order of their acidic strength A. CH_3COOH B. $ClCH_2COOH$ C. $Cl_2CHCOOH$ D. $Cl_3CHCOOH$ E. F_3CCOOH Choose the correct answer from the options given below : (1) A > B > C > D > E (2) E > D > C > B > A (3) A > E > D > C > B (4) B > C > D > A > E A1 : 1	1.0	0.50

A2 : 2

A3 : 3

A4 : 4

Objective Question

27 | 11027 | 1.0 | 0.50

Which one of the following modifications is NOT a natural N-terminal modification of proteins ?

(1) Acetylation

(2) Benzylation

(3) Myristoylation

(4) Sumoylation

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

28 | 11028 | 1.0 | 0.50

Match the items in List I with items in List II

	List I		List II
A.	Enzymes	I.	Amino acid
B.	Glucose	II.	Biocatalysts
C.	Lactose	III.	Aldohexose
D.	Methionine	IV.	Disaccharide

Choose the correct answer from the options given below :

(1) A-I, B-II, C-III, D-IV

(2) A-II, B-III, C-IV, D-I

(3) A-II, B-IV, C-III, D-I

(4) A-I, B-III, C-IV, D-II

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

29 | 11029 | 1.0 | 0.50

		A nucleic acid chain comprises of A. Phosphate group B. Nitrogen base C. Pentose sugar D. Thiol group E. β (1 – 4) linkage Choose the correct answer from the options given below : (1) B and C only (2) B, D and E only (3) A, D and E only (4) A, B and C only A1 : 1 A2 : 2 A3 : 3 A4 : 4		
Objective Question				
30	11030	Which of the following elements readily react with oxygen to form their oxides ? (1) Au and Pt (2) Ne and Ar (3) Al and Cu (4) Cu and Pt A1 : 1 A2 : 2 A3 : 3 A4 : 4	1.0	0.50
Objective Question				
31	11031	Which one of the following is caused by point mutation ? (1) Turner's syndrome (2) Down's syndrome (3) Sickle cell anemia (4) Kleinefelter's syndrome A1 : 1 A2 : 2 A3 : 3	1.0	0.50

		A4 : 4		
Objective Question				
32	11032	Which is NOT the function of placenta ? (1) Supply of oxygen and nutrients to the embryo (2) Removal of excretory waste products produced by embryo (3) Production of hCG and HPL (4) Supply all types of antibodies to the embryo A1 : 1 A2 : 2 A3 : 3 A4 : 4	1.0	0.50
Objective Question				
33	11033	Which statement is true with respect to colostrum ? (1) It is a yellowish fluid secreted by the mother during later days of lactation. (2) Colostrum provides passive immunity to the infant. (3) Colostrum is rich in carbohydrates and has no antibodies. (4) Colostrum provides active immunity to the infant. A1 : 1 A2 : 2 A3 : 3 A4 : 4	1.0	0.50
Objective Question				
34	11034	*Bacillus thurinigiensis Cry*A controls certain caterpillar pests by (1) turning toxic in the acidic pH of their gut medium (2) turning toxic in the alkaline medium of their gut (3) repelling them from the crops (4) inducing satiation in them A1 : 1 A2 : 2 A3 : 3 A4 : 4	1.0	0.50
Objective Question				
35	11035		1.0	0.50

		Which of the following options correctly match the name of gene and its function in cloning vector pBR322 ? (1) Cla I - Acts as selectable marker to identify non-transformants (2) amp^r - Codes for plasmid amplifying enzymes (3) rop - Codes proteins required for plasmid replication (4) ori - Controls plasmid size A1 : 1 A2 : 2 A3 : 3 A4 : 4		
Objective Question				
36	11036	Which one of the following statements about AIDS caused by HIV is correct ? (1) The time lag between the HIV infection and AIDS manifestation varies from 2-3 weeks. (2) After entering the body, HIV enter B-lymphocytes. (3) The AIDS-affected individuals are more susceptible to Tuberculosis. (4) HIV infection depletes only the CD8 lymphocytes in the body. A1 : 1 A2 : 2 A3 : 3 A4 : 4	1.0	0.50
Objective Question				
37	11037	The two heavy chains of a human antibody are linked to each other by (1) hydrogen bond (2) glycosidic bond (3) phosphodiester bond (4) disulfide bond A1 : 1 A2 : 2 A3 : 3 A4 : 4	1.0	0.50
Objective Question				
38	11038		1.0	0.50

		Aldosterone regulates the water and electrolyte balance in human body by (1) Stimulating the H_2O and Na^+ reabsorption, while K^+ and PO_4^{3-} excretion (2) Stimulating the Na^+ and K^+ reabsorption, while H_2O and PO_4^{3-} excretion (3) Stimulating the H_2O reabsorption and Na^+ excretion (4) Stimulating the Na^+ and PO_4^{3-} reabsorption, while K^+ excretion A1 : 1 A2 : 2 A3 : 3 A4 : 4		
Objective Question				
39	11039	At G2/M checkpoint the cell cycle will arrest if (1) The cell has not achieved an adequate size (2) The spindle fibre formation has not occurred (3) The DNA replication or repair of DNA damage has not been completed (4) The attachment of the spindle fibres to the kinetochore of centromeres is not adequate A1 : 1 A2 : 2 A3 : 3 A4 : 4	1.0	0.50
Objective Question				
40	11040	Choose the option that correctly matches for an immunosuppressant and its origin (1) Cholesterol - Palm Oil (2) Cyclosporin A - *Trichoderma polysporum* (3) Streptokinase - *Streptococcus* (4) Botulinum toxin - *Clostridium botulinum* A1 : 1 A2 : 2 A3 : 3 A4 : 4	1.0	0.50
Objective Question				
41	11041		1.0	0.50

		Which statement is true with respect to meiosis ? (1) Meiosis involves two sequential cycles of nuclear and cell division but only a single cycle of DNA replication. (2) Meiosis involves one cycle of nuclear and cell division but two cycles of DNA replication. (3) Four diploid cells are formed at the end of meiosis. (4) Two haploid cells are formed at the end of meiosis. A1 : 1 A2 : 2 A3 : 3 A4 : 4		
Objective Question				
42	11042	The principle driving force behind movement of water in plants is known as (1) Ionic potential (2) Membrane potential (3) Soil temperature (4) Water potential A1 : 1 A2 : 2 A3 : 3 A4 : 4	1.0	0.50
Objective Question				
43	11043	Which one of the following categories of methods CANNOT be used for animal virus detection ? (1) Serology (2) Nucleic acid hybridization (3) Hematology (4) Hemagglutination A1 : 1 A2 : 2 A3 : 3 A4 : 4	1.0	0.50
Objective Question				
44	11044		1.0	0.50

Respiratory pathway is considered as a _____ pathway

(1) Catabolic

(2) Anabolic

(3) Amphibolic

(4) Fermentative

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

45 | 11045 | 1.0 | 0.50

Match the items of List I with the items in List II

	List I		List II
A.	Diabetes insipidus	I.	Dysregulation of glucagon
B.	Exophthalmic goiter	II.	Water loss and dehydration
C.	Acromegaly	III.	Grave's disease
D.	Hyperglycemia	IV.	Disfigurement of face

Choose the correct answer form the options given below :

(1) A-I, B-III, C-IV, D-II

(2) A-IV, B-III, C-II, D-I

(3) A-II, B-I, C-III, D-IV

(4) A-II, B-III, C-IV, D-I

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

46 | 11046 | 1.0 | 0.50

An equilateral triangle of side 6 cm has its corners cut-off to form a regular hexagon. The area of regular hexagon is

(1) $2\sqrt{3}\ cm^2$

(2) $3\sqrt{2}\ cm^2$

(3) $6\sqrt{3}\ cm^2$

(4) $3\sqrt{6}\ cm^2$

A1 : 1

A2 : 2

		A3 : 3 A4 : 4		
Objective Question				
47	11047	A train passes a standing man in 6 seconds and 210 m long platform in 16 seconds. The length and speed of the train, respectively, is (1) 126 m, 21 m/s (2) 120 m, 20 m/s (3) 110 m, 20 m/s (4) 63 m, 21 m/s A1 : 1 A2 : 2 A3 : 3 A4 : 4	1.0	0.50
Objective Question				
48	11048	In an election contested by two candidates, one candidate got 30% of total votes and lost by 500 votes. The total number of votes polled is (1) 1350 (2) 1450 (3) 1150 (4) 1250 A1 : 1 A2 : 2 A3 : 3 A4 : 4	1.0	0.50
Objective Question				
49	11049	9·6 × 3·6 ÷ 7·2 + 10·8 of 1/18 – 1/10 = ? (1) 15·56 (2) 10·56 (3) 5·3 (4) 15·36 A1 : 1 A2 : 2 A3 : 3	1.0	0.50

		A4 : 4		
Objective Question				
50	11050	The traffic lights at three different road crossings change after every 48 s, 72 s and 108 s, respectively. If they all change simultaneously at 8:20:00 h, when will they change again simultaneously ? (1) 8:27:12 h (2) 8:25:10 h (3) 8:26:12 h (4) 8:24:10 h A1 : 1 A2 : 2 A3 : 3 A4 : 4	1.0	0.50
Objective Question				
51	11051	The sum of four consecutive even numbers is 107 more than the sum of three consecutive odd numbers. If the sum of smallest odd number and the smallest even number is 55, then what is the smallest even number ? (1) 36 (2) 40 (3) 32 (4) 38 A1 : 1 A2 : 2 A3 : 3 A4 : 4	1.0	0.50
Objective Question				
52	11052	Maximum distance between any two points inside or on cube of side 1 cm is equal to (1) 1 cm (2) $\sqrt{2}$ cm (3) $\sqrt{3}$ cm (4) 6 cm A1 : 1 A2 : 2 A3 : 3	1.0	0.50

		A4 : 4		
Objective Question				
53	11053	Number of natural numbers that can be formed using digits 1, 2, 3, 4, 5, 6, 7 each exactly once so that digits 3, 4 and 5 are always in the middle is equal to (1) 24 (2) 144 (3) 5040 (4) 720 A1 : 1 A2 : 2 A3 : 3 A4 : 4	1.0	0.50
Objective Question				
54	11054	The acute angle between hour and minute hands of a wall clock when the time shown by it is 02:15 is equal to (1) 30^{o} (2) $26{\cdot}25^{o}$ (3) $22{\cdot}5^{o}$ (4) $37{\cdot}5^{o}$ A1 : 1 A2 : 2 A3 : 3 A4 : 4	1.0	0.50
Objective Question				
55	11055	Number of squares in a chess-board is equal to (1) 64 (2) 81 (3) 204 (4) 284 A1 : 1 A2 : 2 A3 : 3 A4 : 4	1.0	0.50

Objective Question

56	11056	$x^2 + ax + 1 = 0$ has no real root. Which one of the following is correct ? (1) $a \leq 2$ (2) $a \geq 2$ (3) $-2 \leq a < 2$ (4) $-2 < a < 2$ A1 : 1 A2 : 2 A3 : 3 A4 : 4	1.0	0.50

Objective Question

57	11057	There are 30 boys and 60 girls in a class. If the average age of boys is 12 years and average age of girls is 10 years, what is the average age of the whole class ? (1) 10·11 years (2) 10·66 years (3) 11·66 years (4) 11·11 years A1 : 1 A2 : 2 A3 : 3 A4 : 4	1.0	0.50

Objective Question

58	11058	The diagonals of a rhombus are 16 cm and 12 cm. The side of the rhombus would be (1) 10 cm (2) 11 cm (3) 8 cm (4) 9 cm A1 : 1 A2 : 2 A3 : 3 A4 : 4	1.0	0.50

Objective Question

59	11059		1.0	0.50

		For x > 0, if variable takes discrete values x + 4, x – 3·5, x – 2·5, x – 3, x – 2, x + 0·5, x – 0·5, x + 5, then the value of median is (1) x – 1·25 (2) x – 0·5 (3) x + 0·5 (4) x + 1·25 A1 : 1 A2 : 2 A3 : 3 A4 : 4		
Objective Question				
60	11060	The salary of a worker is first increased by 5% and then it is decreased by 5%. What is the change in his salary ? (1) Decrease in salary 0·25% (2) Increase in salary 0·50% (3) No change in salary (4) Decrease in salary 0·50% A1 : 1 A2 : 2 A3 : 3 A4 : 4	1.0	0.50
Objective Question				
61	11061	Which one of the following antibody types protects against inhaled and ingested pathogens ? (1) IgG (2) IgD (3) IgM (4) IgA A1 : 1 A2 : 2 A3 : 3 A4 : 4	3.0	1.00
Objective Question				
62	11062		3.0	1.00

		Which one of the following hormones transmit their signal via nuclear receptors ? (1) Thyroid hormone (2) Follicle Stimulating hormone (3) Insulin (4) Luteinizing hormone A1 : 1 A2 : 2 A3 : 3 A4 : 4		
Objective Question				
63	11063	Which one of the following amino acids is coded by a single codon ? (1) Valine (2) Threonine (3) Tryptophan (4) Isoleucine A1 : 1 A2 : 2 A3 : 3 A4 : 4	3.0	1.00
Objective Question				
64	11064	Which one of the following statements is NOT correct ? (1) Glucose is stored in animals as glycogen. (2) Glucose is stored in plants as starch. (3) Cellulose is a polymer of only glucose. (4) Hemicellulose is a polymer of only glucose. A1 : 1 A2 : 2 A3 : 3 A4 : 4	3.0	1.00
Objective Question				
65	11065		3.0	1.00

Match the items in List I with the items in List II

	List I (Organelle)		List II (Function)
A.	Mitochondria	I.	Protein processing and transport
B.	Nucleolus	II.	Protein synthesis
C.	Golgi complex	III.	Energy production
D.	Endoplasmic reticulum	IV.	Ribosomal RNA synthesis

(1) A-I, B-III, C-II, D-IV

(2) A-II, B-III, C-I, D-IV

(3) A-III, B-II, C-I, D-IV

(4) A-III, B-IV, C-I, D-II

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

66 | 11066 | 3.0 | 1.00

In which one of the following compartments of the cell, carbohydrates are added to a protein during glycoprotein synthesis ?

(1) Mitochondria

(2) Lysosome

(3) Nucleus

(4) Golgi complex

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

67 | 11067 | 3.0 | 1.00

If a single base in the middle of a protein coding open reading frame is replaced with another base, which statement from the following is NOT a likely possibility ?

(1) It may not make any difference to the protein sequence.

(2) It may cause a single amino acid mutation.

(3) It may create a premature stop codon.

(4) The mRNA will not be recruited for translation.

A1 : 1

A2 : 2

		A3 : 3 A4 : 4		
Objective Question				
68	11068	The indigenous vaccine, Covaxin against SARS Coronavirus-2 contains (1) the mRNA expressing viral spike protein (2) inactivated whole virions (3) the purified viral envelope protein (4) the DNA coding for viral spike protein A1 : 1 A2 : 2 A3 : 3 A4 : 4	3.0	1.00
Objective Question				
69	11069	Antibody diversity is an example of (1) Gene rearrangement (2) Domain swapping (3) Post-translational modification (4) Proteolytic processing A1 : 1 A2 : 2 A3 : 3 A4 : 4	3.0	1.00
Objective Question				
70	11070	Which of the following immunoglobulins primarily pass through the placenta to provide passive immunity to the fetus ? (1) IgM only (2) IgM and IgG (3) IgA and IgG (4) IgG only A1 : 1 A2 : 2 A3 : 3 A4 : 4	3.0	1.00

Objective Question

71 | 11071 | 3.0 | 1.00

Which of the following pair of monosaccharides contains epimers of each other ?

(1) D-Mannose and D-Glucose

(2) D-Gulose and D-Glucose

(3) D-Arabinose and L-Arabinose

(4) D-Glucose and D-Fructose

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

72 | 11072 | 3.0 | 1.00

Match the items in List I with items in List II

	List I		List II
A.	Prophase	I.	Reformation of the nuclear envelope around daughter chromosomes
B.	Metaphase	II.	Separation of the two daughter chromosomes
C.	Anaphase	III.	Condensation of DNA into chromatids
D.	Telophase	IV.	Chromatids line up along an axis

(1) A-III, B-II, C-IV, D-I

(2) A-III, B-IV, C-II, D-I

(3) A-IV, B-III, C-II, D-I

(4) A-II, B-IV, C-I, D-III

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

73 | 11073 | 3.0 | 1.00

The specificity in an antibody molecule is provided by the

(1) Light chain variable region

(2) Light chain constant region

(3) Heavy chain constant region-I

(4) Hinge region

A1 : 1

A2 : 2

		A3 : 3 A4 : 4		
Objective Question				
74	11074	Calcium alginate based synthetic seeds tend to lose water rapidly and become hard pellet. This problem can be overcome by (1) Coating the capsule with polyethylene glycol (2) Preserving the seeds in the airtight packaging till sowing (3) Treating the somatic embryos with sterile water for 3 hours before encapsulation (4) Coating the capsules with Elvax 4260 A1 : 1 A2 : 2 A3 : 3 A4 : 4	3.0	1.00
Objective Question				
75	11075	Which one of the following statements most appropriately describes the concept of 'Codon Bias' ? (1) Some codons for a particular amino acid are used more frequently. (2) There has been an element of human bias for assigning specific codons to an amino acid. (3) There is no codon bias in plants. (4) The usage of codons varies for different proteins in an organism. A1 : 1 A2 : 2 A3 : 3 A4 : 4	3.0	1.00
Objective Question				
76	11076	Which one the following is NOT true for Quantum dots as fluorescent probes in fluorescence microscopy ? (1) They are highly resistant to photobleaching. (2) They can generate fluorescence of different emission wavelengths. (3) They are nanocrystals of different sizes. (4) Their flurorescence properties do not depend on the size of the Quantum dots. A1 : 1 A2 : 2	3.0	1.00

		A3 : 3 A4 : 4		
Objective Question				
77	11077	Francis & Crick proposed the scheme called Central Dogma in 1958. Which of the following processes was NOT covered in this scheme ? (1) Replication (2) Transcription (3) Reverse transcription (4) Translation A1 : 1 A2 : 2 A3 : 3 A4 : 4	3.0	1.00
Objective Question				
78	11078	*Beggiatoa*, a bacterium depends on organic carbon, inorganic chemicals and inorganic electron donor for its nutrition. On the basis of its nutritional type, it is classified as (1) Photoorganoheterograph (2) Chemolithoautotroph (3) Chemolithoheterotroph (4) Chemoorganoheterotroph A1 : 1 A2 : 2 A3 : 3 A4 : 4	3.0	1.00
Objective Question				
79	11079	Which one the following statements is correct about various microbial culture media ? (1) Mannitol salt agar is an enriched and differential media. (2) Selective components in MacConkey (MAC) agar are eosin Y and methylene blue which inhibits the growth of gram positive bacteria. (3) Blood agar is a differential media which is differentiated on the basis of bacterial ability to produce hemolysins. (4) Bile salts and crystal violet present in the EMB agar media inhibits the gram positive bacteria growth and hence helps to differentiate between gram positive and gram negative. A1 : 1 A2 : 2	3.0	1.00

		A3 : 3 A4 : 4		
Objective Question				
80	11080	The microscope which uses lasers to scan the specimen at a specific depth, illuminates one area at a time and blocks stray light to give an image with excellent contrast and resolution is (1) Differential Interference Contrast (DIC) Microscope (2) Confocal Microscope (3) Scanning Electron Microscope (4) Phase Contrast Microscope A1 : 1 A2 : 2 A3 : 3 A4 : 4	3.0	1.00
Objective Question				
81	11081	A biochemist is pelleting down the microsomal fraction from a sample using ultracentrifuge at a speed of 20000 rpm. What would be RCF if the diameter of the rotor is 7 cm ? (1) 15680 (2) 31360 (3) 7840 (4) 3920 A1 : 1 A2 : 2 A3 : 3 A4 : 4	3.0	1.00
Objective Question				
82	11082	In which of the given centrifuge rotors the value of r_{min} (radius minimum), r_{max} and r_{av} have the minimum deviation ? (1) Fixed-angle rotor only (2) Vertical rotor only (3) Swing rotor only (4) Fixed-angle and Vertical rotors A1 : 1 A2 : 2	3.0	1.00

A3 : 3

A4 : 4

Objective Question

83 | 11083 | 3.0 | 1.00

Match the items in List I with items in List II

	List I		List II
A.	mRNA	I.	inhibits gene expression
B.	tRNA	II.	carries amino acids for translation
C.	snRNA	III.	provides template for translation
D.	siRNA	IV.	involved in RNA splicing

(1) A-III, B-II, C-IV, D-I

(2) A-II, B-III, C-I, D-IV

(3) A-IV, B-III, C-II, D-I

(4) A-II, B-IV, C-I, D-III

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

84 | 11084 | 3.0 | 1.00

Which of the following cell types has the highest surface area to volume ratio ?

(1) RBC

(2) Fibroblast

(3) Keratinocyte

(4) Hepatocyte

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

85 | 11085 | 3.0 | 1.00

How many grams of Albumin and Aspirin will be required to set a reaction between one millimole of Albumin and 0·5 millimole of Aspirin ? Given the molecular weight of Albumin is 67,000 Da and that of Aspirin is 180 Da

(1) 1 g, 1 mg

(2) 67 g, 90 mg

(3) 0·1 g, 70 mg

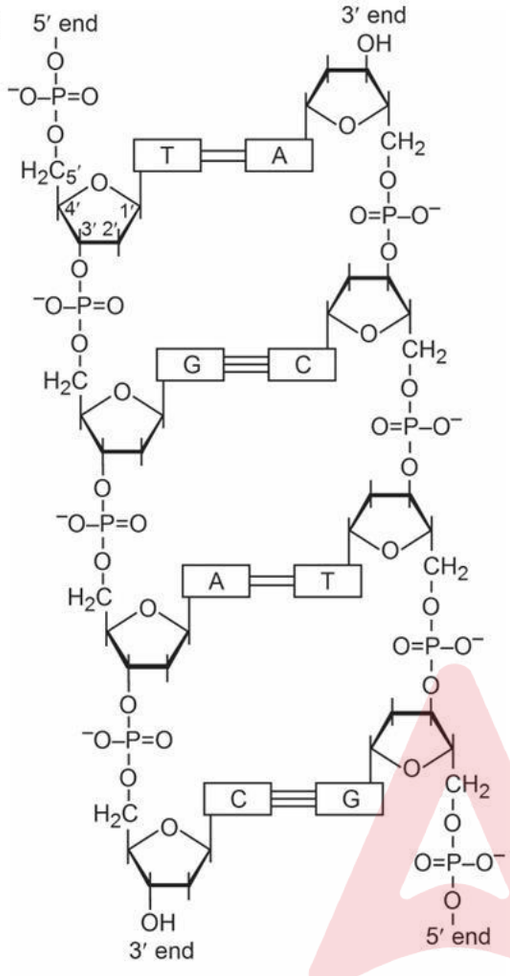
(4) 67 µg, 90 mg

		A1 : 1 A2 : 2 A3 : 3 A4 : 4		
Objective Question				
86	11086	Of the amino acids listed below, which three amino acids can undergo posttranslational modification ? (1) Glycine, Leucine, Trypotophan (2) Serine, Threonine, Tyrosine (3) Cysteine, Glutamine, Proline (4) Glutamic acid, Arginine, Methionine A1 : 1 A2 : 2 A3 : 3 A4 : 4	3.0	1.00
Objective Question				
87	11087	What is the common feature of the following peptides ? GKWLY, YLWKG, WGKLY, WLKGY (1) Same sequence (2) Same amino acid composition (3) Same conformation (4) Same interactome A1 : 1 A2 : 2 A3 : 3 A4 : 4	3.0	1.00
Objective Question				
88	11088	What is the final concentration of NaCl upon mixing 10 ml of 10 mM NaCl with 990 ml of 10 mM NaCl ? (1) 0·1 mM (2) 0·1 M (3) 0·01 M (4) 1·0 mM	3.0	1.00

		A1 : 1 A2 : 2 A3 : 3 A4 : 4		
Objective Question				
89	11089		3.0	1.00

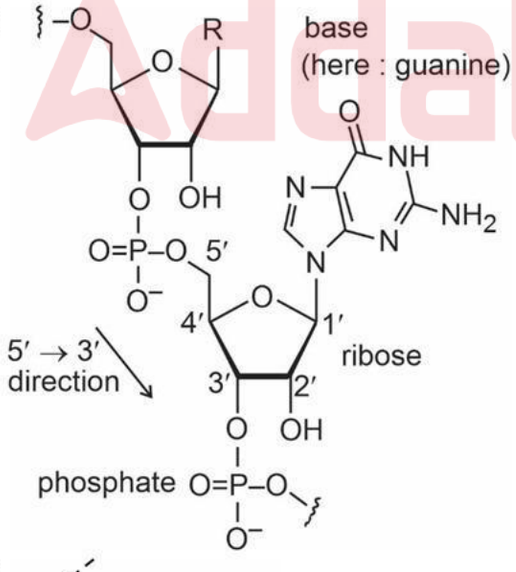
Which of the following molecules is a Peptide Nucleic Acid (PNA) ?

(1)

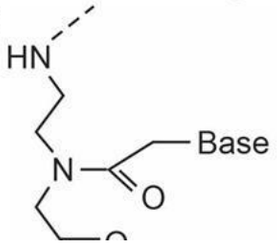


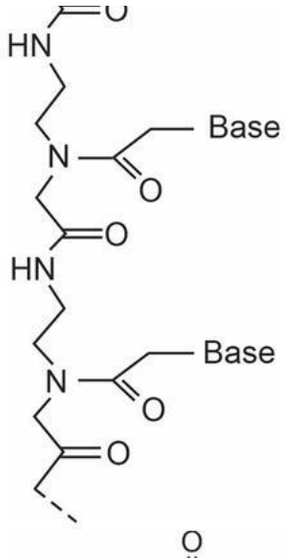
Bases : A (adenine), T (thymine)
G (guanine), C (cytosine)

(2)

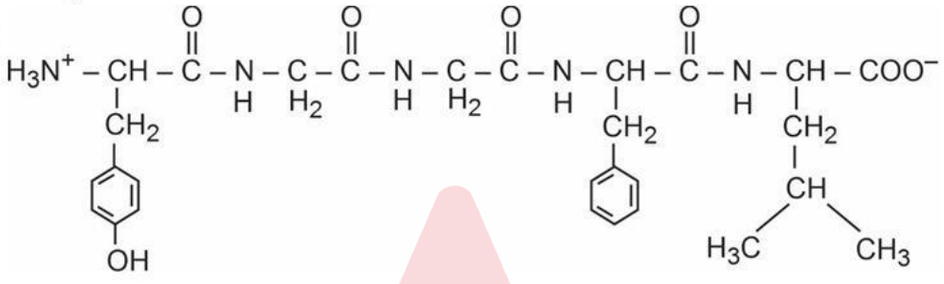


(3)





(4)



A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question				
90	11090	Among Wheat, Moong Dal, Rice and Bajra, the one with the highest protein content is (1) Bajra (2) Wheat (3) Moong dal (4) Rice A1 : 1 A2 : 2 A3 : 3 A4 : 4	3.0	1.00
Objective Question				
91	11091		3.0	1.00

		Which one of the following is the most effective strategy in delivering a gene of interest in non-proliferating terminally differentiated cells ? (1) Adeno-associated viral particle (2) Retroviral particle (3) Calcium chloride (4) Lipofectamine A1 : 1 A2 : 2 A3 : 3 A4 : 4		
Objective Question				
92	11092	Given below are two statements — one is labelled as Assertion (A) and the other is labelled as Reason (R) : Assertion (A) : Human adeno-associated virus is used to deliver single-stranded DNA as a vaccine that does not require multiple booster doses. Reason (R) : Such vaccines are generally administered along with an adenovirus or a herpesvirus to avoid multiple booster doses. In light of the above statements, choose the most appropriate answer from the options given below. (1) Both A and R are correct and R is the correct explanation of A. (2) Both A and R are correct, but R is NOT the correct explanation of A. (3) A is correct, but R is not correct. (4) A is not correct, but R is correct. A1 : 1 A2 : 2 A3 : 3 A4 : 4	3.0	1.00
Objective Question				
93	11093	In case of prokaryotes, the start codon is usually preceded by a sequence complementary to the (1) 16S rRNA (2) 5S rRNA (3) 28S rRNA (4) 18S rRNA A1 : 1 A2 : 2	3.0	1.00

		A3 : 3 A4 : 4		
Objective Question				
94	11094	Given below are two statements — one is labelled as Assertion (A) and the other is labelled as Reason (R) : Assertion (A) : In the eukaryotic genes, TATA box aids in transcription. Reason (R) : The TATA box facilitates formation of pre-initiation complex for transcription initiation. In light of the above statements, choose the most appropriate answer from the options given below. (1) Both A and R are correct and R is the correct explanation of A (2) Both A and R are correct, but R is NOT the correct explanation of A (3) A is correct but R is not correct (4) A is not correct but R is correct A1 : 1 A2 : 2 A3 : 3 A4 : 4	3.0	1.00
Objective Question				
95	11095	Which one of the following cell types is involved in retaining the tattoo ink ? (1) Macrophages (2) Melanocytes (3) Keratinocytes (4) Lymphocytes A1 : 1 A2 : 2 A3 : 3 A4 : 4	3.0	1.00
Objective Question				
96	11096	Which one of the following does NOT refer to secondary structures in protein? (1) Beta sheet (2) Twist (3) Alpha helix (4) Loop A1 : 1	3.0	1.00

		A2 : 2 A3 : 3 A4 : 4		
Objective Question				
97	11097	Starting with a single cell, what will be number of cells after 'n' cycles of cell division, given that in each cycle every cell divides into two cells ? (1) 2^2 (2) n^n (3) n^2 (4) 2^n A1 : 1 A2 : 2 A3 : 3 A4 : 4	3.0	1.00
Objective Question				
98	11098	The process of nuclear envelope breakdown during prophase is NOT aided by which one of the following ? (1) Extension of the filopodia (2) Phosphorylation of nuclear membrane proteins (3) Cytoplasmic microtubule dynamics (4) Nuclear lamina disassembly A1 : 1 A2 : 2 A3 : 3 A4 : 4	3.0	1.00
Objective Question				
99	11099	Which one of the following is derived from the ectoderm? (1) Muscle (2) Bone (3) Nerve (4) Blood A1 : 1 A2 : 2	3.0	1.00

		A3 : 3 A4 : 4		
Objective Question				
100	11100	Regulatory B cells (Bregs) are important mediators of adaptive immunity and function mainly via the secretion of (1) IL-10 (2) IL-2 (3) TNF-alpha (4) IFN-gamma A1 : 1 A2 : 2 A3 : 3 A4 : 4	3.0	1.00
Objective Question				
101	11101	A polymerase chain reaction yields 1·2 billion copies of DNA in 30 cycles. How many cycles would be needed to obtain its 300 million copies ? (1) 7 cycles (2) 8 cycles (3) 15 cycles (4) 28 cycles A1 : 1 A2 : 2 A3 : 3 A4 : 4	3.0	1.00
Objective Question				
102	11102	Neoschizomers are the restriction endonucleases with (1) identical recognition site but different cleavage sites (2) different recognition sites but same cleavage site (3) different recognition site but producing same sticky ends (4) identical recognition and cleavage sites A1 : 1 A2 : 2 A3 : 3	3.0	1.00

		A4 : 4		
Objective Question				
103	11103	Telomerase, an RNA-protein complex adds telomeres at the end of chromosomes. What kind of enzymatic activity does it possess ? (1) DNA-dependent DNA polymerase (2) DNA-dependent RNA polymerase (3) RNA-dependent DNA polymerase (4) RNA-dependent RNA polymerase A1 : 1 A2 : 2 A3 : 3 A4 : 4	3.0	1.00
Objective Question				
104	11104	Which of the following is NOT true for the layers of gastrula ? (1) The linning of the digestive tract will be formed by the endoderm. (2) The bones will be formed by the mesoderm. (3) The nerves will be formed by the ectoderm. (4) The skin will be formed by the mesoderm. A1 : 1 A2 : 2 A3 : 3 A4 : 4	3.0	1.00
Objective Question				
105	11105	Which of the following statement is NOT correct ? (1) Transcription takes place in the nucleus of eukaryotic cells. (2) In prokaryotes mRNA is not capped. (3) Translation in eukaryotes takes place in the nucleus. (4) In prokaryotes, DNA is replicated in the cytoplasm. A1 : 1 A2 : 2 A3 : 3 A4 : 4	3.0	1.00

Objective Question				
106	11106	Rancidity in spoiled foods is mainly due to (1) Proteolytic enzymes (2) Photosynthetic microbes (3) Saccharolytic microbes (4) Lipolytic microbes A1 : 1 A2 : 2 A3 : 3 A4 : 4	3.0	1.00
Objective Question				
107	11107	The helical content of a protein can be directly determined using (1) infrared spectrometer (2) fluorescence (3) circular dichroism (4) UV-visible spectrophotometer A1 : 1 A2 : 2 A3 : 3 A4 : 4	3.0	1.00
Objective Question				
108	11108	DNA conformation is left handed in (1) DNA B (2) DNA C (3) DNA Z (4) DNA A A1 : 1 A2 : 2 A3 : 3 A4 : 4	3.0	1.00
Objective Question				
109	11109		3.0	1.00

		Which one of the following tissue culture approaches is most appropriate for production of double halploid plants ? (1) Protoplast fusion (2) Embryo rescue (3) Anther culture (4) Meristem culture A1 : 1 A2 : 2 A3 : 3 A4 : 4		
Objective Question				
110	11110	Which one of the following is NOT an auxin ? (1) Indole acetic acid (IAA) (2) Indole butyric acid (IBA) (3) 2,4-dichlorophenoxy acetic acid (2,4-D) (4) 6-Benzylaminopurine (BAP) A1 : 1 A2 : 2 A3 : 3 A4 : 4	3.0	1.00
Objective Question				
111	11111	Which of the following is a heuristic algorithm that works faster than those driven by dynamic programming ? (1) Needleman-Wunsch (2) Smith-Waterman (3) BLAST (4) Gradient Descent A1 : 1 A2 : 2 A3 : 3 A4 : 4	3.0	1.00
Objective Question				
112	11112		3.0	1.00

		For an imaginary Martian species with three nucleotides (X, Y and Z), how many 3-letter codons are possible ? (1) 64 (2) 27 (3) 9 (4) 4 A1 : 1 A2 : 2 A3 : 3 A4 : 4		
Objective Question				
113	11113	What is the likely number of amino acids in a 11 KDa protein ? (1) 90 (2) 100 (3) 110 (4) 120 A1 : 1 A2 : 2 A3 : 3 A4 : 4	3.0	1.00
Objective Question				
114	11114	For a normal (Gaussian) distribution, decreasing the spread and increasing the height would lead to a (1) smaller value of standard deviation (2) higher value of standard deviation (3) smaller value of mean (4) higher value of mean A1 : 1 A2 : 2 A3 : 3 A4 : 4	3.0	1.00
Objective Question				
115	11115		3.0	1.00

		Which of the following is a method to conduct phylogeny of protein and DNA sequences ? (1) BLAST (2) OMNIBUS (3) Maximum likelihood (4) DAVID A1 : 1 A2 : 2 A3 : 3 A4 : 4		
Objective Question				
116	11116	The degree of inhibition for an enzyme catalyzed reaction at a particular inhibitor concentration is independent of the intitial substrate concentration. This is (1) Un-competitive inhibition (2) Non-competitive inhibition (3) Competitive inhibition (4) Mixed inhibition A1 : 1 A2 : 2 A3 : 3 A4 : 4	3.0	1.00
Objective Question				
117	11117	An enzymatic reaction exhibits Michaelis-Menten Kinetics. What will happen if the concentration of enzyme is doubled keeping $[S_0]$ >> [E] ? (1) Both K_m and V_{max} will remain same (2) Both K_m and V_{max} will increase (3) V_{max} will increase; K_m will remain same (4) K_m will increase; V_{max} will remain same A1 : 1 A2 : 2 A3 : 3 A4 : 4	3.0	1.00
Objective Question				
118	11118		3.0	1.00

		A zero order liquid phase reaction A $\xrightarrow{k}$ B, is being carried out in a batch with k = 10^{-3} moles/min. Reactor volume is 100 L. Initial concentration of A is 0·1 moles/L. What is the earliest time at which A is completely exhausted in the system ? (1) 100 min (2) 200 min (3) 300 min (4) 40 min A1 : 1 A2 : 2 A3 : 3 A4 : 4		
Objective Question				
119	11119	If the average diameter of air bubbles in a bioreactor is 2 mm and the gas hold up is 10% then the surface area of gas bubbles per liter of reactor is (1) 30 cm^2 (2) 300 cm^2 (3) 3000 cm^2 (4) 30000 cm^2 A1 : 1 A2 : 2 A3 : 3 A4 : 4	3.0	1.00
Objective Question				
120	11120	A good resolution in ion exchange chromatography is obtained when the two proteins have a (1) large difference in binding affinity and large dispersion (2) small difference in binding affinity and large dispersion (3) large difference in binding affinity and small dispersion (4) small difference in binding affinity and small dispersion A1 : 1 A2 : 2 A3 : 3 A4 : 4	3.0	1.00
Objective Question				
121	11121		3.0	1.00

		Given below are two statement – one is labelled as Assertion A and the other is labelled as Reason R : Assertion A : Bacterial lipoplysaccharide (LPS) on its own does not induce memory B-cell in humans. Reason R : LPS does not activate T-cell. In light of the above statements, choose the most appropriate answer from the options given below. (1) Both A and R are correct and R is the correct explanation of A (2) Both A and R are correct, but R is NOT the correct explanation of A (3) A is correct but R is not correct (4) A is not correct but R is correct A1 : 1 A2 : 2 A3 : 3 A4 : 4		
Objective Question				
122	11122	The allergic immune response is characterized by the increased levels of (1) IgE (2) IgA (3) IgG (4) IgM A1 : 1 A2 : 2 A3 : 3 A4 : 4	3.0	1.00
Objective Question				
123	11123	The presence of antibody in infected patients serum can be detected by (1) ELISPOT (2) PCR (3) Northern blot (4) Western blot A1 : 1 A2 : 2 A3 : 3	3.0	1.00

		A4 : 4		
Objective Question				
124	11124	What will happen to immune cell development if we remove thymus from neonatal mice ? (1) B-cell maturation will be impaired (2) Both B- and T-cell maturation will be impaired (3) T-cell maturation will be impaired (4) No effect on B- and T-cell maturation A1 : 1 A2 : 2 A3 : 3 A4 : 4	3.0	1.00
Objective Question				
125	11125	A series of spontaneous point mutations that occur gradually resulting in changes in Influenza virus surface antigens over a time is called (1) genomic instability (2) antigenic shift (3) antigenic drift (4) chromosome translocation A1 : 1 A2 : 2 A3 : 3 A4 : 4	3.0	1.00
Objective Question				
126	11126	Myasthenia gravis is an autoimmune disease where patient makes antibodies for its own (1) Acetylcholine receptor protein (2) NOD1 protein (3) TLR11 protein (4) RIG-I protein A1 : 1 A2 : 2 A3 : 3 A4 : 4	3.0	1.00

Objective Question

127	11127	Match the items in List I with items in List II |	List I		List II
---	---	---	---
A.	Toll like receptor 9	I.	Recognition of unmethylated CpG dinucleotide
B.	T-helper cells	II.	Recognition of antigen with MCH II complex
C.	T-cytotoxic cells	III.	Recongnition of antigen with MCH I complex
D.	Plasmacytoid dendritic cells (pDCs)	IV.	Type I interferon (IFN) production | (1) A-II, B-III, C-I, D-IV (2) A-I, B-III, C-IV, D-II (3) A-IV, B-II, C-III, D-I (4) A-I, B-II, C-III, D-IV A1 : 1 A2 : 2 A3 : 3 A4 : 4	3.0	1.00

Objective Question

128	11128	What is the length of peptides binding to Major Histocompatibility Complex (MHC) class II molecule ? (1) 8 – 11 amino acids (2) 21 – 27 amino acids (3) 15 – 20 amino acids (4) 507 amino acids A1 : 1 A2 : 2 A3 : 3 A4 : 4	3.0	1.00

Objective Question

129	11129	Tuberculosis (TB) is caused by *Mycobacterium tuberculosis*. The TB vaccine is made using (1) *Mycobacterium tuberculosis* (2) *Mycobacterium bovis* (3) Tuberculin (4) Mycobacterial DNA	3.0	1.00

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

130 | 11130 | 3.0 | 1.00

CD4 antigen is absent on

(1) B-cells

(2) T-cells

(3) macrophage cells

(4) gamma-delta T cells

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

131 | 11131 | 3.0 | 1.00

Match the items in List I with items in List II

	List I		List II
A.	HIV	I.	RNA-dependent RNA polymerase
B.	Influenza virus	II.	dsDNA virus
C.	Hepatitis C virus	III.	Segmented RNA genome
D.	Pox virus	IV.	Reverse Transcriptase

(1) A-III, B-I, C-IV, D-II

(2) A-IV, B-I, C-II, D-III

(3) A-II, B-I, C-III, D-IV

(4) A-IV, B-III, C-I, D-II

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

132 | 11132 | 3.0 | 1.00

		Hepatitis B virus genome is (1) ssDNA (2) dsDNA (3) ssRNA (4) partially dsDNA A1 : 1 A2 : 2 A3 : 3 A4 : 4		
Objective Question				
133	11133	Herpes simplex virus maintains latency in (1) Neuronal cells (2) Liver cells (3) Epithelial cells (4) Kidney cells A1 : 1 A2 : 2 A3 : 3 A4 : 4	3.0	1.00
Objective Question				
134	11134	Pox virus replicates in the (1) Cytoplasm (2) Nucleus (3) Golgi (4) Mitochondria A1 : 1 A2 : 2 A3 : 3 A4 : 4	3.0	1.00
Objective Question				
135	11135		3.0	1.00

		Which of the following viruses is a plus-sense single-stranded RNA virus ? (1) Dengue virus (2) Rotavirus (3) Adenovirus (4) Influenza virus A1 : 1 A2 : 2 A3 : 3 A4 : 4		
Objective Question				
136	11136	In N-linked glycoproteins, carbohydrate moiety is attached to which of the following amino acids ? (1) Valine (2) Asparagine (3) Serine (4) Threonine A1 : 1 A2 : 2 A3 : 3 A4 : 4	3.0	1.00
Objective Question				
137	11137	The catalytic triad of Chymotrypsin is composed of (1) Asp, Ser, His (2) Arg, Ser, His (3) Glu, Thr, Lys (4) Glu, Asp, Tyr A1 : 1 A2 : 2 A3 : 3 A4 : 4	3.0	1.00
Objective Question				
138	11138		3.0	1.00

A mixture of proteins (A, B, C and D) is separated on a Sephadex G-200 column. The proteins elute in the order of A, B, C and D. Assuming that all proteins are globular and monomeric, the protein with minimum electrophoretic mobility on SDS-PAGE will be

(1) A
(2) B
(3) C
(4) D

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

139 | 11139 | 3.0 | 1.00

Match the items in List I with items in List II

	List I		List II
A.	β-Oxidation	I.	Ribulose Bisphosphate Carboxylase
B.	Glycolysis	II.	Phosphofructo kinase-I
C.	Gluconeogenesis	III.	Phosphoenolpyruvate carboxylase
D.	Calvin cycle	IV.	Thiolase

(1) A-III, B-IV, C-II, D-I
(2) A-II, B-IV, C-I, D-III
(3) A-IV, B-II, C-III, D-I
(4) A-III, B-II, C-IV, D-I

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

140 | 11140 | 3.0 | 1.00

Lipid Rafts are composed of the

(1) cholesterol and cardiolipin
(2) sphingolipid and cardiolipin
(3) sphingolipid and cholesterol
(4) cholesterol but no sphingolipid

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

141 | 11141 | 3.0 | 1.00

Match the items in List I with items in List II

	List I (Pollutant)		List II (Impact on environment)
A.	Carbon monoxide	I.	Greenhouse effect
B.	Hydrocarbons	II.	Photochemical smog
C.	Oxides of nitrogen	III.	Acid rain
D.	Ozone near earth's surface	IV.	Impaired plant growth

(1) A-II, B-III, C-IV, D-I

(2) A-III, B-II, C-I, D-IV

(3) A-II, B-III, C-I, D-IV

(4) A-I, B-II, C-III, D-IV

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

142 | 11142 | 3.0 | 1.00

The presence of excess nutrients in aquatic system will lead to

(1) Crustacean bloom

(2) Algal bloom

(3) Coral bloom

(4) Lotus bloom

A1 : 1

A2 : 2

A3 : 3

A4 : 4

Objective Question

143 | 11143 | 3.0 | 1.00

Which one of the following is commonly used for converting cellulose raw materials into glucose ?

(1) *Saccharomyces cerevisiae*

(2) *Acinetobacter radioresistens*

(3) *Trichoderma viride*

(4) *Bacillus amyloliquifaciens*

		A1 : 1 A2 : 2 A3 : 3 A4 : 4		
Objective Question				
144	11144	The biocide DDT (a chlorinated hydrocarbon) has a half-life of around (1) < 1 year (2) 2 – 15 years (3) 16 – 30 years (4) > 30 years A1 : 1 A2 : 2 A3 : 3 A4 : 4	3.0	1.00
Objective Question				
145	11145	Which one of the following waste treatment system is devoid of any packing material, and it recycles internal biomass based on gravity ? (1) UASB (2) FSSB (3) RBC (4) Trickling filter A1 : 1 A2 : 2 A3 : 3 A4 : 4	3.0	1.00
Objective Question				
146	11146	Which of the following is true for a water sample with a BOD value of more than 50 ppm ? (1) The DO content would be less than 6 ppm (2) The water is clean and potable (3) Aquatic life will thrive (4) The COD of the sample is 25 ppm A1 : 1 A2 : 2	3.0	1.00

		A3 : 3 A4 : 4		
Objective Question				
147	11147	The most widely used method for removing of particulate matter from gas is (1) Electrostatic precipitation (2) Chemo-osmotic precipitation (3) Magnetostatic precipitation (4) Chemo-electrostatic precipitation A1 : 1 A2 : 2 A3 : 3 A4 : 4	3.0	1.00
Objective Question				
148	11148	The acid involved in ocean acidification is (1) Carbonic acid (2) Sulphuric acid (3) Phosphoric acid (4) Nitric acid A1 : 1 A2 : 2 A3 : 3 A4 : 4	3.0	1.00
Objective Question				
149	11149	Which of the following continent is the driest one ? (1) Africa (2) Antarctica (3) Australia (4) Europe A1 : 1 A2 : 2 A3 : 3	3.0	1.00

		A4 : 4		
Objective Question				
150	11150	Enhanced CO_2 concentration in environment would lead to _____ in plants. (1) increased water uptake and reduced photosynthesis (2) increased photosynthesis and increased water demand (3) decreased photosynthesis and decreased water demand (4) decreased O_2 emission and no change in photosynthesis A1 : 1 A2 : 2 A3 : 3 A4 : 4	3.0	1.00
Objective Question				
151	11151	In plant mycorrhizal fungi association, what is the most appropriate exchange between two organisms or partners ? (1) Plant provides carbon to fungi and in return gets minerals (2) Fungi provides protein to plant and in return gets water (3) Plant provides minerals to fungi and in return gets carbon (4) Plant and fungi do not exchange anything A1 : 1 A2 : 2 A3 : 3 A4 : 4	3.0	1.00
Objective Question				
152	11152	Pattern of inheritance of flower colour in *Mirabilis jalapa* is similar to that of (1) ABO blood group in human beings (2) Flower colour in snapdragon (3) Fur colour in rabbit (4) Skin colour in human beings A1 : 1 A2 : 2 A3 : 3 A4 : 4	3.0	1.00
Objective Question				

153	11153	Given below are two statements : Statement I : In general, a higher auxin : cytokinin ratio will induce root formation under *in vitro* culture conditions in plants. Statement II : NAA is a cytokinin and BAP is an auxin. In light of the above statements, choose the most appropriate answer from the options given below. (1) Both Statement I and Statement II are correct. (2) Both Statement I and Statement II are NOT correct. (3) Statement I is correct but Statement II is not correct. (4) Statement I is not correct but Statement II is correct. A1 : 1 A2 : 2 A3 : 3 A4 : 4	3.0	1.00
Objective Question				
154	11154	Complete the following statement with the correct option *Agrobacterium*-mediated plant transformation in the laboratory (1) is not influenced by the genotype of the host plant. (2) always leads to integration of a single copy of the T-DNA in the host cell. (3) is faciliated by the use of selection marker genes to allow preferential growth of transformed cells. (4) requires the expression of opine genes for the production of transgenic plants. A1 : 1 A2 : 2 A3 : 3 A4 : 4	3.0	1.00
Objective Question				
155	11155	Which one of the following plant tissue culture techniques can be most effectively used for production of virus-free plants ? (1) Protoplast culture (2) Culture of shoot apical meristem (3) Somatic embryogenesis from calli of leaf explants (4) Production of cybrids A1 : 1 A2 : 2 A3 : 3	3.0	1.00

		A4 : 4		
Objective Question				
156	11156	A suicide plasmid vector lacks the following (1) antibiotic marker (2) origin of replication (3) multiple cloning sites (4) site for integration A1 : 1 A2 : 2 A3 : 3 A4 : 4	3.0	1.00
Objective Question				
157	11157	Animal gut does NOT possess the enzymes required for digesting (1) glycogen (2) starch (3) cellulose (4) proteins A1 : 1 A2 : 2 A3 : 3 A4 : 4	3.0	1.00
Objective Question				
158	11158	Foreign DNA can NOT be transferred into a zygote by which one of the following methods ? (1) Transduction (2) Microinjection (3) Electroporation (4) Conjugation A1 : 1 A2 : 2 A3 : 3 A4 : 4	3.0	1.00

Objective Question

159	11159	Leptin receptor is primarily present in the following tissue (1) Hepatic (2) Muscle (3) Adipose (4) Neuronal A1 : 1 A2 : 2 A3 : 3 A4 : 4	3.0	1.00

Objective Question

160	11160	Match the items in List I with items in List II (1) A-II, B-IV, C-III, D-I (2) A-III, B-II, C-IV, D-I (3) A-I, B-III, C-IV, D-II (4) A-II, B-III, C-IV, D-I A1 : 1 A2 : 2 A3 : 3 A4 : 4	3.0	1.00

	List I		List II
A.	Beriberi	I.	Cobalamin
B.	Megaloblastic Anemia	II.	Thiamin
C.	Scurvy	III.	Folic acid
D.	Pernicious Anemia	IV.	Ascorbic Acid

NATIONAL TESTING AGENCY

GRADUATE APTITUDE TEST- BIOTECHNOLOGY 2024

EXAM DATE 20.04.2024 **SHIFT** I

QUESTION ID	Correct Answer	QUESTION ID	Correct Answer	QUESTION ID	Correct Answer
11001	3	11035	3	11069	1
11002	2	11036	3	11070	4
11003	4	11037	4	11071	1
11004	3	11038	1	11072	2
11005	1	11039	3	11073	1
11006	3	11040	2	11074	4
11007	4	11041	1	11075	1
11008	4	11042	4	11076	4
11009	3	11043	3	11077	3
11010	2	11044	3	11078	3
11011	3	11045	4	11079	3
11012	2	11046	3	11080	2
11013	2	11047	1	11081	1
11014	1	11048	4	11082	2
11015	3	11049	3	11083	1
11016	4	11050	1	11084	1
11017	4	11051	4	11085	2
11018	1	11052	3	11086	2
11019	1	11053	2	11087	2
11020	2	11054	3	11088	3
11021	1	11055	3	11089	3
11022	1	11056	4	11090	3
11023	1	11057	2	11091	1
11024	4	11058	1	11092	1
11025	3	11059	1	11093	1
11026	2	11060	1	11094	1
11027	2	11061	4	11095	1
11028	2	11062	1	11096	2
11029	4	11063	3	11097	4
11030	3	11064	4	11098	1
11031	3	11065	4	11099	3
11032	4	11066	4	11100	1
11033	2	11067	4	11101	4
11034	2	11068	2	11102	1

QUESTION ID	Correct Answer	QUESTION ID	Correct Answer
11103	3	11137	1
11104	4	11138	1
11105	3	11139	3
11106	4	11140	3
11107	3	11141	4
11108	3	11142	2
11109	3	11143	3
11110	4	11144	2
11111	3	11145	1
11112	2	11146	1
11113	2	11147	1
11114	1	11148	1
11115	3	11149	2
11116	2	11150	2
11117	3	11151	1
11118	1	11152	2
11119	3	11153	3
11120	3	11154	3
11121	1	11155	2
11122	1	11156	2
11123	4	11157	3
11124	3	11158	4
11125	3	11159	4
11126	1	11160	4
11127	4		
11128	3		
11129	2		
11130	1		
11131	4		
11132	4		
11133	1		
11134	1		
11135	1		
11136	2		