English

(1016CMD303031230110)

Test Pattern

ALLEN CAREER INSTITUTE KOTA (RAJASTHAN) path to success

CLASSROOM CONTACT PROGRAMME

(Academic Session : 2023-2024)

NEET (UG)
MAJOR
02-05-2024

PRE-MEDICAL : ENTHUSIAST, LEADER & ACHIEVER COURSE PHASE - ALL PHASE

Test Booklet Code

L15

This Booklet contains **28** pages.

Do not open this Test Booklet until you are asked to do so.

Important Instructions :

1. The Answer Sheet is inside this Test Booklet. When you are directed to open the Test Booklet, take out the Answer Sheet and fill in the particulars on ORIGINAL Copy carefully with **blue/black** ball point pen only.
2. The test is of **3 hours 20 minutes** duration and the Test Booklet contains **200** multiple-choice questions (four options with a single correct answer) from **Physics, Chemistry and Biology (Botany and Zoology). 50** questions in each subject are divided into **two Sections (A and B)** as per details given below :
   (a) **Section A** shall consist of **35 (Thirty-five)** Questions in each subject (Question Nos - 1 to 35, 51 to 85, 101 to 135 and 151 to 185). All questions are compulsory.
   (b) **Section B** shall consist of **15 (Fifteen)** questions in each subject (Question Nos - 36 to 50, 86 to 100, 136 to 150 and 186 to 200). In Section B, a candidate needs to **attempt any 10 (Ten)** questions out of **15 (Fifteen)** in each subject.
   Candidates are advised to read all 15 questions in each subject of Section B before they start attempting the question paper. In the event of a candidate attempting more than ten questions, **the first ten questions answered by the candidate shall be evaluated.**
3. Each question carries **4** marks. For each correct response, the candidate will get **4** marks. For each incorrect response, **one mark** will be deducted from the total scores. **The maximum marks are 720**.
4. Use **Blue/Black Ball Point Pen only** for writing particulars on this page/marking responses on Answer Sheet.
5. Rough work is to be done in the space provided for this purpose in the Test Booklet only.
6. On completion of the test, the candidate **must hand over the Answer Sheet (ORIGINAL and OFFICE Copy) to the Invigilator** before leaving the Room/Hall. The candidates are allowed to take away this Test Booklet with them.
7. The candidates should ensure that the Answer Sheet is not folded. Do not make any stray marks on the Answer Sheet. Do not write your Form No. anywhere else except in the specified space in the Test Booklet/Answer Sheet.
8. Use of white fluid for correction is **NOT** permissible on the Answer Sheet.
9. Each candidate must show on-demand his/her Allen ID Card to the Invigilator.
10. No candidate, without special permission of the Invigilator, would leave his/her seat.
11. The candidates should not leave the Examination Hall without handing over their Answer Sheet to the Invigilator on duty and sign (with time) the Attendance Sheet **twice. Cases, where a candidate has not signed the Attendance Sheet second time, will be deemed not to have handed over the Answer Sheet and dealt with as an Unfair Means case.**
12. Use of Electronic/Manual Calculator is prohibited.
13. The candidates are governed by all Rules and Regulations of the examination with regard to their conduct in the Examination Room/Hall. All cases of unfair means will be dealt with as per the Rules and Regulations of this examination.
14. **No part of the Test Booklet and Answer Sheet shall be detached under any circumstances.**
15. The candidates will write the Correct Test Booklet Code as given in the Test Booklet/Answer Sheet in the Attendance Sheet.
16. Compensatory time of one hour five minutes will be provided for the examination of three hours and 20 minutes duration, whether such candidate (having a physical limitation to write) uses the facility of scribe or not.

Name of the Candidate (in Capitals) : _____

Form Number : in figures _____

: in words _____

Centre of Examination (in Capitals) : _____

Candidate's Signature : _____ **Invigilator's Signature :** _____

Your Target is to secure Good Rank in Pre-Medical 2024

Topic : FULL SYLLABUS

SECTION-A (PHYSICS)

1. As per Bohr's model, the minimum energy (in eV) required to remove an electron from the ground state of double ionised Li atom (z = 3) is:-

(1) 1.51 (2) 13.6

(3) 40.8 (4) 122.4

2. Fusion reaction takes place at high temperature because:

(1) Molecules break up at high temperature.

(2) Nuclei break up at high temperature.

(3) Atoms get ionised at high temperature.

(4) Kinetic energy is high enough to overcome the coulomb repulsion between nuclei.

3. The order of magnitude of the density of nuclear matter is -

(1) 10^4 kg/m^3 (2) 10^{17} kg/m^3

(3) 10^{27} kg/m^3 (4) 10^{34} kg/m^3

4. An alpha particle is a accelerated through a potential difference of 100V. To have same de-Broglie wavelength what potential difference must be applied across singly ionised $_4Be^8$ atom :-

(1) 200V (2) 25V

(3) 100V (4) 50V

5. Light described at a place by the equation

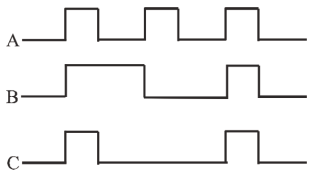
$\varepsilon=(100\ V/m)[\sin(5\times10^{15}s^{-1})t+\sin(8\times10^{15}s^{-1})t]$

falls on a metal surface having work function 2 eV. Calculate the maximum kinetic energy of the photo electrons.

(1) 5.27 eV (2) 1.71 eV

(3) 3.27 eV (4) 0.854 eV

6. For a logic gate A & B are input and C is output voltage waveform then logic gate is :-



(1) OR (2) AND

(3) NOR (4) NAND

7. The width of depletion region in PN–junction diode is 500 nm and an internal electric field is 6×10^5 V/m. What is the kinetic energy which a conduction electron must have in order to diffuse from the N side to P side :-

(1) 0.03 eV (2) 0.3 eV

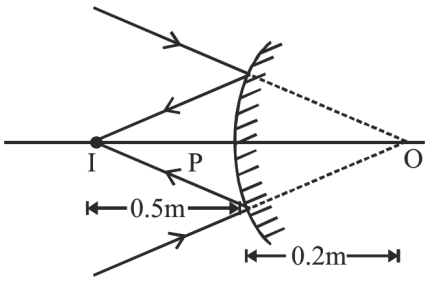
(3) 0.45 eV (4) 0.6 eV

8. Two thin lenses of power +15D and –5D are placed coaxially in contact with each other. Then position of images of an object placed at 20 cm from the combination will be :

(1) +10 cm (2) –10 cm

(3) +20 cm (4) –20 cm

9. A beam of convergent light converges to a point 0.5 m in front of the mirror after reflection from convex mirror but in the absence of mirror the beam converges to a point 0.2m behind the mirror. The radius of curvature of the mirror is:-



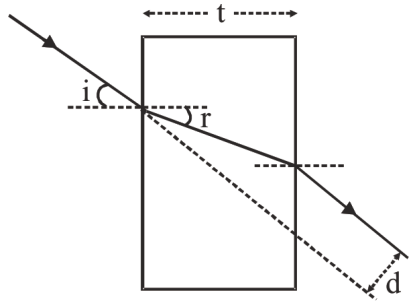
(1) 20 cm

(2) 50 cm

(3) 66.67 cm

(4) 28.57 cm

10. A ray of light is incident on a thick slab of glass of thickness t as shown in the figure. The emergent ray is parallel to the incident ray but displaced sideways by a distance d. If the angles are small then d is. :-



(1) $t\left(1-\frac{i}{r}\right)$

(2) $rt\left(1-\frac{i}{r}\right)$

(3) $it\left(1-\frac{r}{i}\right)$

(4) $t\left(1-\frac{r}{i}\right)$

11. A parallel monochromatic beam of light is incident normally on a narrow slit. A diffraction pattern is formed on a screen placed perpendicular to the direction of incident beam. At the first minima of the diffraction pattern the phase difference between the rays coming from the edges of the slit is :-

(1) 0 (2) $\frac{\pi}{2}$ (3) π (4) 2π

12. For a gas molecule, its degree of freedom for translation is 3, for rotation is 2 and for vibration is 2. If its rotational K.E is related to total energy (E) by, $K.E_R = nE$, then n would be:

(1) $\frac{3}{2}$ (2) $\frac{7}{2}$

(3) $\frac{3}{7}$ (4) $\frac{2}{7}$

13. A black body, at a temperature of 227°C radiates heat at a rate of 7 cal cm^{-2} s^{-1}. At a temperature of 727°C, the rate of heat radiated in the same units will be :–

(1) 80 (2) 60 (3) 50 (4) 112

14. Displacement of a particle is
$x = 3\sin 2t + 4\cos 2t$,
then amplitude and the maximum velocity will be :–

(1) 5, 10 (2) 3, 2

(3) 4, 2 (4) 3, 8

15. The equation of a plane progressive wave is

$$y = 0.09\sin 8\pi\left(t-\frac{x}{20}\right)$$

When it is reflected at rigid supports, its amplitude becomes (2/3)rd of its previous value. The equation of the reflected wave is :

(1) $y = 0.09\sin\pi\left(t-\frac{x}{20}\right)$

(2) $y = 0.06\sin\pi\left(t-\frac{x}{20}\right)$

(3) $y = 0.06\sin 8\pi\left(t+\frac{x}{20}\right)$

(4) $y = -0.06\sin 8\pi\left(t+\frac{x}{20}\right)$

16. Which of the following is not a property of a charge ?

(1) Charge is quantised

(2) Charge remains conserved

(3) With change in velocity $\frac{q}{m}$ is not changed

(4) Charge is additive

17. An α particle and a proton are accelerated from rest through the same potential difference. The ratio of linear momentum acquired by above two particles will be :

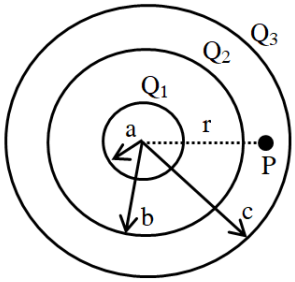
(1) $\sqrt{2}$: 1

(2) $2\sqrt{2}$: 1

(3) $4\sqrt{2}$: 1

(4) 8 : 1

18. Three concentric spherical conductors are arranged as shown in figure.



The potential at point P will be :

(1) $\frac{1}{4\pi\varepsilon_0}\left[\frac{Q_1}{r}+\frac{Q_2}{r}+\frac{Q_3}{r}\right]$

(2) $\frac{1}{4\pi\varepsilon_0}\left[\frac{Q_1+Q_2}{r}+\frac{Q_3}{c}\right]$

(3) $\frac{1}{4\pi\varepsilon_0}\left[\frac{Q_1}{a}+\frac{Q_2}{b}+\frac{Q_3}{c}\right]$

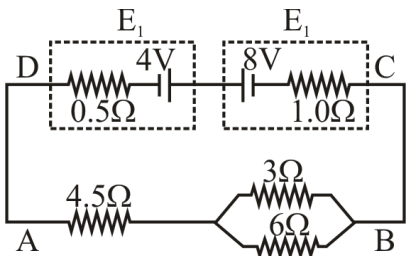
(4) None of these

19. Two identical capacitors, have the same capacitance C. One of them is charged to potential V_1 and the other to V_2. The negative ends of the capacitors are connected together. When the positive ends are also connected, the decrease in energy of the combined system is :-

(1) $\frac{1}{4}C(V_1^2 - V_2^2)$ (2) $\frac{1}{4}C(V_1^2 + V_2^2)$

(3) $\frac{1}{4}C(V_1 - V_2)^2$ (4) $\frac{1}{4}C(V_1 + V_2)^2$

20. In the given circuit, calculate the value of current in 4.5 Ω resistor :-



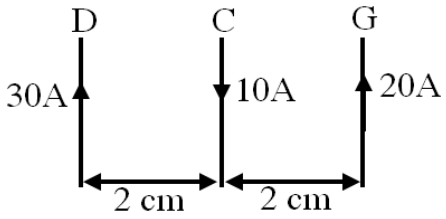
(1) 1 A

(2) 1.5 A

(3) 0.25 A

(4) 0.5 A

21. Three long straight parallel wires, carrying current, are arranged as shown in figure. The force experienced by 25 cm length of wire C is :-



(1) 10^{-3} N (2) 2.5×10^{-3} N

(3) 2.5×10^{-4} N (4) 1.5×10^{-3} N

22. Points A and B are situated perpendicular to the axis of a 2cm long bar magnet at large distances x and 3x from its centre on opposite sides. The ratio of the magnetic fields at A and B will be approximately equal to

(1) 1 : 9 (2) 2 : 9 (3) 27 : 1 (4) 9 : 1

23. A wire loop is rotated in magnetic field. The frequency of change of direction of magnetic flux linked with the loop.

(1) Six times per revolution

(2) Once per revolution

(3) Twice per revolution

(4) Four times per revolution

24. An electromagnetic wave is propagating along Y-axis. Then-

(1) Oscillating electric field is along X-axis and oscillating magnetic field is along Y-axis.

(2) Oscillating electric field is along Z-axis and oscillating magnetic field is along X-axis.

(3) Both oscillating electric and magnetic fields are along Y-axis, but phase difference between them is 90°.

(4) Both oscillating electric and magnetic fields are mutually perpendicular in arbitrary directions.

25. The pitch of the screw gauge is 0.2 mm. Its circular scale contains 100 division. The least count of the screw gauge is:

(1) 0.001 mm (2) 0.01 mm

(3) 0.002 mm (4) 0.02 mm

26. A car travels a distance d on a straight road in two hours and then returns to the starting point in next three hours. Its average speed and average velocity is :

(1) $\frac{d}{5}$, 0

(2) $\frac{2d}{5}$, 0

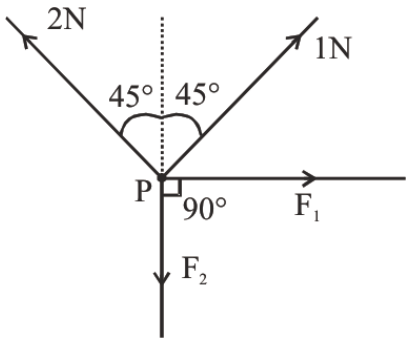
(3) $\frac{5d}{6}$, $\frac{d}{5}$

(4) None of these

27. The equation of projectile is $y = 16x - \frac{x^2}{4}$ then the horizontal range is.

(1) 16 m (2) 8 m (3) 64 m (4) 12.8 m

28. There are four forces acting at a point P produced by strings as shown in figure, which is at rest. The forces F_1 and F_2 are :-



(1) $\frac{1}{\sqrt{2}}$N, $\frac{3}{\sqrt{2}}$N

(2) $\frac{3}{\sqrt{2}}$N, $\frac{1}{\sqrt{2}}$N

(3) $\frac{1}{\sqrt{2}}$N, $\frac{1}{\sqrt{2}}$N

(4) $\frac{3}{\sqrt{2}}$N, $\frac{3}{\sqrt{2}}$N

29. A man of mass 80 kg stands on a plank of mass 40 kg. The plank is lying on a smooth horizontal floor. Initially both are at rest. The man starts walking on the plank towards north and stops after moving a distance of 6 m on the plank. Then

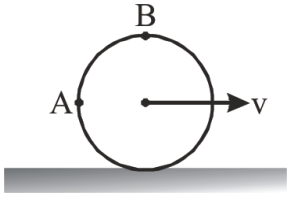
(1) The centre of mass of plank-man system will move with constant velocity

(2) The plank will slide to the north by a distance 4 m

(3) The plank will slide to the south by a distance 4 m

(4) The plank will slide to the south by a distance 12 m

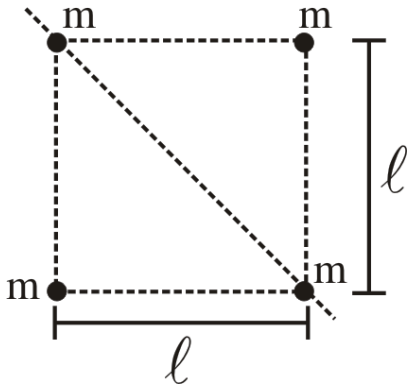
30. A ring is rolling on a rough horizontal surface without slipping with a linear speed v. The ratio of speeds of points B and A is :-



(1) 1 : 1 (2) 1 : 2

(3) $\sqrt{2}$: 1 (4) 1 : $\sqrt{2}$

31. Find moment of inertia of system about diagonal of square :-



(1) $2m\ell^2$ (2) $m\ell^2$

(3) $\frac{m\ell^2}{2}$ (4) $\frac{m\ell^2}{\sqrt{2}}$

32. If the radius of the earth were to shrink by 1% and its mass remaining the same, the acceleration due to gravity on the earth's surface would :-

(1) Decrease by 2%

(2) Remain unchanged

(3) Increase by 2%

(4) Becomes zero

33. A steel wire of cross-sectional area 3×10^{-6} m^2 can withstand a maximum strain of 10^{-3}. Young's modulus of steel is 2×10^{11} N/m^2. The maximum mass this wire can hold is :-

(1) 40 Kg

(2) 60 Kg

(3) 80 Kg

(4) 100 Kg

34. Water is flowing with velocity 4m/s in a cylinder of diameter 8cm, it is connected to a pipe with it end tip of diameter 2cm, calculate the velocity of water at this free end :-

(1) 4 m/s

(2) 8 m/s

(3) 32 m/s

(4) 64 m/s

35. When 10^6 smaller drops of a liquid are combined to form a new bigger drop, then its -

(1) density will decrease

(2) density will increase

(3) temperature will increase

(4) temperature will decrease

SECTION-B (PHYSICS)

36. ***Assertion*** **(A)** ***:-*** For best contrast between maxima and minima in the interference pattern of Young's double slit experiment, the intensity of light emerging out of the two slits should be equal.

Reason **(R)** ***:-*** The intensity of interference pattern is directly proportional to the square of amplitude.

(1) Both **(A)** and **(R)** are correct but **(R)** is not the correct explanation of **(A)**

(2) **(A)** is correct but **(R)** is not correct

(3) **(A)** is incorrect but **(R)** is correct

(4) Both **(A)** and **(R)** are correct but **(R)** is the correct explanation of **(A)**

37. In a heat engine, the temperature of the source and sink are 500 K and 375 K. If the engine consumes 25×10^5 J per cycle, the work done per cycle is:

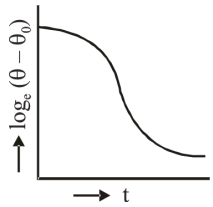
(1) 6.25×10^5 J

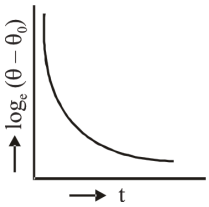
(2) 3×10^5 J

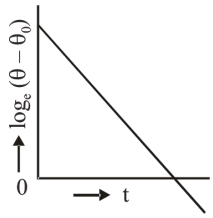
(3) 2.19×10^5 J

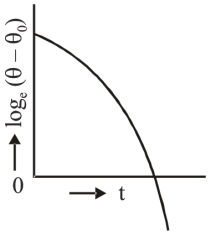
(4) 4×10^4 J

38. A liquid in a beaker has temperature $\theta(t)$ at time t and θ_0 is temperature of surroundings, then according to Newton's law of cooling the correct graph between $\log_e(\theta - \theta_0)$ and t is:

(1) 

(2) 

(3) 

(4) 

39. A particle at the end of a spring executes simple harmonic motion with a period t_1, while the corresponding period for another spring is t_2. If the period of oscillation with the two springs in series is T, then -

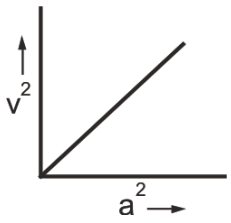
(1) $T = t_1 + t_2$

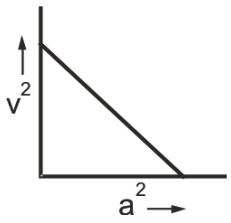
(2) $T^2 = t_1^2 + t_2^2$

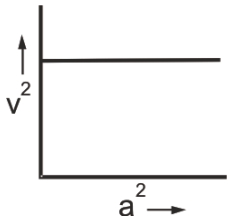
(3) $T^{-1} = t_1^{-1} + t_2^{-1}$

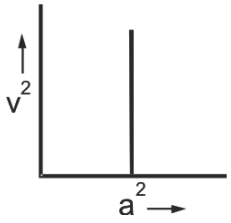
(4) $T^{-2} = t_1^{-2} + t_2^{-2}$

40. A mass M is performing linear simple harmonic motion, then correct graph for acceleration 'a' and corresponding linear velocity 'v' is

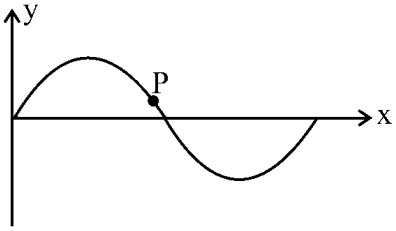
(1) 

(2) 

(3) 

(4) 

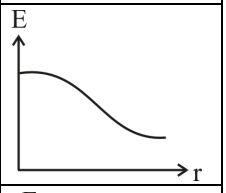
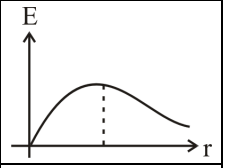
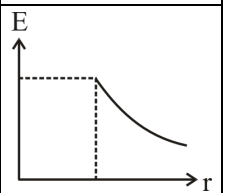
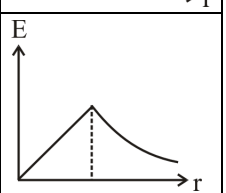
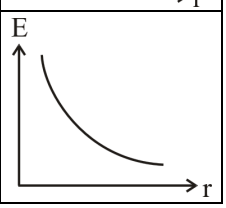
41. A transverse sinusoidal wave moves along a string in the positive x-direction at a speed of 10 cm/s. The wavelength of the wave is 0.5 m and its amplitude is 10 cm. At a particular time t, the snap shot of the wave is shown in figure. The velocity of P when its displacement is 5 cm is :



(1) $\frac{\sqrt{3}\pi}{50}\hat{i}$ m/s (2) $-\frac{\sqrt{3}\pi}{50}\hat{j}$ m/s

(3) $\frac{\sqrt{3}\pi}{50}\hat{j}$ m/s (4) $-\frac{\sqrt{3}\pi}{50}\hat{i}$ m/s

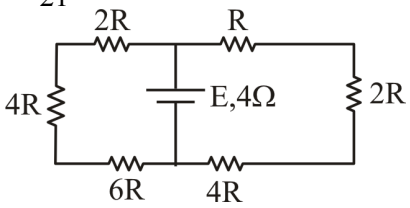
42. Column-II corresponds to the graph of magnitude of electric field v/s distance from centre of charge distribution in Column-I

	Column-I		Column-II
(A)	Charged ring along its axis	(P)	
(B)	Uniformly charged non-conducting solid sphere	(Q)	
(C)	Uniformly charged spherical shell	(R)	
(D)	Point charge	(S)	
		(T)	

(1) A-P, B-S, C-R, D-T (2) A-P, B-R, C-S, D-T

(3) A-Q, B-R, C-S, D-T (4) A-Q, B-S, C-R, D-T

43. A battery of internal resistance 4Ω is connected to the network of the resistance as shown in the figure. To deliver maximum power to the network the magnitude of resistance R in Ω should be $\frac{x}{21}$. Find x.



(1) 16 (2) 17

(3) 19 (4) 23

44. A transformer having efficiency of 90% is working on 200V and 3kW power supply. If the current in the secondary coil is 6A, the voltage across the secondary coil and the current in the primary coil respectively are :-

(1) 300 V, 15A (2) 450 V, 15A

(3) 450V, 13.5A (4) 600V, 15A

45. A series LCR circuit containing 8.0 H inductor, 50 μF capacitor and 80 Ω resistor is connected to 220 V variable frequency ac source. The angular frequencies of the source at which power transferred to the circuit is half the power at resonant angular frequency are likely to be:

(1) 25 rad/s and 75 rad/s

(2) 30 rad/s and 50 rad/s

(3) 40 rad/s and 60 rad/s

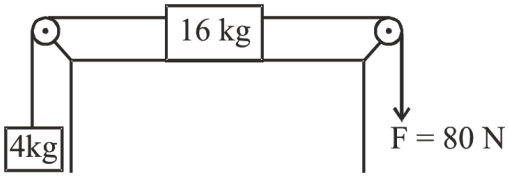
(4) 45 rad/s and 55 rad/s

46. A body is thrown up in a lift with a velocity u relative to the lift and the time of flight is found to be 't'. The acceleration with which the lift is moving up will be-

(1) $\frac{u-gt}{t}$ (2) $\frac{u+gt}{t}$

(3) $\frac{2u-gt}{t}$ (4) $\frac{2u+gt}{t}$

47. Find acceleration of given system.



(1) 2 m/s^2 (2) 3 m/s^2

(3) 4 m/s^2 (4) 5 m/s^2

48. **Statement-I:-** A person walking on a horizontal road with a load on his head does no work on the load against gravity.

Statement-II:- No work is said to be done, if directions of force and displacement are perpendicular to each other.

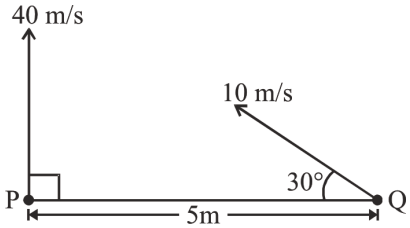
(1) Statement I is incorrect but statement II is correct

(2) Statement I is correct but statement II is incorrect

(3) Both statements I and II are incorrect

(4) Both statements I and II are correct

49. What is the angular velocity of particle P w.r.t. the particle Q in the arrangement shown in figure ?



(1) 3 rad/s (2) 7 rad/s

(3) 10 rad/s (4) 15 rad/s

50. A body is projected up with $\frac{1}{4}$th the escape velocity from earth's surface. The height reached by the body is:

(1) $\frac{R}{16}$ (2) $\frac{15R}{16}$

(3) $\frac{R}{15}$ (4) $\frac{16R}{15}$

Topic : FULL SYLLABUS

SECTION-A (CHEMISTRY)

51. Which of the following species are amphoteric :
(I) $Al(OH)_3$ (II) $Ba(OH)_2$ (III) $Zn(OH)_2$

(1) I only (2) I, II only

(3) I & III only (4) II & III only

52. **Assertion :-** Group 17 elements (Halogens) have very high negative electron gain enthalpies.
Reason :- They can attain stable noble gas electronic configuration by picking up an electron.

(1) Both Assertion and Reason are true but Reason is NOT the correct explanation of Assertion.

(2) Both Assertion and Reason are true and Reason is the correct explanation of Assertion.

(3) Assertion is true but Reason is false.

(4) Assertion is false but Reason is true.

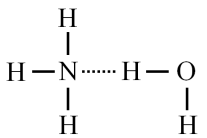
53. Match the column -

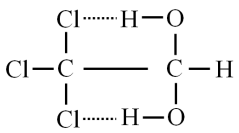
Order		Property	
(a)	Cl > P > S > Si	(i)	Electronegativity
(b)	B > Tl > In > Aℓ	(ii)	Ionisation energy
(c)	Cl > F > S > O	(iii)	Electron-affinity
(d)	Cl > P > Na > Cs	(iv)	Non-Metallic character

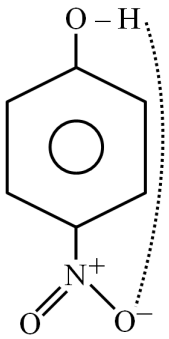
(1) a-i, b-ii, c-iii, d-iv (2) a-iv, b-iii, c-ii, d-i

(3) a-ii, b-i, c-iii, d-iv (4) a-iv, b-ii, c-i, d-iii

54. The incorrect representation of hydrogen bonding in :

(1) 

(2) 

(3) 

(4) F^- -------- H – F

55. Which of the following complex show geometrical isomerism?

(1) $[Cr(H_2O)_4Cl_2]^+$ (2) $[Pt(NH_3)_3Cl]^+$

(3) $[Co(NH_3)_6]^{+3}$ (4) $[(Co(CN)_5(NC)]^{-3}$

56. If $Cr(CO)_x$ follows Sidwick EAN rule then value of x is :

(1) x = 4 (2) x = 5

(3) x = 3 (4) x = 6

57. Which of the following is **INCORRECT.**

(1) M.P. $\longrightarrow$ Cr < Mo < W

(2) Heat of atomisation $\longrightarrow$ V > Mn > Zn

(3) Oxidising power $\longrightarrow CrO_4^{2-} < MoO_4^{2-} < WO_4^{2-}$

(4) Stability $\longrightarrow CrO_4^{2-} < MoO_4^{2-} < WO_4^{2-}$

58. $\underset{\text{Blue coloured ore}}{X} \xrightarrow[\text{air}]{KOH} \underset{\text{Dark green}}{Y} \xrightarrow{H^+} \underset{\text{Oxidising agent}}{Z + X}$

True Statement is -

(1) X can't be MnO_2

(2) Y can be $KMnO_4$

(3) Z can be K_2MnO_4

(4) X is MnO_2 & Y is K_2MnO_4

59. Formula of oxide and halide of lanthanoid may be :

(1) Ln_2O_3, LnX_3 (2) LnO, LnX

(3) Ln_2O_5, LnX_2 (4) Ln_2O_5, LnX_5

60. Peroxo bond (–O–O–) is present in
(i) Na_2O_2 (ii) CrO_5
(iii) PbO_2 (iv) SrO_2

(1) (i, ii, iv) (2) (i, ii, iii, iv)

(3) (i, ii, iii) (4) (ii, iii, iv)

61. On flame test Ba^{+2} give _____ Colour :-

(1) Golden yellow (2) Violet

(3) Apple Green (4) Crimson Red

62. A sodium salt on treatment with $MgCl_2$ gives white precipitate only on heating. The anion of the sodium salt is :

(1) HCO_3^-

(2) CO_3^{2-}

(3) NO_3^-

(4) SO_4^{2-}

63. Consider the following sets of quantum numbers :-

	n	ℓ	m	s
(i)	3	0	0	+1/2
(ii)	2	2	1	+1/2
(iii)	4	3	−2	−1/2
(iv)	1	0	−1	−1/2
(v)	3	2	3	+1/2

Which of the following sets of quantum numbers is not possible ?

(1) (i) and (iii)

(2) (ii), (iii) and (iv)

(3) (i), (ii), (iii) and (iv)

(4) (ii), (iv) and (v)

64. Assuming the reaction $A_2(g) + B_2(g) \rightleftharpoons C(g)$ to be exothermic, the yield of the product (C) increases with :-

(a) Increase of temperature

(b) Increase of pressure

(c) Addition of catalyst

(d) Addition of inert gas at constant volume

(e) Removal of (C)

(1) a, b, c, d

(2) Only b

(3) b & e

(4) a & e

65. The rate of disappearance of Q in the reaction: $2P + Q \longrightarrow 2R + 3S$ is 2×10^{-2} mol $L^{-1}s^{-1}$. Which of the following relation is not true ?

(1) $-\frac{d[P]}{dt} = 4 \times 10^{-2}$ mol $L^{-1}s^{-1}$

(2) $+\frac{d[S]}{dt} = 6 \times 10^{-2}$ mol $L^{-1}s^{-1}$

(3) $+\frac{1}{2}.\frac{d[R]}{dt} = 2 \times 10^{-2}$ mol $L^{-1}s^{-1}$

(4) $+\frac{d[R]}{dt} = 2 \times 10^{-2}$ mol $L^{-1}s^{-1}$

66. **Assertion (A) :-** For mercury cell, the cell potential is approximately 1.35 V and remains constant during its life.

Reason (R) :- The overall cell reaction of mercury cell does not involve any ion in solution whose concentration can change during its life time.

(1) Both (A) and (R) are correct but (R) is not the correct explanation of (A)

(2) (A) is correct but (R) is not correct

(3) (A) is incorrect but (R) is correct

(4) Both (A) and (R) are correct and (R) is the correct explanation of (A)

67. The K_{sp} of $PbCl_2$ is 4×10^{-6}. Its solubility in 0.1 M NaCl solution is :-

(1) 4×10^{-4} M (2) 4×10^{-5} M

(3) 4×10^{-6} M (4) 4×10^{-7} M

68. Total vapour pressure of mixture of 1 mol X(P_X^o = 150 torr) and 2 mol Y(P_Y^o = 300 torr) is 240 torr. Then for this solution, correct statement is :

(1) There is a negative deviation from Raoult's law

(2) There is a positive deviation from Raoult's law

(3) There is no deviation from Raoult's law

(4) Can not be determined

69. The total number of atoms present in 56 millilitre of phosphine gas (PH_3) at STP is :-

(1) 6.02×10^{22} (2) 6.02×10^{21}

(3) 1.505×10^{21} (4) 4.515×10^{21}

70. What is colour of starch iodine complex formed in kinetic study of reaction between I^- & H_2O_2 at room temperature ?

(1) Yellow (2) Blue (3) Green (4) Red

71. Match the column :-

	Column-A (Compound)		Column-B (Oxidation number of underline elements)
(p)	$Na_2\underline{O}_2$	(i)	-3
(q)	$\underline{N}H_3$	(ii)	-1
(r)	$\underline{S}O_2$	(iii)	-4
(s)	$\underline{C}H_4$	(iv)	$+4$

(1) p-(i), q-(ii), r-(iii), s-(iv)

(2) p-(ii), q-(iii), r-(iv), s-(i)

(3) p-(ii), q-(i), r-(iv), s-(iii)

(4) p-(iii), q-(ii), r-(i), s-(iv)

72. Which of the following reactions satisfy following conditions?

(a) Heat of combustion reaction

(b) Heat of formation reaction

(c) An exothermic reaction

(d) Not a Neutralization reaction

(1) $C_{graphite} + O_2(g) \longrightarrow CO_2(g)$

(2) $2H_2(g) + O_2(g) \longrightarrow 2H_2O(\ell)$

(3) $N_2(g) + 3H_2(g) \longrightarrow 2NH_3(g)$

(4) $C_{diamond} + O_2(g) \longrightarrow CO_2(g)$

73. The elevation in boiling point of a solution containing 1.8 g of glucose in 100 g of a solvent is 0.1°C. The molal elevation constant of the solvent is :-

(1) 10 K kg/mol (2) 1 K kg/mol

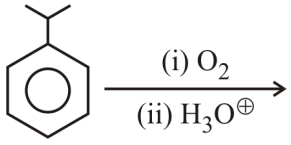
(3) 0.01 K kg/mol (4) 0.1 K kg/mol

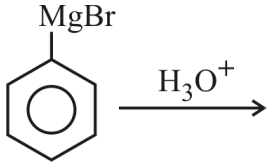
74. The work done by the gas during the expansion from a volume of 4 dm^3 to 6 dm^3 against a constant external pressure of 3 atm is : (1L atm = 101.32 J)

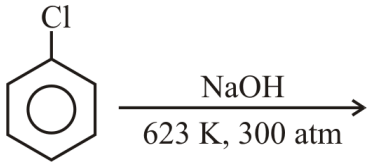
(1) +304 J (2) −304 J

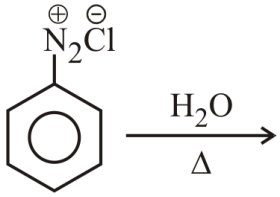
(3) −6 J (4) 608 J

75. In which of the following reaction, phenol is not obtained :-

(1) 

(2) 

(3) 

(4) 

76. α-D-(+) glucopyranose and β-D-(+) glucopyranose are :-

(1) homomers (2) anomers

(3) enatiomers (4) conformers

77. **Statement-1:** Ammonolysis of alkyl halides is not a suitable method for the preparation of pure primary amines.

Statement-2: Ammonolysis of alkyl halides yields mainly secondary amines.

(1) Both the statements are true and statement-2 is the correct explanation of statement-1.

(2) Both the statements are true but statement-2 is not the correct explanation of statement-1.

(3) Statement-1 is True and statement-2 is False.

(4) Statement-1 is False and statement-2 is True.

78. $C_6H_6 \xrightarrow[AlCl_3]{CH_3COCl} A \xrightarrow[\text{Ethylene glycol}]{NH_2-NH_2/OH^-} B$

The end product in the above sequence is :

(1) Toluene

(2) Ethyl Benzene

(3) Nitrobenzene

(4) None

79. Match list - I and List - II.

List-I	List-II
(a) $R-\overset{\overset{O}{\|}}{C}-Cl \rightarrow R-CHO$	(i) Br_2/NaOH
(b) $R-CH_2-COOH \rightarrow R-\underset{\underset{Cl}{\|}}{CH}-COOH$	(ii) H_2/Pd–$BaSO_4$
(c) $R-\overset{\overset{O}{\|}}{C}-NH_2 \rightarrow R-NH_2$	(iii) Zn(Hg)/Conc.HCl
(d) $R-\overset{\overset{O}{\|}}{C}-CH_3 \rightarrow R-CH_2-CH_3$	(iv) Cl_2/Red P, H_2O

Choose the correct answer from the options given below :

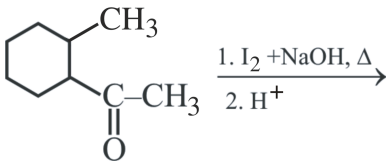
(1) (a)–(ii), (b)–(i), (c)–(iv), (d)–(iii)

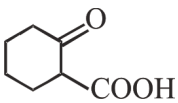
(2) (a)–(iii), (b)–(iv), (c)–(i), (d)–(ii)

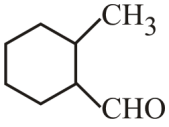
(3) (a)–(ii), (b)–(iv), (c)–(i), (d)–(iii)

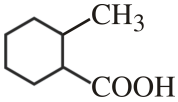
(4) (a)–(iii), (b)–(i), (c)–(iv), (d)–(ii)

80. End products of the following sequence of reactions are :



(1) yellow ppt. of CHI_3, 

(2) yellow ppt. of CHI_3, 

(3) yellow ppt. of CHI_3, 

(4) yellow ppt. of CHI_3, 

81. Which of the following can not be used to distinguish Propanal and Acetone :-

(1) Tollen's reagent (2) Fehling's test

(3) 2,4-DNP (4) Iodoform

82. $CH_3-\underset{\underset{CH_3}{|}}{CH}-\underset{\underset{OH}{|}}{CH}-CH_3 \xrightarrow{HBr}$ Major product is :-

(1) $CH_3-\underset{\underset{CH_3}{|}}{CH}-CH_2-\overset{\overset{Br}{|}}{CH_2}$

(2) $CH_3-\underset{\underset{CH_3}{|}}{CH}-\underset{\underset{Br}{|}}{CH}-CH_3$

(3) $CH_3-\overset{\overset{Br}{|}}{\underset{\underset{CH_3}{|}}{C}}-CH_2-CH_3$

(4) $\overset{\overset{Br}{|}}{CH_2}-CH-CH_2-CH_3$ (CH3 branch)

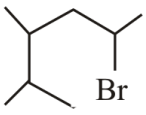
83. $CH_3-\overset{\overset{CH_3}{|}}{\underset{\underset{CH_3}{|}}{C}}-O-CH_3 \xrightarrow{HI} A + B$

(1) $CH_3-\overset{\overset{CH_3}{|}}{\underset{\underset{CH_3}{|}}{C}}-I$, CH_3-OH

(2) $CH_3-\overset{\overset{CH_3}{|}}{\underset{\underset{CH_3}{|}}{C}}-OH$, CH_3-I

(3) $CH_2=\overset{\overset{CH_3}{|}}{C}-CH_3$, $CH_3-O-\underset{\underset{I}{|}}{CH_2}$

(4) $\underset{\underset{I}{|}}{CH_2}-\overset{\overset{CH_3}{|}}{\underset{\underset{CH_3}{|}}{C}}-O-CH_3$, $\underset{\underset{I}{|}}{CH_2}-OH$

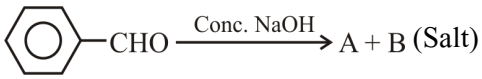
84. The IUPAC name of  is -

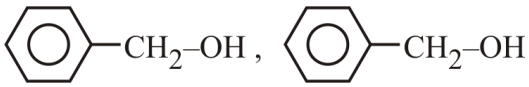
(1) 2-Bromo-4-isopropylpentane

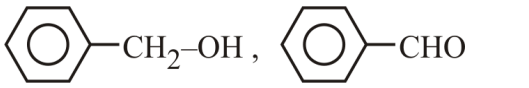
(2) 2, 3-Dimethyl-5-bromohexane

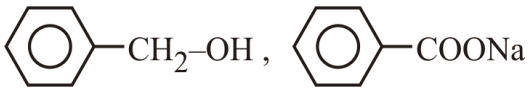
(3) 2-Bromo-4, 5-dimethylhexane

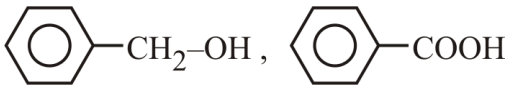
(4) 5-Bromo-2, 3-dimethylhexane

85. 
A and B are :-

(1) 

(2) 

(3) 

(4) 

SECTION-B (CHEMISTRY)

86. Correct match the column-I and column-II.

	Column-I (molecule)		Column-II (shape)
(a)	XeF_4	(p)	Trigonal planar
(b)	BF_3	(q)	Linear
(c)	PCl_5	(r)	Square planar
(d)	I_3^-	(s)	Trigonal bipyramidal

(1) (a)-(p), (b)-(q), (c)-(r), (d)-(s)

(2) (a)-(r), (b)-(p), (c)-(s), (d)-(q)

(3) (a)-(r), (b)-(s), (c)-(p), (d)-(q)

(4) (a)-(q), (b)-(p), (c)-(r), (d)-(s)

87. The **INCORRECT** order is :

(1) Covalent character : $MgCl_2 > CaCl_2 > SrCl_2 > BaCl_2$

(2) Thermal stability : $PbF_4 > PbCl_4 > PbBr_4 > PbI_4$

(3) Melting point : KF > KCl > KBr > KI

(4) Boiling point : He > Ne > Ar > Kr > Xe

88. Number of t_{2g} and e_g electrons in $[NiF_6]^{-2}$ are -

(1) 6 and 2

(2) 6 and 0

(3) 4 and 2

(4) 3 and 3

89. Select the correct match :-

(1) α sulphur ⟶ Stable above 369 K

(2) White Phosphorous ⟶ Poisonous & insoluble in water

(3) Diamond ⟶ Thermodynamically most stable allotrope of C.

(4) All of these

90. In which of the dimerisation process, the achievement of the octet is not the driving force.

(1) $2AlCl_3 \longrightarrow Al_2Cl_6$

(2) $BeCl_2 \longrightarrow BeCl_2$ (Solid)

(3) $2ICl_3 \longrightarrow I_2Cl_6$

(4) $2NO_2 \longrightarrow N_2O_4$

91. In a reaction, $PCl_{5(g)} \rightleftharpoons PCl_{3(g)} + Cl_{2(g)}$, degree of dissociation is 30%. If initial moles of $PCl_{5(g)}$ is 1, then total moles at equilibrium is :-

(1) 1.3 (2) 0.7

(3) 1.6 (4) 1.0

92. In a certain gaseous reaction between X and Y, $X + 3Y \longrightarrow XY_3$, the initial rates are reported as follows –

[X]	[Y]	Rate
0.1 M	0.1 M	0.002 Ms^{-1}
0.2 M	0.1 M	0.002 Ms^{-1}
0.3 M	0.2 M	0.008 Ms^{-1}
0.4 M	0.3 M	0.018 Ms^{-1}

The rate law is –

(1) $r = k[X][Y]^3$

(2) $r = k[X]^0[Y]^2$

(3) $r = k[X][Y]$

(4) $r = k[X]^0[Y]^3$

93. In the equation $\Lambda_m = \Lambda_m^o - A\sqrt{C}$, the value of A will be same for :

(1) NaCl and $CaCl_2$

(2) $CaCl_2$ and $MgSO_4$

(3) NaCl and KCl

(4) KCl and $MgSO_4$

94. An aqueous solution at room temperature contains 0.1 M NH_4Cl and 0.01 M NH_4OH ($pK_b = 5$), the pH of the solution is :-

(1) 7.5 (2) 6.8 (3) 6.5 (4) 8.0

95. On the basis of thermochemical equations (i), (ii) and (iii), find out which of the following algebric relationships is correct ?

(i) $C_{(graphite)} + O_{2(g)} \longrightarrow CO_2(g)\ ;\ \Delta H = x\ kJ\ mol^{-1}$

(ii) $C_{(graphite)} + \frac{1}{2} O_2(g) \longrightarrow CO(g)\ ;\ \Delta H = y\ kJ\ mol^{-1}$

(iii) $CO(g) + \frac{1}{2} O_2(g) \longrightarrow CO_2(g)\ ;\ \Delta H = z\ kJ\ mol^{-1}$

(1) $z = x + y$

(2) $x = y - z$

(3) $x = y + z$

(4) $y = 2z - x$

96. Which one/ones of the following reactions will yield 2-propanol ?

(i) $CH_3CH = CH_2 + H_2O \xrightarrow{H^+}$

(ii) $CH_3CHO \xrightarrow[(ii)\ H_2O]{(i)\ CH_3MgI}$

(iii) $HCHO \xrightarrow[(ii) H_2O/H^+]{(i)\ C_2H_5MgI}$

Choose the right answer :

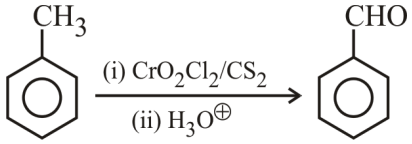
(1) (i) and (ii)

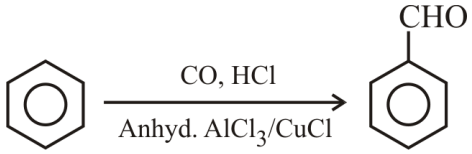
(2) (ii) and (iii)

(3) (iii) and (i)

(4) None of these

97. Which of the following is/are correct ?

(1) 

(2) 

(3) $CH_3-CH_2-CN \xrightarrow[2.\ H_3O^{\oplus}]{1.\ EtMgBr} Et-\overset{\overset{O}{\|}}{C}-Et$

(4) All of these

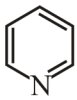
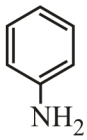
98. Which one of the following is the most acidic ?

(1) 

(2) 

(3) 

(4) $CH_2=CH-CH_3$

99. (A)  (B)  (C) 

Choose the incorrect statement -

(1) A is more basic than B

(2) B is more basic than A

(3) B is more basic than C

(4) All are aromatic bases

100. $CH_3-CH=CH\ CH(Br)\ (Et)$

Total no. of stereo isomers is :-

(1) 2

(2) 4

(3) 3

(4) 5

Topic : FULL SYLLABUS

SECTION-A (BOTANY)

101. Taxonomic categories are distinct biological _____ and not merely morphological _____

(1) aggregates, entities

(2) entities, aggregates

(3) entities, category

(4) aggregates, taxon

102. **Statement-1 :** *Gonyaulax* is one of the example of red dinoflagellate.

Statement-2 : *Gonyaulax* releases toxins that may even kill other marine animals.

(1) Both statement-1 and 2 are correct.

(2) Both statement-1 and 2 are incorrect.

(3) Statement-1 is correct but statement-2 is incorrect.

(4) Statement-1 is incorrect but statement-2 is correct.

103. Site for protein synthesis in prokaryotic cell is -

(1) Mesosome

(2) Ribosome

(3) Nucleoid

(4) Pili

104. **Assertion :-** Gymnosperms are naked seed bearing plants.

Reason :- Ovules are not enclosed by any ovary wall in Gymnosperms.

(1) Both Assertion & Reason are True & the Reason is a correct explanation of the Assertion.

(2) Both Assertion & Reason are True but Reason is not a correct explanation of the Assertion.

(3) Assertion is True but the Reason is False.

(4) Both Assertion & Reason are False.

105. Bryophytes are not characterised by :-

(1) Rhizoids

(2) Meiosis in spore mother cell

(3) Reductional division in zygote

(4) Dependent sporophyte

106. Flower is a modification of :-

(1) Root (2) Leaf

(3) Shoot (4) Leaf primordia

107. Select incorrect statements ?

(1) The stem bears nodes and internodes.

(2) Leaves originate from shoot apical meristems and are arranged in acropetal order.

(3) The stem of maize and sugarcane have supporting roots coming out of the lower nodes of the stem.

(4) Leaf, flower and fruit are included in root system.

108. When margin of petals overlap one anothers but not in particular direction then aestivation is called -

(1) Valvate

(2) Twisted

(3) Imbricate

(4) Vaxillery

109. Xylem and phloem are situated at the same radius of vascular bundle. Then, such a vascular bundle is called :-

(1) Radial (2) Exarch

(3) Concentric (4) Conjoint

110. Endodermis of dicot stem is also known as :-

(1) Starch sheath

(2) Casparian strip

(3) Limiting layer

(4) Exodermis

111. Which of the following statement is not correct?

(1) In monocot root, polyarch condition is found

(2) Radial vascular bundle is found in dicot roots

(3) Pith is large & well developed in dicot roots

(4) In roots, the parenchymatous cells which lie between the xylem & phloem are called conjuctive tissue

112. First discovered molecule as a result of carbon fixation by Malvin calvin was -

(1) PGA

(2) Malate

(3) OAA

(4) RuBP

113. The incomplete oxidation of glucose is achieved under anaerobic conditions by set of reaction where pyruvic acid is converted to -

(1) In CO_2 and lactic acid

(2) In Glyceraldehyde 3-phosphate

(3) In CO_2 and enthanol

(4) In citrate and CO_2

114. Complex-IV of ETS is :

(1) NADH dehydrogenase

(2) Succinate dehydrogenase

(3) Cytochrome-C-oxidase

(4) Cytochrome C_1

115. Spraying of which of the following phytohormones on sugarcane crop increases the length of the stem, thus increasing the yield?

(1) Indole-3-butyric acid

(2) Abscisic acid

(3) Ethephon

(4) Gibberellic acid

116. The hormone responsible for apical dominance :-

(1) Chlorophyll (2) Auxin

(3) Gibberelin (4) Abscisic acid

117. Zinc is co-factor for -

(1) NADP

(2) Carboxypeptidase

(3) Pepcase

(4) Phosphofructokinase

118. Which of the following pair has haploid structures ?

(1) Nucellus and antipodal cells

(2) Antipodal cells and egg cell

(3) Antipodal cells and megaspore mother cell

(4) Nucellus and primary endosperm nucleus

119. A dioecious flowering plant prevents :-

(1) Geitonogamy and xenogamy

(2) Autogamy and xenogamy

(3) Autogamy and geitonogamy

(4) Cleistogamy and xenogamy

120. Pollen tube releases the two male gametes into the -

(1) One male gamete in cytoplasm of synergids and other in cytoplasm of central cell

(2) Both in cytoplasm of central cell

(3) Cytoplasm of antipodal cell

(4) Both in cytoplasm of synergids

121. Experimental verification of the chromosomal theory of inheritance was done by :-

(1) Sutton and Boveri

(2) T.H. Morgan

(3) Alfred Sturtevant

(4) William Bateson

122. Which one of the following statement is wrong about sickle cell anaemia ?

(1) Valine is replaced by glutamic acid

(2) In this disease 6^{th} A.A of β globin chain changes

(3) It is an autosomal recessive disease

(4) Polymerisation under low O_2 tension of Hb molecule

123. Which one of the following is example of Co-dominance ?

(1) ABO blood group in human

(2) AB blood group in human

(3) Carrier of sickle cell anaemia

(4) Both (2) and (3)

124. Which of the following is exception to Mendel's law of dominance?

(1) Co-dominance

(2) Incomplete dominance

(3) Linkage

(4) Both (1 & 2)

125. Which one can be explained on the basis of Mendel's law of segregation?

(1) Factor occur in pairs.

(2) Factor never show any blending.

(3) Characters are controlled by unit factor.

(4) Out of one pair of factor one is dominant factor while another is recessive factor.

126. True-breeding pea plant varieties are obtained by –

(1) Self pollination

(2) Cross-pollination

(3) Often cross pollination

(4) Emasculation

127. Which of the following statement is incorrect regarding colorblindness ?

(1) It is sex linked recessive disorder

(2) It is due to mutation in certain genes present on X-chromosome

(3) It occurs in about 8% in female and about 0.4 % in males

(4) A daughter will not be colourblind unless her mother is carrier and her father is colourblind

128. Identify the correct statement :-

(A) In case of incomplete dominance phenotypic ratio had changed from 1 : 2 : 1 to 3 : 1

(B) In codominance the F_1 generation resembles both parents.

(C) Size of starch grain in pea plant is an example of incomplete dominance.

(D) In pleiotropy many genes exhibit single phenotype.

Choose the correct answer from the options given below.

(1) A and D only

(2) B and C

(3) A, B, C and D

(4) B, C and D

129. Which of the following plant employs 'Sexual deceit' to get pollinated by a species of bee ?

(1) Fig tree

(2) Orchid on Mango

(3) *Yucca* plant

(4) *Ophrys* Orchid

130. Barnacles growing on the back of a whale is an example of -

(1) Mutualism

(2) Commensalism

(3) Competition

(4) Predation

131. At organism level, which type of ecology exist :-

(1) Synecology

(2) Physiological ecology

(3) Metabolic ecology

(4) Systematic ecology

132. The annual net primary productivity of the whole biosphere is :-

(1) 10 billion tons

(2) 170 billion tons

(3) 55 billion tons

(4) 1 billion tons

133. What is bioprospecting ?

(1) Increasing production of useful products by using bio resources.

(2) Monitoring the loss of biodiversity in different geographical areas.

(3) Exploring molecular genetics and species level diversity for products of economic importance.

(4) Selecting useful species for commercial utilization of them or their product.

134. Select the incorrect match with respect to sacred groves.

(1) Khasi and Jaintia hills - Meghalaya

(2) Aravalli hills - Rajasthan

(3) Sarguja, Chanda and Bastar - Manipur

(4) Western ghat - Maharashtra

135. Match the column :

(a)	Fragmentation	(i)	Leads to accumulation of a dark coloured amorphous substance.
(b)	Humification	(ii)	Water-soluble inorganic nutrients go down into soil horizon
(c)	Catabolism	(iii)	Bacterial and fungal enzymes degrade detritus into simpler organic and inorganic substances
(d)	Leaching	(iv)	Detritivores break down detritus into smaller particles

(1) a–iii, b-i, c-iv, d-ii

(2) a-iv, b-i, c-ii, d-iii

(3) a-iv, b-iii, c-i, d-ii

(4) a-iv, b-i, c-iii, d-ii

SECTION-B (BOTANY)

136. Which of the following is not correct pair for *Mangifera indica*?

(1) Division - Dicotyledonae

(2) Order - Sapindales

(3) Family - Anacardiaceae

(4) Genus - *Mangifera*

137. Viruses that infect plants usually have :

(1) Double stranded RNA

(2) Single stranded RNA

(3) Double stranded DNA

(4) Single stranded DNA

138. In the member of phaeophyceae which part of body functions as photosynthetic part ?

(1) Rhizoids

(2) Stipe

(3) Hold fast

(4) Frond

139. Palmately compound leaf is found in -

(1) Neem

(2) Silk cotton

(3) Banana

(4) Rose

140. Vascular bundle having cambium between the xylem and phloem is called :-

(1) Close vascular bundle

(2) Open vascular bundle

(3) Conjoint vascular bundle

(4) Radial vascular bundle

141. Select the incorrect statements :

(a) Cornelius van Neil inferred the O_2 evolved by green plant comes from carbon dioxide, not from H_2O.

(b) Joseph Priestley performed a series of experiments to describe action spectrum of photosynthesis.

(c) T.W. Engelmann used green alga, *cladophora* for his experiment.

(d) In green plants H_2S is the hydrogen donor in photosynthesis.

(1) a, b and c

(2) b, c and d

(3) a, b and d

(4) a, c and d

142. Given below are two statements : One is labelled as Assertion (A) and the other is labelled as Reason (R) :

Assertion (A) : Some organisms do not release O_2 during photosynthesis.

Reason (R) : When H_2S is the hydrogen donor in photosynthesis the oxidation product is sulphur or sulphate instead of O_2.

Choose the correct option :

(1) Both A and R are true but R is not the correct explanation of A.

(2) A is true but R is false.

(3) A is false but R is true.

(4) Both A and R are true and R is the correct explanation of A.

143. Given below are two statement :-

Statement I :- Two molecules of NADH are produced from the metabolism of two molecules of pyruvic acid during link Reaction.

Statement II :- Acetyl CoA enters a cyclic pathway, more commonly called as kreb's cycle which scientifically elucidated by Hans Kreb at first.

(1) Statement I and II both are correct.

(2) Statement I and II both are incorrect.

(3) Only statement I is correct.

(4) Only statement II is correct.

144. In the expression of exponential growth ($W_1 = W_0e^{rt}$) 'r' is referred to as :-

(1) Growth rate

(2) Efficiency index

(3) Both (1) and (2)

(4) Time of growth

145. Match column-I with column-II and select the correct option using the codes given below :-

Column-I		Column-II	
a	Removal of stamens from the flower bud before the anther dehisces	(i)	Polyembryony
b	Occurance of more than one embryo in a seed	(ii)	Embryogeny
c	The residual and peristent nucellus	(iii)	Emasculation
d	Early stage of embryo development	(iv)	Perisperm

	a	b	c	d
(1)	(i)	(iv)	(iii)	(ii)
(2)	(iv)	(iii)	(ii)	(i)
(3)	(iii)	(i)	(iv)	(ii)
(4)	(i)	(ii)	(iv)	(iii)

146. In snapdragon tall is dominant over dwarf and red colour of the flower is incompletely dominant over the white and hybrid is pink. A pure tall white (TTrr) is crossed to a pure dwarf red (ttRR) and the plants of F1, generation are self fertilised. What will be the expected phenotype ratio of the F2 plants?

(1) 9:3:3:1 (2) 3:6:3:1:2:1

(3) 1:1:1:1 (4) 1:2:1

147. Select the incorrect statement(s) from the options given below with respect to dihybrid cross.

I. Tightly linked genes on the same chromosome show higher recombinations.

II. Genes far apart on the same chromosomes show very few recombinations.

III. Genes loosely linked on the same chromosome show similar recombinations.

(1) I and II (2) III and II

(3) I and III (4) All of these

148. **Assertion:** India is one of the 12 mega diversity countries of the world.

Reason: India has only 2.4 percent of world's land area, but its share of the global species diversity is an impressive 8.1 percent.

(1) Both Assertion & Reason are true and the reason is the correct explanation of the assertion.

(2) Both Assertion & Reason are true but the reason is not the correct explanation of the assertion.

(3) Assertion is true statement but Reason is false.

(4) Both Assertion and Reason are false statements.

149. Given below are two statements :

Statement I : Predators acting as conduits for energy transfer across trophic levels.

Statement II : The prickly pear cactus introduced into Australia in the early 1920's caused havoc by spreading rapidly into millions of hectares of rangeland.

In the light of above statements. Choose the most appropriate answer from the option given below :

(1) Both statement I and statement II are correct.

(2) Both statement I and statement II are incorrect.

(3) Statement I is correct but statement II is incorrect.

(4) Statement I is incorrect but statement II is correct.

150. If in a pond there are 48 fishes last year and through reproduction 10 new fishes are added taking the current population to 58. What will be the birth rate per fish per year :

(1) 0.172

(2) 0.827

(3) 0.208

(4) 4.8

Topic : FULL SYLLABUS

SECTION-A (ZOOLOGY)

151. Electric organs are present in

(1) *Torpedo* (2) *Carcharodon*

(3) *Exocoetus* (4) *Clarias*

152. Sexual dimorphism is found in :-

(1) Platyhelminthes

(2) Aschelminthes

(3) Porifera

(4) Ctenophora

153. *Pheretima* is :-

(1) Sterile

(2) Hermaphrodite

(3) Radially symmetrical

(4) Dioecious

154. **Assertion (A) :-** Members of phylum platyhelminthes are called flatworms.

Reason (R) :- They have dorso-ventrally flattened body.

(1) Both (A) and (R) are true and (R) is the correct explanation of (A)

(2) Both (A) and (R) are true and (R) is not the correct explanation of (A)

(3) (A) is true but (R) is false

(4) (R) is true but (A) is false

155. Which of the following mammalian tissues is associated with filtration and diffusion?

(1) Simple columnar epithelium

(2) Simple squamous epithelium

(3) Stratified squamous epithelium

(4) Stratified columnar epithelium

156. Germinal Epithelium of ovary is formed of :-

(1) Columnar Epithelium

(2) Squamous Epithelium

(3) Cuboidal Epithelium

(4) Stratified Epithelium

157. In cockroach, walking legs arises from :-

(1) prothorax and mesothorax and are two pairs.

(2) mesothorax and metathorax and are two pairs.

(3) All the thoracic segments and are three pairs.

(4) first three abdominal segments and are three pairs.

158. In frog respiration takes place through :

(1) Skin (2) Lungs

(3) Buccal cavity (4) All of these

159. Chordae tendinae are found in :-

(1) Ventricles of heart

(2) Atria of heart

(3) Joints of legs

(4) Ventricles of brain

160. Which layer of blood vessels consist of smooth muscle and elastic fibres–

(1) Tunica intima (2) Tunica media

(3) Tunica externa (4) All of above

161. Every 100 ml of deoxygenated blood delivers approximately how much ml of CO_2 to the alveoli :

(1) 5 ml (2) 4 ml (3) 7 ml (4) 8 ml

162. Which of the following substances are reabsorbed actively in nephron ?

(1) Glucose, Ammonia (2) Glucose, Na^+

(3) Amino acid, Urea (4) Na^+, Uric acid

163. Nissl's granules are not found in :-

(1) Cell body (2) Axon

(3) Dendrites (4) Both 2 and 3

164. Organized endocrine gland in human includes –

(1) Gonads (2) Pancreas

(3) Pituitary gland (4) All of the above

165. α-cells of islet of Langerhans of pancreas are related to which secretion ?

(1) Glucagon

(2) Insulin

(3) Somatostatin

(4) Pancreatic polypeptide

166. The hypothalamus is the basal part of structure 'X' in forebrain while pituitary is located in a bony cavity called 'Y'.
Select the correct option for X and Y respectively.

(1) Diencephalon, Sella turcica

(2) Corpora quadrigemina, Thalamus

(3) Sella turcica, Diencephalon

(4) Thalamus and Cerebral aqueduct

167. **Assertion :** Methods of locomotion performed by animals vary with their habitats and the demand of the situation.
Reason : Locomotion is generally for search of food, shelter, mate, suitable breeding grounds, favourable climatic conditions or to escape from enemies/predators.

(1) Both Assertion & Reason are True & the Reason is a correct explanation of the Assertion.

(2) Both Assertion & Reason are True but Reason is not a correct explanation of the Assertion.

(3) Assertion is True but the Reason is False.

(4) Both Assertion & Reason are False.

168. ATP-ase needed for muscle contraction is present over :-

(1) Tropomyosin (2) Troponin

(3) Myosin (4) Actin

169. Which accessory sex gland in human being is unpaired ?

(1) Bartholin's gland (2) Seminal vesicle

(3) Cowper gland (4) Prostate gland

170. The main function of mammalian corpus luteum is to produce :-

(1) Estrogen only

(2) Progestrone

(3) Human chorionic gonadotropin

(4) Relaxin only

171. **Statement-I :** The placenta helps in transport of substance to and from foetus.
Statement-II : After implantation, trophoblast gets differentiated into outer ectoderm and inner endoderm.

(1) Statement I and II both are correct

(2) Statement I and II both are incorrect

(3) Only Statement I is correct

(4) Only Statement II is correct

172. Which of the following ions plays an effective role in the activity of IUDs :

(1) Copper (2) Zinc

(3) Iron (4) Ammonium

173. Which antibody found abundant in colostrum.

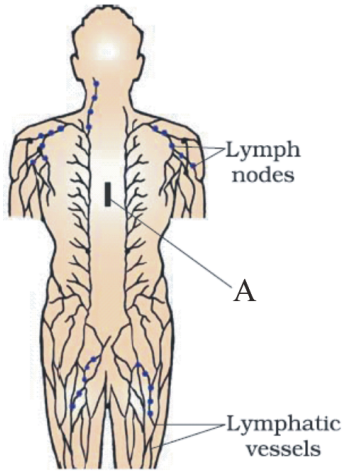
(1) IgG (2) IgA (3) IgM (4) IgD

174. The genome of HIV, the causative organism of AIDS, is made up of:-

(1) ssRNA (2) ssDNA

(3) dsRNA (4) dsDNA

175. Which of the following statement is false for the structure labelled as "A" in the figure given below?



(1) Here maturation of T-lymphocytes takes place

(2) Here immature lymphocytes differentiate into antigen-sensitive lymphocytes

(3) Here lymphocytes interact with antigen and become effector cells

(4) It is an example of primary lymphoid organ.

176. Stellar distances are measured in :-

(1) Meter (2) Kilometers

(3) Light years (4) Meter/second

177. Who explained that cells divide and new cells are formed from pre-existing cells :

(1) Schleiden (2) Schwann

(3) R. Virchow (4) R. Brown

178. Non-membrane bound organelle found in all cell is :-

(1) Lysosome (2) Mitochondria

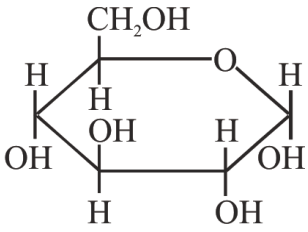
(3) Ribosome (4) Vacuole

179. (A) Well defined nucleus is present
(B) Genetic material is absent
(C) Nuclear membrane absent
(D) Mesosome present
(E) Circular DNA is present
Which of the above mentioned are correct for Prokaryotic cell ?

(1) C,D,E (2) A,C,E

(3) A,B,D (4) B,C,E

180. Identify the given structure and their nature :-



	Structure	Nature
(1)	Glucose	Reducing
(2)	Glucose	Non reducing
(3)	Maltose	Reducing
(4)	Fructose	Reducing

181. How many of the following statements [A-D] are correct :-
(A) Tyrosine & Valine are neutral amino acids
(B) Lysine & Arginine are basic amino acids
(C) Alanine is basic amino acid
(D) Tryptophan is the simplest amino acid

(1) 1 (2) 2 (3) 3 (4) 4

182. "Molecular scissors" are :-

(1) Lygase
(2) Restriction enzymes
(3) Methylase
(4) Exonuclease

183. Which of the following is the last step in PCR method :

(1) Denaturation
(2) Annealing
(3) Extension
(4) Attachment of primers

184. A transgenic food crop which may help in solving the problem of acquired night blindness in developing countries is–

(1) Bt-rice (2) Bt-Brinjal

(3) Golden rice (4) Both (1) and (3)

185. 95 percent of transgenic animals are ?

(1) Cow (2) Mice (3) Goat (4) Pig

SECTION-B (ZOOLOGY)

186. **Assertion** : Aschelmintheses possessing pseudocoelom and are called pseudocoelomate.

Reason : Body cavity of aschelminthese is not lined by mesoderm, instead, the mesoderm is present as scattered pouches in between ectoderm and endoderm.

(1) Both Assertion & Reason are True & the Reason is a correct explanation of the Assertion.

(2) Both Assertion & Reason are True but Reason is not a correct explanation of the Assertion.

(3) Assertion is True but the Reason is False.

(4) Both Assertion & Reason are False.

187. Goblet cells of alimentary canal, is example of :-

(1) Unicellular endocrine gland

(2) Multicellular exocrine gland

(3) Unicellular glandular cells

(4) Multicellular glandular cells

188. Which one of the following statement is correct regarding cockroach?

(1) Head is oval in shape

(2) There are 10 pairs of spiracles (2 pairs of thorax and 8 pairs on abdomen)

(3) Heart is differentiated into funnel shaped chambers with setae on either side

(4) Each eye consists of 1000 hexagonal ommatidia

189. Largest WBC is

(1) Basophil

(2) Monocyte

(3) Eosinophil

(4) Neutrophil

190. **Statement - I :** Glomerular fillrate contain all the constituent of blood plasma except the proteins.

Statement - II : The epithelial cells of inner layer of Bowman's capsule called podocytes.

(1) Statement I and II both are correct.

(2) Statement I and II both are incorrect.

(3) Only Statement I is correct.

(4) Only Statement II is correct.

191. The neural system is composed of highly specialised cells which can detect, receive and transmit different kinds of stimuli are called as.

(1) Neuroglial cells (2) Neuron

(3) Dendritic cells (4) Axon

192. Which of the following cause an increase in water reabsorption in the distal convoluted tubule ?

(1) Increase in insulin levels

(2) Increase in antidiuretic hormone levels

(3) Decrease in aldosterone levels

(4) Decrease in antidiuretic hormone levels

193. Consider the following four statement (A–D) and select option which include all the correct ones only :-

(A) Acromegaly is due to hyper secretion of STH in childhood stage.

(B) In adult female hypothyroidism cause irregular menses.

(C) Hyper secretion of glucocorticoids cause "Addison's disease".

(D) At the time of physical labour or fasting taking of insulin injection can cause ‘insulin shock’ in diabetic patient.

(1) Statements B & C (2) Statements B & D

(3) Statements A & B (4) Statements A & C

194. Spermatogenesis starts at the time of

(1) Puberty (2) Reproduction

(3) After birth (4) Life time

195. These are some events associated with reproduction and embryonic development. Arrange these from first to last and select the correct answer.

(a) Start formation of corpus luteum
(b) Cleavage
(c) Fertilisation
(d) Ovulation
(e) Implantation
(f) Formation of Graafian follicle
(g) Blastocyst
(h) Morula
(i) Zygote

(1) f, d, a, c, i, b, h, g, e (2) f, d, i, c, a, b, h, g, e

(3) a, f, d, c, b, i, h, g, e (4) i, h, g, f, d, c, b, e, a

196. A method of sterilisation in which small part of vas-deferens is cut and tied-up :-

(1) Vasectomy (2) Tubectomy

(3) Hysterectomy (4) Oophorectomy

197. Read the following statements :-

(A) Rheumatoid arthritis is an auto immune disease.
(B) Antibodies produced during allergy are of IgA type.
(C) Injection given against snake venom is a type of passive immunisation.
(D)The cell-mediated immune response is responsible for the graft rejection.

How many of the above statements are incorrect ?

(1) 4 (2) 2 (3) 3 (4) 1

198. Match the columns -

	Column-I		Column-II
(A)	Rosie	(i)	α-1 antitrypsin
(B)	ELISA	(ii)	Protein enriched milk
(C)	rop	(iii)	Test to detect antigen or antibody
(D)	Emphysema	(iv)	Codes for protein involved in plasmid replication

(1) A-ii, B-iii, C-iv, D-i

(2) A-i, B-iii, C-iv, D-ii

(3) A-ii, B-iii, C-i, D-iv

(4) A-iv, B-iii, C-ii, D-i

199. Adult frog is :-

(1) Uricotelic

(2) Ureotelic

(3) Ammonotelic

(4) Guanotelic

200. Which pigment carries oxygen in the blood of human ?

(1) Haemoglobin

(2) Bilirubin

(3) Biliverdin

(4) Hemocyanin

SPACE FOR ROUGH WORK

All the best for the NEET exam frndss

CORRECTION IN ENTHUSIAST, LEADER & ACHIEVER (MAJOR TEST) : 2023-24

Test Date	PHASE						
26-02-2024	PRE-MEDICAL : LEADER & ACHIEVER COURSE PHASE - MLA, MLB, MLC, MLQ, MLR, MLS, MLT, MLU, MLV, MAZA, MAZB, MAZC, MAZD, MAZE, MAZF, MAZP, MAZQ & MAZR	Q.	105				
		A.	1 & 3				
09-03-2024	PRE-MEDICAL LEADER & ACHIEVER COURSE PHASE - MLA, MLB, MLC, MLQ, MLR, MLS, MLT, MLU, MLV, MAZA, MAZB, MAZC, MAZD, MAZE, MAZF, MAZP, MAZQ & MAZR	Q.	99				
		A.	3 & 4 (Only in Hindi)				
15-03-2024	PRE-MEDICAL LEADER & ACHIEVER COURSE PHASE - MLH, MLI, MLJ, MLK, MLM, MLX,MAZG, MAZH, MAZI, MAZJ, MAZL, MAZS, MAZT, MAZU, MAZW	Q.	170			25	
		A.	3 (Only in Hindi)			3	
21-03-2024	PRE-MEDICAL LEADER & ACHIEVER COURSE PHASE - MLA, MLB, MLC, MLQ, MLR, MLS, MLT, MLU, MLV, MAZA, MAZB, MAZC, MAZD, MAZE, MAZF, MAZP, MAZQ & MAZR	Q.	130				
		A.	2				
26-03-2024	PRE-MEDICAL LEADER & ACHIEVER COURSE PHASE - MLH, MLI, MLJ, MLK, MLM, MLX, MAZG, MAZH, MAZI, MAZJ, MAZL, MAZS, MAZT, MAZU, MAZW	Q.	194				
		A.	2				
27-03-2024	PRE-MEDICAL LEADER & ACHIEVER COURSE PHASE - MLA, MLB, MLC, MLP, MLQ, MLR, MLS, MLT, MLU, MLV, MAZA, MAZB, MAZC, MAZD, MAZE, MAZF, MAZP, MAZQ, MAZR, MAZV, MAZX, MAZY, MAZK, MAPA, MAPB, MSP1, MSP2, LAKSHYA	Q.	190	97			
		A.	2,3,4	1			
31-03-2024	PRE-MEDICAL ENTHUSIAST, LEADER & ACHIEVER COURSE PHASE - ALL ENTHUSIAST, MLA, B, C, E, P, Q, R,S, T, U, V, MAZA, ZB, ZC, ZD, ZE, ZF, ZN, ZP, ZQ, ZR, ZV, ZX, ZY, ZK, MAPA, MAPB, MSP1, MSP2, LAKSHYA	Q.	86				
		A.	2, 3				
07-04-2024	PRE-MEDICAL : LEADER & ACHIEVER COURSE PHASE - MLD, MLW, MLY, MAZM, MAZO, MAAX, MAAY		60				
			4				
08-04-2024	PRE-MEDICAL ENTHUSIAST, LEADER & ACHIEVER COURSE PHASE - ALL ENTHUSIAST, MLA, B, C, E, P, Q, R, S, T, U, V, MAZA, ZB, ZC, ZD, ZE, ZF, ZN, ZP, ZQ, ZR, ZV, ZX, ZY, ZK, MAPA, MAPB, MSP1, MSP2, LAKSHYA	Q.	42	125	126	71	192
		A.	3 & 4	2	Bonus	3	Bonus
10-04-2024	PRE-MEDICAL LEADER & ACHIEVER COURSE PHASE - MLD, MLH, MLI, MLJ, MLK, MLM, MLW, MLX, MLY, MAZG, MAZH, MAZI, MAZJ, MAZL, MAZM, MAZO, MAZS, MAZT, MAZU, MAZW, MAAX, MAAY	Q.	15	128			
		A.	2	3			
14-04-2024	PRE-MEDICAL : ENTHUSIAST, LEADER & ACHIEVER COURSE PHASE - ALL ENTHUSIAST, MLA, B, C, P, Q, R, S, T, U, V, MAZA, ZB, ZC, ZD, ZE, ZF, ZP, ZQ, ZR, ZV, ZX, ZY, ZK, MAPA, MAPB, MSP1, MSP2, LAKSHYA	Q.	199				
		A.	1,4 (Only in English)				
18-04-2024	PRE-MEDICAL : ENTHUSIAST, LEADER & ACHIEVER COURSE PHASE - ALL ENTHUSIAST, MLA, B, C, P, Q, R, S, T, U, V, MAZA, ZB, ZC, ZD, ZE, ZF, ZP, ZQ, ZR, ZV, ZX, ZY, ZK, MAPA, MAPB, MSP1, MSP2, LAKSHYA	Q.	48	123			
		A.	1, 3	1			
18-04-2024	PRE-MEDICAL : LEADER & ACHIEVER COURSE PHASE - MLD, MLE, MLH, MLI, MLJ, MLK, MLM, MLW, MLX, MLY, MAZG, MAZH, MAZI, MAZJ, MAZL, MAZM, MAZN, MAZO, MAZS, MAZT, MAZU, MAZW, MAAX, MAAY	Q.	129				
		A.	1,4				