Aakash
Medical | IIT-JEE | Foundations

Corporate Office

Questions & Answers

for

Re-Examination of NEET (UG)-2024

1. The test is of duration and the Test Booklet contains multiple-choice questions (four options with a single correct answer) from . 50 questions in each subject are divided into as per details given below:
   (a) shall consist of Questions in each subject (Question Nos-1 to 35, 51 to 85, 101 to 135 and 151 to 185). All Questions are compulsory.
   (b) shall consist of questions in each subject (Question Nos- 36 to 50, 86 to 100, 136 to 150 and 186 to 200). In , a candidate needs to questions out of in each subject.
   before they start attempting the question paper. In the event of a candidate attempting more than ten questions, .
2. Each question carries . For each correct response, the candidate will get . For each incorrect response, will be deducted from the total scores. .
3. Use for writing particulars on this page / marking responses on Answer Sheet.
4. Rough work is to be done in the space provided for this purpose in the Test Booklet only.
5. On completion of the test, the candidate must before leaving the Room / Hall. The candidates are allowed to take away this Test Booklet with them.
6. . In case of discrepancy, the candidate should immediately report the matter to the Invigilator for replacement of both the Test Booklet and the Answer sheet.
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 Roll No. anywhere else except in the specified space in the Test Booklet/Answer Sheet.
8. Use of white fluid for correction is permissible on the Answer Sheet.
9. Each candidate must show on-demand his/her Admission Card to the Invigilator.
10. No candidate, without special permission of the Centre Superintendent or Invigilator, would leave his/her seat.
11. Use of Electronic/Manual Calculator is prohibited.
12. 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 Rules and Regulations of this examination.
13.
14. The candidates will write the Correct Test Booklet Code as given in the Test Booklet / Answer Sheet in the Attendance Sheet.

1. The magnetic potential energy, when a magnetic bar of magnetic moment $\vec{m}$ is placed perpendicular to the magnetic field $\vec{B}$ is

(1) $-\frac{mB}{2}$ (2) Zero

(3) $-mB$ (4) mB

2. A bob is whirled in a horizontal circle by means of a string at an initial speed of 10 rpm. If the tension in the string is quadrupled while keeping the radius constant, the new speed is:

(1) 20 rpm (2) 40 rpm

(3) 5 rpm (4) 10 rpm

3. A metal cube of side 5 cm is charged with 6 μC. The surface charge density on the cube is

(1) 0.125×10^{-3} C m^{-2} (2) 0.25×10^{-3} C m^{-2}

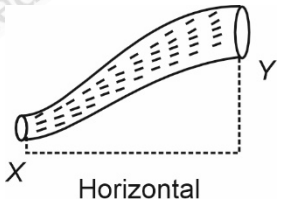
(3) 4×10^{-3} C m^{-2}(4) 0.4×10^{-3} C m^{-2}

4. The incorrect relation for a diamagnetic material (all the symbols carry their usual meaning and ε is a small positive number) is:

(1) $\mu < \mu_0$ (2) $0 \leq \mu_r < 1$

(3) $-1 \leq \chi < 0$ (4) $1 < \mu_r < 1 + \varepsilon$

5. An ideal fluid is flowing in a non-uniform cross-sectional tube XY (as shown in the figure) from end X to end Y. If K_1 and K_2 are the kinetic energy per unit volume of the fluid at X and Y respectively, then the correct option is :



(1) $K_1 = K_2$ (2) $2K_1 = K_2$

(3) $K_1 > K_2$ (4) $K_1 < K_2$

6. The escape velocity for earth is v. A planet having 9 times mass that of earth and radius, 16 times that of earth, has the escape velocity of:

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

(3) $\frac{3v}{4}$ (4) $\frac{9v}{4}$

7. An electron and an alpha particle are accelerated by the same potential difference. Let λ_e and λ_α denote the de-Broglie wavelengths of the electron and the alpha particle, respectively, then:

(1) $\lambda_e > \lambda_\alpha$ (2) $\lambda_e = 4\lambda_\alpha$

(3) $\lambda_e = \lambda_\alpha$ (4) $\lambda_e < \lambda_\alpha$

8. An object moving along horizontal *x*-direction with kinetic energy 10 J is displaced through $x = \left(3\hat{i}\right)$ m by the force $\vec{F} = \left(-2\hat{i} + 3\hat{j}\right)$N. The kinetic energy of the object at the end of the displacement *x* is

(1) 10 J (2) 16 J

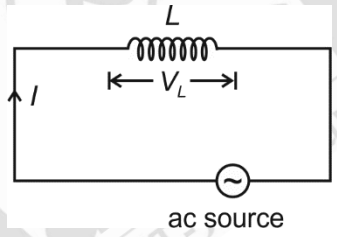
(3) 4 J (4) 6 J

9. An object falls from a height of 10 m above the ground. After striking the ground it loses 50% of its kinetic energy. The height upto which the object can rebounce from the ground is:

(1) 7.5 m (2) 10 m

(3) 2.5 m (4) 5 m

10. In the circuit shown below, the inductance *L* is connected to an ac source. The current flowing in the circuit is $I = I_0 \sin\omega t$. The voltage drop (V_L) across *L* is



(1) $\omega L\, I_0 \sin\omega t$ (2) $\frac{I_0}{\omega L}\sin\omega t$

(3) $\frac{I_0}{\omega L}\cos\omega t$ (4) $\omega L\, I_0 \cos\omega t$

11. A 12 pF capacitor is connected to a 50 V battery, the electrostatic energy stored in the capacitor in nJ is

(1) 15 (2) 7.5

(3) 0.3 (4) 150

12. A uniform wire of diameter *d* carries a current of 100 mA when the mean drift velocity of electrons in the wire is *v*. For a wire of diameter $\frac{d}{2}$ of the same material to carry a current of 200 mA, the mean drift velocity of electrons in the wire is

(1) 4*v* (2) 8*v*

(3) *v* (4) 2*v*

13. In an electrical circuit, the voltage is measured as $V = (200 \pm 4)$ volt and the current is measured as $I = (20 \pm 0.2)$ A. The value of the resistance is:

(1) $(10 \pm 4.2)\ \Omega$ (2) $(10 \pm 0.3)\ \Omega$

(3) $(10 \pm 0.1)\ \Omega$ (4) $(10 \pm 0.8)\ \Omega$

14. A step up transformer is connected to an ac mains supply of 220 V to operate at 11000 V, 88 watt. The current in the secondary circuit, ignoring the power loss in the transformer, is

(1) 8 mA (2) 4 mA

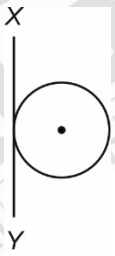
(3) 0.4 A (4) 4 A

15. A particle is moving along x-axis with its position (x) varying with time (t) as $x = \alpha t^4 + \beta t^2 + \gamma t + \delta$. The ratio of its initial velocity to its initial acceleration, respectively, is:

(1) $2\alpha : \delta$ (2) $\gamma : 2\delta$

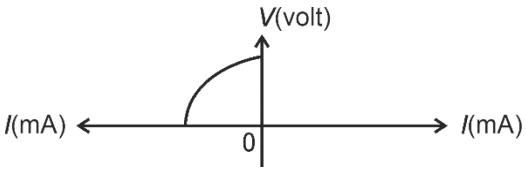
(3) $4\alpha : \beta$ (4) $\gamma : 2\beta$

16. The radius of gyration of a solid sphere of mass 5 kg about XY is 5 m as shown in figure. The radius of the sphere $\frac{5x}{\sqrt{7}}$ m, then the value of x is:



(1) 5 (2) $\sqrt{2}$

(3) $\sqrt{3}$ (4) $\sqrt{5}$

17. 

The I-V characteristics shown above are exhibited by a:

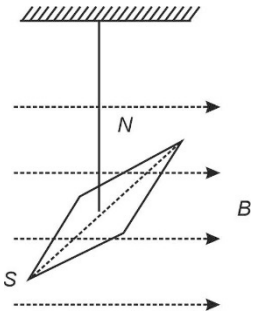
(1) Light emitting diode

(2) Zener diode

(3) Photodiode

(4) Solar cell

18. The magnetic moment and moment of inertia of a magnetic needle as shown are, respectively, 1.0×10^{-2} A m^2 and $\frac{10^{-6}}{\pi^2}$ kg m^2 . If it completes 10 oscillations in 10 s, the magnitude of the magnetic field is:



(1) 0.4 T
(2) 4 T
(3) 0.4 mT
(4) 4 mT

19. The capacitance of a capacitor with charge q and a potential difference V depends on :

(1) both q and V
(2) the geometry of the capacitor
(3) q only
(4) V only

20. Given below are two statements:

Image formation needs regular reflection and/or refraction.

The variety in colour of objects we see around us is due to the constituent colours of the light incident on them.

In the light of the above statements, choose answer from the options given below :

(1) Statement I is correct but statement II is incorrect
(2) Statement I is incorrect but Statement II is correct
(3) Both Statement I and Statement II are correct
(4) Both Statement I and Statement II are incorrect

21. A uniform metal wire of length l has 10 Ω resistance. Now this wire is stretched to a length 2l and then bent to form a perfect circle. The equivalent resistance across any arbitrary diameter of that circle is :

(1) 10 Ω
(2) 5 Ω
(3) 40 Ω
(4) 20 Ω

22. The spectral series which corresponds to the electronic transition from the levels n_2 = 5, 6,… to the level n_1 = 4 is

(1) Pfund series
(2) Brackett series
(3) Lyman series
(4) Balmer series

23. Given below are two statements: One is labelled as and the other is labelled as

Houses made of concrete roofs overlaid with foam keep the room hotter during summer.

The layer of foam insulation prohibits heat transfer, as it contains air pockets.

In the light of the above statements, choose the answer from the options given below.

(1) is true but is false.

(2) is false but is true.

(3) Both and are true and is the correct explanation of .

(4) Both and true but is NOT the correct explanation of .

24. A particle executing simple harmonic motion with amplitude A has the same potential and kinetic energies at the displacement

(1) $2\sqrt{A}$

(2) $\frac{A}{2}$

(3) $\frac{A}{\sqrt{2}}$

(4) $A\sqrt{2}$

25. Two slits in Young's double slit experiment are 1.5 mm apart and the screen is placed at a distance of 1 m from the slits. If the wavelength of light used is 600×10^{-9} m then the fringe separation is

(1) 4×10^{-5} m

(2) 9×10^{-8} m

(3) 4×10^{-7} m

(4) 4×10^{-4} m

26. Water is used as a coolant in a nuclear reactor because of its

(1) high thermal expansion coefficient

(2) high specific heat capacity

(3) low density

(4) low boiling point

27. The pitch of an error free screw gauge is 1 mm and there are 100 divisions on the circular scale. While measuring the diameter of a thick wire, the pitch scale reads 1 mm and 63rd division on the circular scale coincides with the reference line. The diameter of the wire is:

(1) 1.63 cm

(2) 0.163 cm

(3) 0.163 m

(4) 1.63 m

28. Let us consider two solenoids A and B, made from same magnetic material of relative permeability μ_r and equal area of cross-section. Length of A is twice that of B and the number of turns per unit length in A is half that of B. The ratio of self inductances of the two solenoids, $L_A : L_B$ is

(1) 1 : 2

(2) 2 : 1

(3) 8 : 1

(4) 1 : 8

29. When the output of an OR gate is applied as input to a NOT gate, then the combination acts as a

(1) NAND gate
(2) NOR gate
(3) AND gate
(4) OR gate

30. Interference pattern can be observed due to superposition of the following waves:

A. $y = a \sin\omega t$
B. $y = a \sin 2\omega t$
C. $y = a \sin(\omega t - \phi)$
D. $y = a \sin 3\omega t$

Choose the answer from the options given below.

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

31. If ϕ is the work function of photosensitive material in eV and light of wavelength of numerical value $\lambda = \frac{hc}{e}$ metre, is incident on it with energy above its threshold value at an instant then the maximum kinetic energy of the photo-electron ejected by it at that instant (Take *h*-Planck's constant, *c*-velocity of light in free space) is (in SI units):

(1) $e + 2\phi$
(2) $2e - \phi$
(3) $e - \phi$
(4) $e + \phi$

32. The electromagnetic radiation which has the smallest wavelength are

(1) X-rays
(2) Gamma rays
(3) Ultraviolet rays
(4) Microwaves

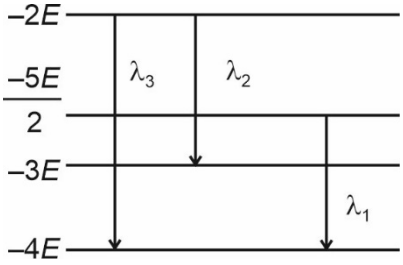
33. The equilibrium state of a thermodynamic system is described by

A. Pressure
B. Total heat
C. Temperature
D. Volume
E. Work done

Choose the answer from the options given below.

(1) A, B and E only
(2) B, C and D only
(3) A, B and C only
(4) A, C and D only

34. Some energy levels of a molecule are shown in the figure with their wavelengths of transitions. Then:



(1) $\lambda_3 > \lambda_2, \lambda_1 = 2\lambda_2$

(2) $\lambda_3 > \lambda_2, \lambda_1 = 4\lambda_2$

(3) $\lambda_1 > \lambda_2, \lambda_2 = 2\lambda_3$

(4) $\lambda_2 > \lambda_1, \lambda_2 = 2\lambda_3$

35. A box of mass 5 kg is pulled by a cord, up along a frictionless plane inclined at 30° with the horizontal. The tension in the cord is 30 N. The acceleration of the box is (Take g = 10 m s^{-2})

(1) 2 m s^{-2}

(2) Zero

(3) 0.1 m s^{-2}

(4) 1 m s^{-2}

36. If the ratio of relative permeability and relative permittivity of a uniform medium is 1 : 4. The ratio of the magnitudes of electric field intensity (E) to the magnetic field intensity (H) of an EM wave propagating in that medium is

$\left(\text{Given that } \sqrt{\frac{\mu_0}{\varepsilon_0}} = 120\ \pi\right)$:

(1) 30π : 1

(2) 1 : 120π

(3) 60π : 1

(4) 120π : 1

37. The value of electric potential at a distance of 9 cm from the point charge 4 × 10^{-7} C is

$\left[\text{Given } \frac{1}{4\pi\varepsilon_0} = 9\times10^9\ \text{N m}^2\ \text{C}^{-2}\right]$:

(1) 4 × 10^2 V

(2) 44.4 V

(3) 4.4 × 10^5 V

(4) 4 × 10^4 V

38. The displacement of a travelling wave $y = C\sin\frac{2\pi}{\lambda}$ (at − x) where t is time, x is distance and λ is the wavelength, all in S.I. units. Then the frequency of the wave is:

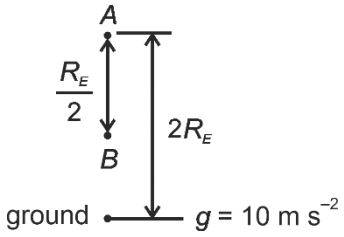
(1) $\frac{2\pi\lambda}{a}$

(2) $\frac{2\pi a}{\lambda}$

(3) $\frac{\lambda}{a}$

(4) $\frac{a}{\lambda}$

39. An object of mass 100 kg falls from point *A* to *B* as shown in figure. The change in its weight, corrected to the nearest integer is (R_E is the radius of the earth):



(1) 49 N (2) 89 N

(3) 5 N (4) 10 N

40. The potential energy of a particle moving along *x*-direction varies as $V = \frac{Ax^2}{\sqrt{x}+B}$. The dimensions of $\frac{A^2}{B}$ are:

(1) $\left[M^{3/2} L^{1/2} T^{-3}\right]$ (2) $\left[M^{1/2} L T^{-3}\right]$

(3) $\left[M^2 L^{1/2} T^{-4}\right]$ (4) $[ML^2T^{-4}]$

41. The two-dimensional motion of a particle, described by $\vec{r} = \left(\hat{i} + 2\hat{j}\right) A\cos\omega t$ is a/an:

A. parabolic path

B. elliptical path

C. periodic motion

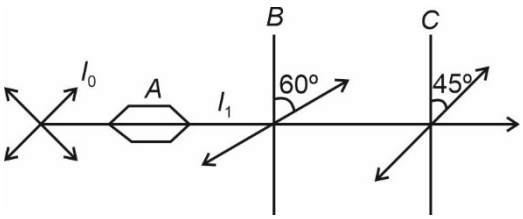
D. simple harmonic motion

Choose the correct answer from the options given below:

(1) B, C and D only (2) A, B and C only

(3) A, C and D only (4) C and D only

42. A beam of unpolarized light of intensity I_0 is passed through a polaroid *A*, then through another polaroid *B*, oriented at 60º and finally through another polaroid *C*, oriented at 45º relative to *B* as shown. The intensity of emergent light is:



(1) $\frac{I_0}{16}$ (2) $\frac{I_0}{4}$

(3) $\frac{I_0}{2}$ (4) $\frac{I_0}{32}$

43. Select the correct statements among the following :

A. Slow neutrons can cause fission in $^{235}_{92}U$ than fast neutrons.

B. α-rays are Helium nuclei.

C. β-rays are fast moving electrons or positrons.

D. γ-rays are electromagnetic radiations of wavelengths larger than X-rays.

Choose the answer from the options given below :

(1) A, B and C only

(2) A, B and D only

(3) A and B only

(4) C and D only

44. Let ω_1, ω_2 and ω_3 be the angular speed of the second hand, minute hand and hour hand of a smoothly running analog clock, respectively. If x_1, x_2 and x_3 are their respective angular distances in 1 minute then the factor which remains constant (k) is

(1) $\frac{\omega_1}{x_1} = \frac{\omega_2}{x_2} = \frac{\omega_3}{x_3} = k$

(2) $\omega_1 x_1 = \omega_2 x_2 = \omega_3 x_3 = k$

(3) $\omega_1 x_1^2 = \omega_2 x_2^2 = \omega_3 x_3^2 = k$

(4) $\omega_1^2 x_1 = \omega_2^2 x_2 = \omega_3^2 x_3 = k$

45. The magnetic moment of an iron bar is M. It is now bent in such a way that it forms an arc section of a circle subtending an angle of 60° at the centre. The magnetic moment of this arc section is

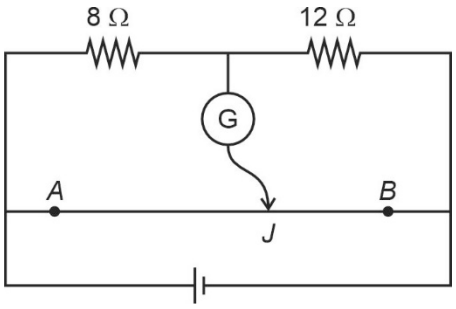
(1) $\frac{3M}{\pi}$

(2) $\frac{4M}{\pi}$

(3) $\frac{M}{\pi}$

(4) $\frac{2M}{\pi}$

46. The given circuit shows a uniform straight wire AB of 40 cm length fixed at both ends. In order to get zero reading in the galvanometer G, the free end of J is to be placed from B at:



(1) 32 cm

(2) 8 cm

(3) 16 cm

(4) 24 cm

47. According to the law of equipartition of energy, the number of vibrational modes of a polyatomic gas of constant $\gamma = \frac{C_p}{C_v}$ is (C_P where C_V are the specific heat capacities of the gas at constant pressure and constant volume, respectively):

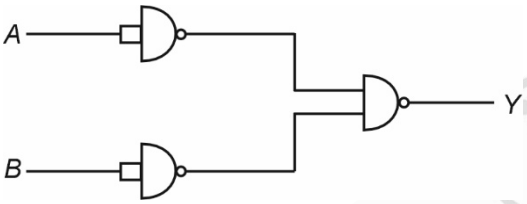
(1) $\frac{4+3\gamma}{\gamma-1}$

(2) $\frac{3+4\gamma}{\gamma-1}$

(3) $\frac{4-3\gamma}{\gamma-1}$

(4) $\frac{3-4\gamma}{\gamma-1}$

48. The output Y for the inputs A and B of the given logic circuit is :



(1) $A \cdot B$

(2) $\bar{A} \cdot \bar{B}$

(3) $A + B$

(4) $\bar{A} + \bar{B}$

49. The amplitude of the charge oscillating in a circuit decreases exponentially as $Q = Q_0 e^{-Rt/2L}$, where Q_0 is the charge at t = 0s. The time at which charge amplitude decreases to 0.50 Q_0 is nearly:

[Given that R = 1.5 Ω, L = 12 mH, ln(2) = 0.693]

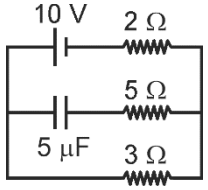
(1) 19.01 ms

(2) 11.09 ms

(3) 19.01 s

(4) 11.09 s

50. The steady state current in the circuit shown below is :



(1) 0.67 A

(2) 1.5 A

(3) 2 A

(4) 1 A

51. The decreasing order of atomic radii (pm) of Li, Be, B and C is

(1) Be > Li > B > C
(2) Li > Be > B > C
(3) C > B > Be > Li
(4) Li > C > Be > B

52. Following data is for a reaction between reactants A and B :

2×10^{-3}	0.1 M	0.1 M
4×10^{-3}	0.2 M	0.1 M
1.6×10^{-2}	0.2 M	0.2 M

The order of the reaction with respect to A and B, respectively, are

(1) 1, 0
(2) 0, 1
(3) 1, 2
(4) 2, 1

53. Given below are two statements:

Propene on treatment with diborane gives an addition product with the formula $((CH_3)_2 - CH \rightarrow_3 B$.

Oxidation of $((CH_3)_2 - CH \rightarrow_3 B$ with hydrogen peroxide in presence of NaOH gives propan-2-ol.

In the light of the above statements, choose the answer from the options given below:

(1) is correct but is incorrect
(2) is incorrect but is correct
(3) Both and are correct
(4) Both and are incorrect

54. Baeyer's reagent is :

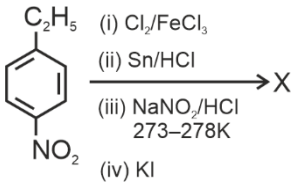
(1) Acidic potassium permanganate solution
(2) Acidic potassium dichromate solution
(3) Cold, dilute, aqueous solution of potassium permanganate
(4) Hot, concentrated solution of potassium permanganate

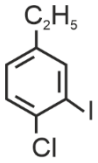
55. Which of the following molecules has "NON ZERO" dipole moment value?

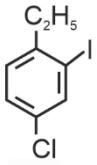
(1) CCl_4 (2) HI

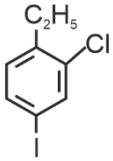
(3) CO_2 (4) BF_3

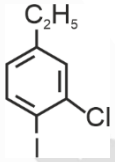
56. The major product X formed in the following reaction sequence is:



(1) 

(2) 

(3) 

(4) 

57. Which indicator is used in the titration of sodium hydroxide against oxalic acid and what is the colour change at the end point?

(1) Phenolphthalein, pink to yellow

(2) Alkaline $KMnO_4$, colourless to pink

(3) Phenolphthalein, colourless to pink

(4) Methyl orange, yellow to pinkish red colour

58. Match List-I with List-II :

A.	Nitrogen atom	I.	Paramagnetic
B.	Fluorine molecule	II.	Most reactive element in group 18
C.	Oxygen molecule	III.	Element with highest ionisation enthalpy in group 15
D.	Xenon atom	IV.	Strongest oxidising agent

Identify the answer from the options given below :

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

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

59. From the following select the one which is an example of corrosion.

(1) Rusting of iron object

(2) Production of hydrogen by electrolysis of water

(3) Tarnishing of silver

(4) Development of green coating on copper and bronze ornaments

60. Which of the following pairs of ions will have same spin only magnetic moment values within the pair?

A. Zn^{2+}, Ti^{2+}

B. Cr^{2+}, Fe^{2+}

C. Ti^{3+}, Cu^{2+}

D. V^{2+}, Cu^{+}

Choose the answer from the options given below :

(1) C and D only

(2) A and D only

(3) A and B only

(4) B and C only

61. At a given temperature and pressure, the equilibrium constant values for the equilibria are given below:

$3A_2 + B_2 \rightleftharpoons 2A_3B$, K_1

$A_3B \rightleftharpoons \frac{3}{2}A_2 + \frac{1}{2}B_2$, K_2

The relation between K_1 and K_2 is :

(1) $K_1^2 = 2K_2$

(2) $K_2 = \frac{K_1}{2}$

(3) $K_1 = \frac{1}{\sqrt{K_2}}$

(4) $K_2 = \frac{1}{\sqrt{K_1}}$

62. Arrange the following compounds in increasing order of their solubilities in chloroform:

NaCl, CH_3OH, cyclohexane, CH_3CN

(1) NaCl < CH_3CN < CH_3OH < Cyclohexane

(2) CH_3OH < CH_3CN < NaCl < Cyclohexane

(3) NaCl < CH_3OH < CH_3CN < Cyclohexane

(4) Cyclohexane < CH_3CN < CH_3OH < NaCl

63. Identify the statement about PCl_5.

(1) PCl_5 possesses two different Cl – P – Cl bond angles

(2) All five P – Cl bonds are identical in length

(3) PCl_5 exhibits sp^3d hybridisation

(4) PCl_5 consists of five P – Cl (sigma) bonds

64. Choose the correct statement for the work done in the expansion and heat absorbed or released when 5 litres of an ideal gas at 10 atmospheric pressure isothermally expands into vacuum until volume is 15 litres :

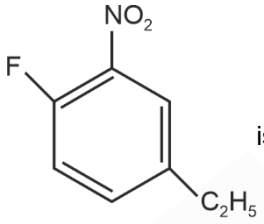
(1) Both the heat and work done will be greater than zero

(2) Heat absorbed will be less than zero and work done will be positive

(3) Work done will be zero and heat will also be zero

(4) Work done will be greater than zero and heat will remain zero

65. The correct IUPAC name of the compound



is:

(1) 4-ethyl-1-fluoro-2-nitrobenzene

(2) 4-ethyl-1-fluoro-6-nitrobenzene

(3) 3-ethyl-6-fluoro-1-nitrobenzene

(4) 1-ethyl-4-fluoro-3-nitrobenzene

66. Which of the following set of ions act as oxidising agents?

(1) Ce^{4+} and Tb^{4+}

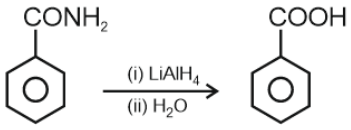
(2) La^{3+} and Lu^{3+}

(3) Eu^{2+} and Yb^{2+}

(4) Eu^{2+} and Tb^{4+}

67. Select the reaction among the following:

(1) $CH_3COCl \xrightarrow[\Delta]{H_2O} CH_3COOH$

(2) 

(3) $CH_3CH_2OH \xrightarrow[(ii)\,H_3O^{\oplus}]{(i)\,KMnO_4/OH^-} CH_3COOH$

(4) $CH_3CH_2CH_2OH \xrightarrow{CrO_3 - H_2SO_4} CH_3CH_2COOH$

68. The UV-visible absorption bands in the spectra of lanthanoid ions are 'X', probably because of the excitation of electrons involving 'Y'. The 'X' and 'Y', respectively, are :

(1) Broad and f orbitals

(2) Narrow and f orbitals

(3) Broad and d and f orbitals

(4) Narrow and d and f orbitals

69. Ethylene diaminetetraacetate ion is a/an:

(1) hexadentate ligand
(2) ambidentate ligand
(3) monodentate ligand
(4) bidentate ligand

70. The amount of glucose required to prepare 250 mL of $\frac{M}{20}$ aqueous solution is :

(Molar mass of glucose : 180 g mol^{-1})

(1) 2.25 g
(2) 4.5 g
(3) 0.44 g
(4) 1.125 g

71. Identify the statement from the following :

(1) The acidic strength of HX (X = F, Cl, Br and I) follows the order : HF > HCl > HBr > HI.
(2) Fluorine exhibits –1 oxidation state whereas other halogens exhibit +1, +3, +5 and +7 oxidation states also.
(3) The enthalpy of dissociation of F_2 is smaller than that of Cl_2.
(4) Fluorine is stronger oxidising agent than chlorine.

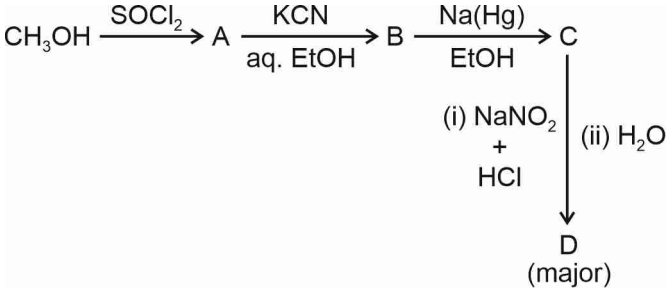
72. For the reaction in equilibrium

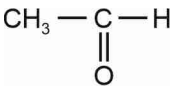
$N_2(g) + 3H_2(g) \rightleftharpoons 2NH_3(g)$, $\Delta H = -Q$

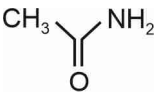
Reaction is favoured in forward direction by:

(1) use of catalyst
(2) decreasing concentration of N_2
(3) low pressure, high temperature and high concentration of ammonia
(4) high pressure, low temperature and higher concentration of H_2

73. The major product D formed in the following reaction sequence is:



(1) 

(2) 

(3) CH_3CH_2OH

(4) CH_3CH_2Cl

74. Match List-I with List-II:

A.	Lanthanoid	I.	Ce
B.	d-block element	II.	As
C.	p-block element	III.	Cs
D.	s-block element	IV.	Mn

Choose the answer from the options given below:

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

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

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

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

75. Which of the following is an ambidentate ligand?

(1) $C_2O_4^{2-}$

(2) SCN^-

(3) NO_2^-

(4) CN^-

76. The quantum numbers of four electrons are given below :

I. $n = 4; l = 2; m_l = -2; s = -\frac{1}{2}$

II. $n = 3; l = 2; m_l = 1; s = +\frac{1}{2}$

III. $n = 4; l = 1; m_l = 0; s = +\frac{1}{2}$

IV. $n = 3; l = 1; m_l = -1; s = +\frac{1}{2}$

The decreasing order of energy of these electrons is

(1) IV > II > III > I

(2) I > III > II > IV

(3) III > I > II > IV

(4) I > II > III > IV

77. The major product C in the below mentioned reaction is:

$$CH_3CH_2CH_2Br \xrightarrow[\Delta]{\text{alc. KOH}} A \xrightarrow{HBr} B \xrightarrow[\Delta]{\text{aq. KOH}} C$$

(1) Propan-1-ol

(2) Propan-2-ol

(3) Propane

(4) Propyne

78. The compound that does not undergo Friedel-Crafts alkylation reaction but gives a positive carbylamine test is :

(1) Aniline
(2) Pyridine
(3) N-methylaniline
(4) Triethylamine

79. For an endothermic reaction:

(A) q_p is negative.
(B) $\Delta_r H$ is positive.
(C) $\Delta_r H$ is negative.
(D) q_p is positive.

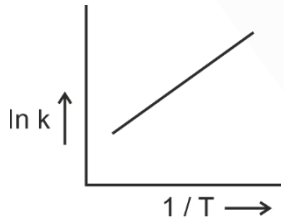
Choose the answer from the options given, below:

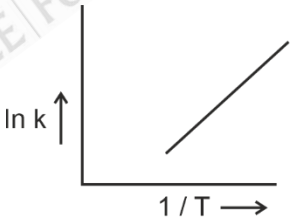
(1) B and D
(2) C and D
(3) A and B
(4) A and C

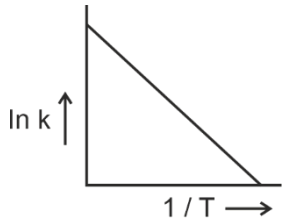
80. 1.0 g of H_2 has same number of molecules as in:

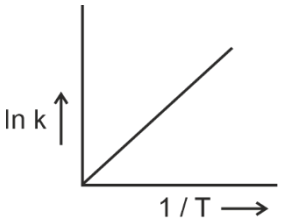
(1) 14 g of N_2
(2) 18 g of H_2O
(3) 16 g of CO
(4) 28 g of N_2

81. Which of the following plot represents the variation of ln k versus $\frac{1}{T}$ in accordance with Arrhenius equation?

(1) 

(2) 

(3) 

(4) 

82. A steam volatile organic compound which is immiscible with water has a boiling point of 250°C. During steam distillation, a mixture of this organic compound and water will boil :

(1) above 100°C but below 250°C
(2) above 250°C
(3) at 250°C
(4) close to but below 100°C

83. Given below are two statements :

Glycogen is similar to amylose in its structure.

Glycogen is found in yeast and fungi also.

In the light of the above statements, choose the answer from the options given below :

(1) is true but is false.

(2) is false but is true.

(3) Both and are true.

(4) Both and are false.

84. The oxidation states shown by Mn in given reaction is :

$$3MnO_4^{2-} + 4H^+ \longrightarrow 2MnO_4^- + MnO_2 + 2H_2O$$

A. +6

B. +2

C. +4

D. +7

E. +3

Choose the answer from the options given below :

(1) D and E only

(2) B and D only

(3) A and B only

(4) B and E only

85. Given below are two statements:

The Balmer spectral line for H atom with lowest energy is located at $\frac{5}{36}R_H$ cm^{-1}.

(R_H = Rydberg constant)

When the temperature of blackbody increases, the maxima of the curve (intensity of wavelength) shifts to shorter wavelength.

In the light of the above statements, choose the answer from the options given below:

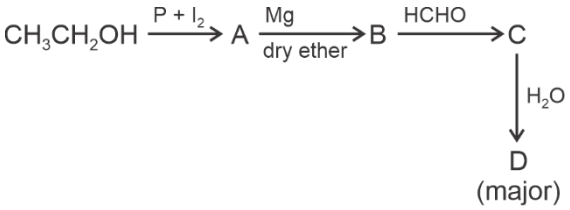
(1) is true but is false

(2) is false but is true

(3) Both and are true

(4) Both and are false

86. Identify D in the following sequence of reactions:



(1) n-propyl alcohol
(2) isopropyl alcohol
(3) propanal
(4) propionic acid

87. Identify the statement.

(1) PEt_3 and $AsPh_3$ as ligands can form $d\pi$-$d\pi$ bond with transition metals
(2) The N – N single bond is as strong as the P – P single bond
(3) Nitrogen has unique ability to form $p\pi$-$p\pi$ multiple bonds with nitrogen, carbon and oxygen
(4) Nitrogen cannot form $d\pi$-$p\pi$ bond as other heavier elements of its group

88. Match with :

A.	Lake Test	I.	NO_3^-
B.	Nessler's Reagent	II.	Fe^{3+}
C.	Potassium sulphocyanide	III.	Al^{3+}
D.	Brown Ring Test	IV.	NH_4^+

Choose the answer from the options given below :

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

89. Match List-I with List-II:

A.	HCl	I.	435.8
B.	N_2	II.	498
C.	H_2	III.	946.0
D.	O_2	IV.	431.0

Choose the correct answer from the options given below:

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

90. The standard cell potential of the following cell $Zn|Zn^{2+}$ (aq)$|Fe^{2+}$(aq)|Fe is 0.32 V. Calculate the standard Gibbs energy change for the reaction :

$Zn(s) + Fe^{2+}(aq) \rightarrow Zn^{2+}(aq) + Fe(s)$

(Given : 1 F = 96487 C)

(1) -61.75 kJ mol^{-1} (2) $+5.006$ kJ mol^{-1}

(3) -5.006 kJ mol^{-1} (4) $+61.75$ kJ mol^{-1}

91. Match List-I will List-II:

A.	effervescence of colourless gas	I.	NO_2^-
B.	gas with smell of rotten egg	II.	CO_3^{2-}
C.	gas with pungent smell	III.	S^{2-}
D.	brown fumes	IV.	SO_3^{2-}

Choose the answer from the options given below:

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

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

92. The ratio of solubility of AgCl in 0.1 M KCl solution to the solubility of AgCl in water is:

(Given : Solubility product of AgCl = 10^{-10})

(1) 10^{-4} (2) 10^{-6}

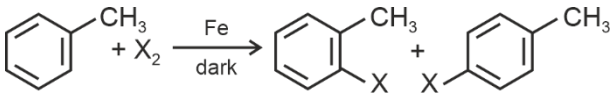
(3) 10^{-9} (4) 10^{-5}

93. On complete combustion, 0.3 g of an organic compound gave 0.2 g of CO_2 and 0.1 g of H_2O. The percentage composition of carbon and hydrogen in the compound, respectively is:

(1) 4.07% and 15.02% (2) 18.18% and 3.70%

(3) 15.02% and 4.07% (4) 3.70% and 18.18%

94. The following reaction method

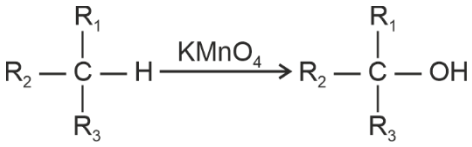


is not suitable for the preparation of the corresponding haloarene products, due to high reactivity of halogen, when X is :

(1) F (2) I

(3) Cl (4) Br

95. The alkane that can be oxidized to the corresponding alcohol by $KMnO_4$ as per the equation



is, when:

(1) $R_1 = H; R_2 = H; R_3 = H$

(2) $R_1 = CH_3; R_2 = CH_3; R_3 = CH_3$

(3) $R_1 = CH_3; R_2 = H; R_3 = H$

(4) $R_1 = CH_3; R_2 = CH_3; R_3 = H$

96. For the following reaction at 300 K

$A_2(g) + 3B_2(g) \rightarrow 2AB_3(g)$

the enthalpy change is +15 kJ, then the internal energy change is :

(1) 19988.4 J

(2) 200 J

(3) 1999 J

(4) 1.9988 kJ

97. Rate constants of a reaction at 500 K and 700 K are 0.04 s^{-1} and 0.14 s^{-1}, respectively; then, activation energy of the reaction is :

(Given: log3.5 = 0.5441, R = 8.31 J K^{-1} mol^{-1})

(1) 182310 J

(2) 18500 J

(3) 18219 J

(4) 18030 J

98. Mass of glucose ($C_6H_{12}O_6$) required to be dissolved to prepare one litre of its solution which is isotone with 15 g L^{-1} solution of urea (NH_3CONH_2) is (Given: Molar mass in g mol^{-1} C : 12, H : 1, O : 16, N : 14)

(1) 55 g

(2) 15 g

(3) 30 g

(4) 45 g

99. $[Mn_2(CO)_{10}]$ and $[Co_2(CO)_8]$ structures have

A. Metal-Metal linkage

B. Terminal CO groups

C. Bridging CO groups

D. Metal in zero oxidation state

Choose the answer from the options given below

(1) Only A, B, C

(2) Only B, C, D

(3) Only A, C, D

(4) Only A, B, D

100. Methyl group attached to a positively charged carbon atom stabilizes the carbocation due to

(1) –I inductive effect

(2) electromeric effect

(3) hyperconjugation

(4) mesomeric effect

BOTANY

SECTION-A

101. The regions with high level of species richness, high degree of endemism and a loss of 70% of the species and habitat are identified as:

(1) Natural Reserves

(2) Sacred Groves

(3) Biodiversity Hotspots

(4) Biogeographical Regions

Answer (3)

102. Which of the following simple tissues are commonly found in the fruit walls of nuts and pulp of pear?

(1) Sclereids

(2) Fibres

(3) Parenchyma

(4) Collenchyma

Answer (1)

103. In a chromosome, there is a specific DNA sequence, responsible for initiating replication. It is called as:

(1) Recognition sequence

(2) Cloning site

(3) Restriction site

(4) *ori* site

Answer (4)

104. Given below are two statements:

Statement I: When many alleles of a single gene govern a character, it is called polygenic inheritance.

Statement II: In Polygenic inheritance, the effect of each allele is additive.

In the light of the above statements, choose the **correct** answer from the options given below.

(1) Statement I is true but Statement II is false

(2) Statement I is false but Statement II is true

(3) Both Statement I and Statement II are true

(4) Both Statement I and Statement II are false

Answer (2)

105. Which of the following are required for the light reaction of Photosynthesis?

A. CO_2
B. O_2
C. H_2O
D. Chlorophyll
E. Light

Choose the **correct** answer from the options given below:

(1) A, C, D and E only
(2) C, D and E only
(3) A and B only
(4) A, C and E only

Answer (2)

106. Match **List-I** with **List-II**:

List-I		**List-II**
A.	Fleming	I. Disc shaped sacs or cisternae near cell nucleus
B.	Robert Brown	II. Chromatin
C.	George Palade	III. Ribosomes
D.	Camillo Golgi	IV. Nucleus

Choose the **correct** answer from the options given below:

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

Answer (1)

107. Match **List-I** with **List-II**:

List-I		**List-II**
	Type of Inheritance	**Example**
A.	Incomplete dominance	I. Blood groups in human
B.	Co-dominance	II. Flower colour in *Antirrhinum*
C.	Pleiotropy	III. Skin colour in human
D.	Polygenic inheritance	IV. Phenylketonuria

Choose the **correct** answer from the options given below:

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

Answer (2)

108. Which part of the ovule stores reserve food materials?

(1) Nucellus

(2) Integument

(3) Placenta

(4) Funicle

Answer (1)

109. Which one of the following is **not** found in Gymnosperms?

(1) Sieve cells

(2) Albuminous cells

(3) Tracheids

(4) Vessels

Answer (4)

110. Which one of the following is **not** included under *in-situ* conservation?

(1) Wild-life sanctuary

(2) Botanical garden

(3) Biosphere reserve

(4) National park

Answer (2)

111. Given below are two statements:

Statement I : The Indian Government has set up GEAC, which will make decisions regarding the validity of GM research.

Statement II : Biopiracy is the term used to refer to the use of bio-resources by native people.

In the light of the above statements, choose the **correct** answer from the options given below :

(1) **Statement I** is true but **Statement II** is false

(2) **Statement I** is false but **Statement II** is true

(3) Both **Statement I** and **Statement II** are true

(4) Both **Statement I** and **Statement II** are false

Answer (1)

112. Pollen grains remain preserved as fossils due to the presence of :

(1) Epidermal layer

(2) Tapetum

(3) Exine layer

(4) Intine layer

Answer (3)

113. Identify the **incorrect** pair :

(1) Sphenopsida – *Adiantum*

(2) Pteropsida – *Dryopteris*

(3) Psilopsida – *Psilotum*

(4) Lycopsida – *Selaginella*

Answer (1)

114. Which of the following is the **correct** match?

(1) Gymnosperms : *Cedrus, Pinus, Sequoia*

(2) Angiosperms : *Wolffia, Eucalyptus, Sequoia*

(3) Bryophytes : *Polytrichum, Polysiphonia, Sphagnum*

(4) Pteridophytes : *Equisetum, Ginkgo, Adiantum*

Answer (1)

115. Given below are two statements regarding RNA polymerase in prokaryotes.

Statement I : In prokaryotes, RNA polymerase is capable of catalysing the process of elongation during transcription.

Statement II : RNA polymerase associate transiently with 'Rho' factor to initiate transcription.

In the light of the above statements, choose the **correct** answer from the options given below :

(1) **Statement I** is true but **Statement II** is false

(2) **Statement I** is false but **Statement II** is true

(3) Both **Statement I** and **Statement II** are true

(4) Both **Statement I** and **Statement II** are false

Answer (1)

116. Which of the following is a nucleotide?

(1) Uridine

(2) Adenylic acid

(3) Guanine

(4) Guanosine

Answer (2)

117. Match **List-I** with **List-II** :

	List-I		**List-II**
A.	Vexillary aestivation	I.	Brinjal
B.	Epipetalous stamens	II.	Peach
C.	Epiphyllous stamens	III.	Pea
D.	Perigynous flower	IV.	Lily

Choose the **correct** answer from the options given below :

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

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

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

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

Answer (1)

118. Match **List-I** with **List-II** :

	List-I		**List-II**
A.	China rose	I.	Free central
B.	Mustard	II.	Basal
C.	Primrose	III.	Axile
D.	Marigold	IV.	Parietal

Choose the **correct** answer from the options given below :

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

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

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

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

Answer (3)

119. Which of the following helps in maintenance of the pressure gradient in sieve tubes?

(1) Albuminous cells

(2) Sieve cells

(3) Phloem parenchyma

(4) Companion cells

Answer (4)

120. Mesosome in a cell is a :

(1) Membrane bound vesicular structure

(2) Chain of many ribosomes attached to a single mRNA

(3) Special structure formed by extension of plasma membrane

(4) Medium sized chromosome

Answer (3)

121. Match **List-I** with **List-II** :

	List-I		**List-II**
A.	Abscisic acid	I.	Promotes female flowers in cucumber
B.	Ethylene	II.	Helps seeds to withstand desiccation
C.	Gibberellin	III.	Helps in nutrient mobilisation
D.	Cytokinin	IV.	Promotes bolting in beet, cabbage etc

Choose the **correct** answer from the options given below:

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

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

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

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

Answer (3)

122. Match **List-I** with **List-II** :

	List-I		**List-II**
A.	Genetically engineered Human Insulin	I.	Gene therapy
B.	GM Cotton	II.	*E. coli*
C.	ADA Deficiency	III.	Antigen-antibody interaction
D.	ELISA	IV.	*Bacillus thuringiensis*

Choose the **correct** answer from the options given below:

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

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

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

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

Answer (4)

123. Match **List-I** with **List-II**:

	List-I		**List-II**
A.	ETS Complex I	I.	NADH Dehydrogenase
B.	ETS Complex II	II.	Cytochrome bC_1
C.	ETS Complex III	III.	Cytochrome C oxidase
D.	ETS Complex IV	IV.	Succinate Dehydrogenase

Choose the **correct** answer from the options given below :

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

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

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

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

Answer (2)

124. Cryopreservation technique is used for :

(1) Protection of environment

(2) Protection of Biodiversity hotspots

(3) Preservation of gametes in viable and fertile condition for a long period

(4) *In-situ* conservation

Answer (3)

125. Which of the following are **correct** about cellular respiration?

A. Cellular respiration is the breaking of C-C bonds of complex organic molecules by oxidation.

B. The entire cellular respiration takes place in Mitochondria.

C. Fermentation takes place under anaerobic condition in germinating seeds.

D. The fate of pyruvate formed during glycolysis depends on the type of organism also.

E. Water is formed during respiration as a result of O_2 accepting electrons and getting reduced.

Choose the **correct** answer from the options given below:

(1) A, C, D, E only

(2) A, B, E only

(3) A, B, C, E only

(4) B, C, D, E only

Answer (1)

126. Given below are two statements:

Statement I: In eukaryotes there are three RNA polymerases in the nucleus in addition to the RNA polymerase found in the organelles.

Statement II: All the three RNA polymerases in eukaryotic nucleus have different roles.

In the light of the above statements, choose the **correct** answer from the options given below:

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

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

(3) Both **Statement I** and **Statement II** are correct

(4) Both **Statement I** and **Statement II** are incorrect

Answer (3)

127. Match **List-I** with **List-II**:

	List-I		**List-II**
A.	Histones	I.	Loosely packed chromatin
B.	Nucleosome	II.	Densely packed Chromatin
C.	Euchromatin	III.	Positively charged basic proteins
D.	Heterochromatin	IV.	DNA wrapped around histone octamer

Choose the **correct** answer from the options given below:

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

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

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

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

Answer (4)

128. Given below are two statements:

Statement I: Failure of segregation of chromatids during cell cycle resulting in the gain or loss of whole set of chromosome in an organism is known as aneuploidy.

Statement II: Failure of cytokinesis after anaphase stage of cell division results in the gain or loss of a chromosome is called polyploidy.

In the light of the above statements, choose the **correct** answer from the options given below:

(1) **Statement I** is true but **Statement II** is false

(2) **Statement I** is false but **Statement II** is true

(3) Both **Statement I** and **Statement II** are true

(4) Both **Statement I** and **Statement II** are false

Answer (4)

129. Recombination between homologous chromosomes is completed by the end of

(1) Diakinesis

(2) Zygotene

(3) Diplotene

(4) Pachytene

Answer (4)

130. Match **List-I** with **List-II**:

	List-I		**List-II**
A.	Metacentric chromosome	I.	Chromosome has a terminal centromere
B.	Sub-metacentric chromosome	II.	Middle centromere forming two equal arms of chromosome
C.	Acrocentric chromosome	III.	Centromere is slightly away from the middle of chromosome resulting into two unequal arms
D.	Telocentric chromosome	IV.	Centromere is situated close to its end forming one extremely short and one very long arm

Choose the **correct** answer from the options given below:

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

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

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

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

Answer (4)

131. Ligases is a class of enzymes responsible for catalysing the linking together of two compounds.

Which of the following bonds is not catalysed by it?

(1) C – C

(2) P – O

(3) C – O

(4) C – N

Answer (1)

132. F. Skoog observed that callus proliferated from the internodal segments of tobacco stem when auxins was supplied with one of the following except :

(1) Extract of Vascular tissues

(2) Coconut milk

(3) Abscisic acid

(4) Yeast Extract

Answer (3)

133. Given below are some statements about plant growth regulators.

A. All Gas are acidic in nature.

B. Auxins are antagonists to Gas.

C. Zeatin was isolated from coconut milk.

D. Ethylene induces flowering in Mango.

E. Abscisic acid induces parthenocarpy.

Choose the correct set of statements from the option given below:

(1) A, C, D

(2) B, E

(3) A, B, C

(4) B, D, E

Answer (1)

134. Identify the **incorrect** statement related to get electrophoresis.

(1) Separated DNA fragments can be directly seen under UV radiation

(2) Separated DNA can be extracted from get piece

(3) Fragment of DNA moves toward anode

(4) Sieving effect of agarose gel helps in separation of DNA fragments

Answer (1)

135. Which of the following examples show monocarpellary, unilocular ovary with many ovules?

A. *Sesbania*

B. Brinjal

C. *Indigofera*

D. Tobacco

E. *Asparagus*

Choose the correct answer from the options given below :

(1) B and E only

(2) C, D and E only

(3) A, B and D only

(4) A and C only

Answer (4)

SECTION-B

136. Given below are two statements :

Statement I: In the *lac* operon, the z gene codes for beta-galactosidase which is primarily responsible for the hydrolysis of lactose into galactose and glucose.

Statement II: In addition to lactose, glucose or galactose can also induce *lac* operon.

In the light of the above statements, choose the **correct** answer from the options given below :

(1) **Statement I** is true but **Statement II** is false

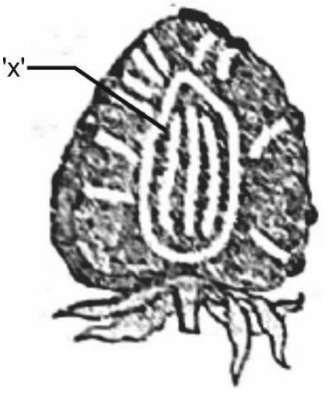
(2) **Statement I** is false but **Statement II** is true

(3) Both **Statement I** and **Statement II** are true

(4) Both **Statement I** and **Statement II** are false

Answer (1)

137. The part marked as 'x' in the given figure is



(1) Endosperm

(2) Thalamus

(3) Endocarp

(4) Mesocarp

Answer (2)

138. Given below are two statements:

Statement I: In a dicotyledonous leaf, the adaxial epidermis generally bears more stomata than the abaxial epidermis.

Statement II: In a dicotyledonous leaf, the adaxially placed palisade parenchyma is made up of elongated cells, which are arranged vertically and parallel to each other.

In the light of the above statements, choose the **correct** answer from the options given below:

(1) **Statement I** is true but **Statement II** is false

(2) **Statement I** is false but **Statement II** is true

(3) Both **Statement I** and **Statement II** are true

(4) Both **Statement I** and **Statement II** are false

Answer (2)

139. Which of the following are **not** fatty acids?

A. Glutamic acid

B. Arachidonic acid

C. Palmitic acid

D. Lecithin

E. Aspartic acid

Choose the **correct** answer from the options given below :

(1) C, D and E only

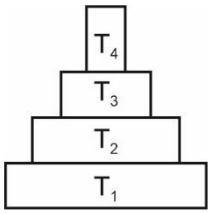
(2) A and B only

(3) A, D and E only

(4) B and C only

Answer (3)

140. Consider the pyramid of energy of an ecosystem given below:



If T_4 is equivalent to 1000 J, what is the value at T_1

(1) $\frac{10000}{10}$ J

(2) $\frac{10000}{10} \times 4$ J

(3) 10,000 J

(4) 10,00,000 J

Answer (4)

141. Which one of the following products diffuses out of the chloroplast during photosynthesis?

(1) ADP

(2) NADPH

(3) O_2

(4) ATP

Answer (3)

142. Recombinant DNA molecule can be created normally by cutting the vector DNA and source DNA respectively with:

(1) Hind II, Hind II

(2) Hind II, Alu I

(3) Hind II, EcoR I

(4) Hind II, BamHI

Answer (1)

143. Which one of the following is not a limitation of ecological pyramids?

(1) Saprophytes are not given any place of ecological pyramids

(2) It assumes a simple food chain, that almost never exists in nature

(3) It accommodates a food web

(4) It does not take into account the same species belonging to two or more trophic levels

Answer (3)

144. The *Bt* toxin in genetically engineered *Bt* cotton kills the pest by:

(1) Creating pores in the midgut

(2) Damaging the respiratory system

(3) Degenerating the nervous system

(4) Altering the pH of body fluids

Answer (1)

145. Match List-I with List-II:

List-I **Organisms**		**List-II** **Mode of Nutrition**	
A.	Euglenoid	I.	Parasitic
B.	Dinoflagellate	II.	Saprophytic
C.	Slime mould	III.	Photosynthetic
D.	*Plasmodium*	IV.	Switching between photosynthetic and heterotrophic mode

Choose the **correct** answer from the options given below:

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

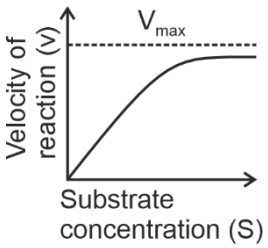
(2) A-IV, B-II, C-I, D-III

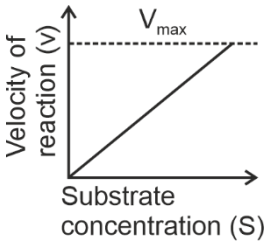
(3) A-IV, B-III, C-II, D-I

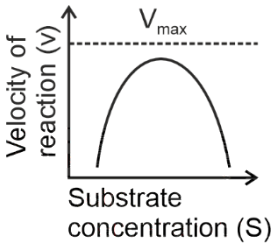
(4) A-IV, B-II, C-III, D-I

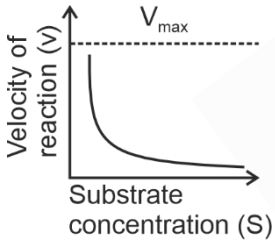
Answer (3)

146. Which of the following graphs depicts the effect of substrate concentration on velocity of enzyme catalysed reaction?

(1) 

(2) 

(3) 

(4) 

Answer (1)

147. When will the population density increase, under special conditions?

When the number of :

(1) Deaths exceeds number of births and also number of emigrants equals number of immigrants.

(2) Births plus number of immigrants equals number of deaths plus number of emigrants.

(3) Births plus number of emigrants is more than the number of deaths plus number of immigrants.

(4) Births plus number of immigrants is more than the sum of number of deaths and number of emigrants.

Answer (4)

148. When a tall pea plant with round seeds was selfed, it produced the progeny of :

(a) Tall plants with round seeds and

(b) Tall plants with wrinkled seeds.

Identify the genotype of the parent plant.

(1) TtRr

(2) TtRR

(3) TTRR

(4) TTRr

Answer (4)

149. Match **List-I** with **List-II**:

	List-I		List-II
A.	Biodiversity hotspot	I.	Khasi and jantia hills in Meghalaya
B.	Sacred groves	II.	World Summit on Sustainable
C.	Johannesburg South Africa	III.	Parthenium
D.	Alien species invasion	IV.	Western Ghats

Choose the **correct** answer from the options given below:

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

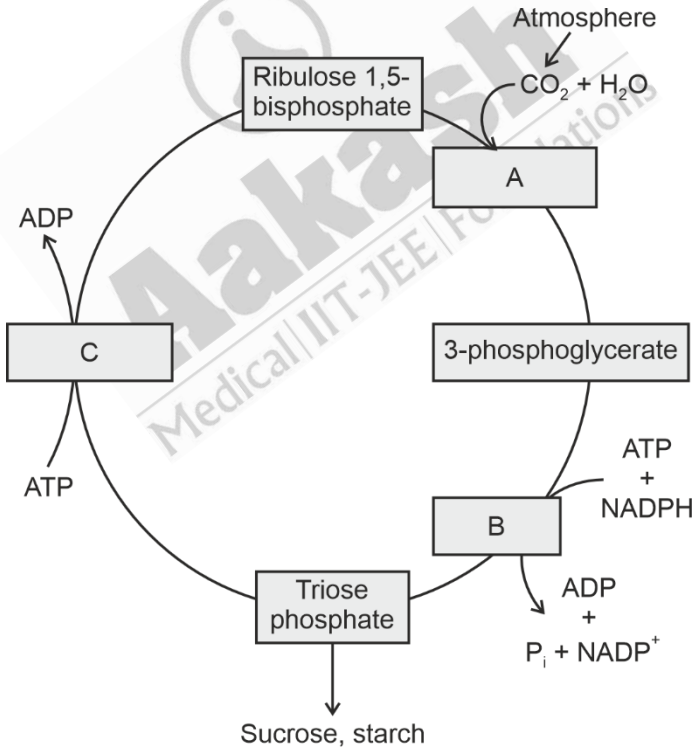
(2) A-II, B-III, C-IV, D-I

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

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

Answer (1)

150. Observe the given figure. Identify the different stages labelled with alphabets by selecting the **correct** option.



(1) A-Carboxylation, B-Regeneration, C-Reduction

(2) A-Reduction, B-Decarboxylation, C-Regeneration

(3) A-Carboxylation, B-Reduction, C-Regeneration

(4) A-Reduction, B-Carboxylation, C-Regeneration

Answer (3)

ZOOLOGY

SECTION-A

151. Match List-I with List-II:

	List I		List II
A.	Predator	I.	*Ophrys*
B.	Mutualism	II.	*Pisaster*
C.	Parasitism	III.	Female wasp and fig
D	Sexual deceit	IV.	Plasmodium

Chose the correct answer from the options given below:

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

Answer (4)

152. Match List-I with List-II:

	List I Location of Joint		List II Type of Joint
A.	Joint between humerus and pectoral girdle	I.	Gliding joint
B.	Knee joint	II.	Ball and Socket joint
C.	Joint between atlas and axis	III.	Hinge joint
D	Joint between carpals	IV.	Pivot joint

Chose the correct answer from the options given below:

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

Answer (1)

153. Following are the steps involved in action of toxin in Bt. Cotton

A. The inactive toxin converted into active form due to alkaline pH of gut of insect.
B. *Bacillus thuringiensis* produce crystals with toxic insecticidal proteins.
C. The alkaline pH solubilises the crystals.
D. The activated toxin binds to the surface of midgut cells, creates pores and causes death of the insect.
E. The toxin proteins exist as inactive protoxins in bacteria.

Choose the correct sequence of steps from the options given below:

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

Answer (4)

154. Match List-I with List-II:

	List I		List II
A.	Gene pool	I.	Stable within a generation
B.	Genetic drift	II.	Change in gene frequency by chance
C.	Gene flow	III.	Transfer of genes into or out of population
D	Gene frequency	IV.	Total number of genes and their alleles

Choose the correct answer from the options given below:

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

Answer (2)

155. Which evolutionary phenomenon is depicted by the sketch given in figure?

(1) Artificial selection
(2) Genetic drift
(3) Convergent evolution
(4) Adaptive radiation

Answer (4)

156. A person with blood group ARh$^-$ can receive the blood transfusion from which of the following types?

A. BRh$^-$
B. ABRh$^-$
C. ORh$^-$
D. ARh$^-$
E. ARh$^+$

Choose the correct answer from the options given below :

(1) D and E only
(2) D only
(3) A and B only
(4) C and D only

Answer (4)

157. Enzymes that catalyse the removal of groups from substrates by mechanisms other than hydrolysis leaving double bonds, are known as :

(1) Transferases
(2) Oxidoreductases
(3) Dehydrogenases
(4) Lyases

Answer (4)

158. Match **List-I** with **List-II**.

	List-I **Evenet**		**List-II** **Stage of Prophase-I (Meiosis-I)**
A.	Chiasmata formation	I.	Pachytene
B.	Crossing over	II.	Diakinesis
C.	Synaptonemal complex formation	III.	Diplotene
D.	Terminalisation of chiasmata	IV.	Zygotene

Choose the correct answer from the options given below :

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

Answer (1)

159. Match **List-I** with **List-II**.

	List-I		**List-II**
A.	Primary structure of protein	I.	Human haemoglobin
B.	Secondary structure of protein	II.	Dispulphide bonds
C.	Tertiary structure of protein	III.	Polypeptide chain
D.	Quaternary structure of protein	IV.	Alpha helix and β sheet

Choose the correct answer from the options given below :

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

Answer (1)

160. Match **List-I** with **List-II**.

	List-I		**List-II**
A.	Epinephrine	I.	Hyperglycemia
B.	Thyroxine	II.	Smooth muscle contraction
C.	Oxytocin	III.	Basal metabolic rate
D.	Glucagon	IV.	Emergency hormone

Choose the correct answer from the options given below :

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

Answer (3)

161. Which of the following statements is **correct** about the type of junction and their role in our body?

(1) Adhering junctions facilitate the cells to communicate with each other.

(2) Tight junctions help to stop substances from leaking across a tissue.

(3) Tight junctions help to perform cementing to keep neighbouring cells together.

(4) Gap junctions help to create gap between the cells and tissues.

Answer (2)

162. Select the restriction endonuclease enzymes whose restriction sites are present for the tetracycline resistance (tet^R) gene in the pBR322 cloning vector.

(1) Bam HI and Sal I

(2) Sal I and Pst I

(3) Pst I and Pvu I

(4) Pvu I and Bam HI

Answer (1)

163. Match List-I with List-II.

	List-I		**List-II**
A.	Chondrichthyes	I.	*Clarias*
B.	Cyclostomata	II.	*Carcharodon*
C.	Osteichthyes	III.	*Myxine*
D.	Amphibia	IV.	*Ichthyophis*

Choose the **correct** answer from the options given below:

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

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

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

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

Answer (3)

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

Assertion A: During menstrual cycle, the ovulation takes place approximately on 14^{th} day.

Reason R: Rapid secretion of LH in the middle of menstrual cycle induces rupture of Graafian follicle and thereby the release of ovum.

In the light of the above statements, choose the most appropriate answer from the options given below.

(1) A is correct but R is not correct.

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

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

(4) Both A and R are correct but R is NOT the correct explanation of A.

Answer (3)

165. Match List-I with List-II with respect to convergent evolution:

	List-I		List-II
A.	Lemur	I.	Flying phalanger
B.	Bobcat	II.	Numbat
C.	Anteater	III.	Spotted cuscus
D.	Flying squirrels	IV.	Tasmanian tiger cat

Choose the **correct** answer from the options given below:

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

Answer (1)

166. Match **List-I** with **List-II**.

	List-I		List-II
A.	Cells are metabolically active and proliferate	I.	G_2 phase
B.	DNA replication takes place	II.	G_1 phase
C.	Proteins are synthesised	III.	G_0 phase
D.	Quiescent stage with metabolically active cells	IV.	S phase

Choose the **correct** answer from the options given below:

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

Answer (4)

167. Match **List-I** with **List-II**.

	List-I		List-II
A.	Migratory flamingoes and resident fish in South American lakes	I.	Interference competition
B.	Abingdon tortoise became extinct after introduction of goats in their habitat	II.	Competitive release
C.	*Chathamalus* expands its distributional range in the absence of *Balanus*	III.	Resource Partitioning
D.	Five closely related species of Warblers feeding in different locations on same tree	IV.	Interspecific competition

Choose the **correct** answer from the options given below:

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

Answer (2)

168. Match **List-I** with **List-II** relating to microbes and their products:

	List-I (Microbes)		**List-II (Products)**
A.	*Streptococcus*	I.	Citric acid
B.	*Trichoderma polysporum*	II.	Clot buster
C.	*Monascus purpureus*	III.	Cyclosporin A
D.	*Aspergillus niger*	IV.	Statins

Choose the **correct** answer from the options given below:

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

Answer (1)

169. Match **List-I** with **List-II**.

	List-I		**List-II**
A.	F_1 Particles	I.	Chromosomes
B.	Histones	II.	Cilia
C.	Axoneme	III.	Golgi apparatus
D.	Cisternae	IV.	Mitochondria

Choose the **correct** answer from the options given below:

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

Answer (2)

170. Match **List-I** with **List-II** relating to examples of various kind of IUDs and barrier:

	List-I		**List-II**
A.	Copper releasing IUD	I.	Vaults
B.	Non-medicated IUD	II.	Multiload 375
C.	Contraceptive barrier	III.	LNG-20
D.	Hormone releasing IUD	IV.	Lippes loop

Choose the **correct** answer from the options given below:

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

Answer (4)

171. Given below are two statements:

Statement I: Antibiotics are chemicals produced by microbes that kill other microbes.

Statement II: Antibodies are chemicals formed in body that eliminate microbes.

In the light of the above statements, choose the most appropriate answer from the options given below.

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

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

(3) Both Statement I and Statement II are correct

(4) Both Statement I and Statement II are incorrect

Answer (3)

172. Arrange the following parts in human Mammary gland, traversing the route of milk ejection.

A. Mammary duct
B. Lactiferous duct
C. Mammary alveolus
D. Ampulla
E. Mammary tubule

Choose the correct answer from the options given below:

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

Answer (3)

173. Which of the following are correct about EcoR1?

A. Cut the DNA with blunt end
B. Cut the DNA with sticky end
C. Recognise a specific palindromic sequence
D. Cut the DNA between the base G and A when encounters the DNA sequence 'GAATTC'
E. Exonuclease

Choose the correct answer from the options given below:

(1) B, C, E only
(2) A, D, E only
(3) A, C, D only
(4) B, C, D only

Answer (4)

174. Which of the following is/are present in female cockroach?

A. Collateral gland
B. Mushroom gland
C. Spermatheca
D. Anal style
E. Phallic gland

Choose the most appropriate answer from the options given below:

(1) B and D only
(2) B and E only
(3) A only
(4) A and C only

Answer (4)

175. Math List-I with List-II:

	List I		List II
A.	Malignant tumors	I.	Destroy tumors
B.	MALT	II.	AIDS
C.	NACO	III.	Metastasis
D	α-Interferons	IV.	Lymphoid tissue

Choose the correct answer from the options given below:

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

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

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

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

Answer (1)

176. Open Circulatory system is present in:

(1) *Palaemon, Nereis, Balanoglossus*

(2) *Hirudinaria, Bombyx, Salpa*

(3) *Anopheles, Limax, Limulus*

(4) *Pheretima, Musca, Pila*

Answer (3)

177. In which of the following connective tissues, the cells secrete fibres of collagen or elastin?

A. Cartilage

B. Done

C. Adipose tissue

D. Blood

E. Areolar tissue

Choose the **most appropriate** answer from the options given below :

(1) D, C, D and E only

(2) A, D, C and E only

(3) B, C and D only

(4) A, C and D only

Answer (2)

178. Which of the following pairs is an **incorrect** match?

(1) Annelids and arthropods-Bilateral symmetry

(2) Sponges-Acoelomates

(3) Coelenterates and Ctenophores-Radial symmetry

(4) Platyhelminthes-Diploblastic organisation

Answer (4)

179. Match **List-I** with **List-II**:

	List-I		**List-II**
A.	Residual Volume	I.	Maximum volume of air that can be breathed in after forced expiration
B.	Vital Capacity	II.	Volume of air inspired or expired during normal respiration
C.	Expiratory Capacity	III.	Volume of air remaining in lungs after forcible expiration
D.	Tidal Volume	IV.	Total volume of air expired after normal inspiration

Choose the **correct** answer from the options given below:

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

Answer (3)

180. Match **List-I** with **List-II**:

	List-I		**List-II**
A.	Living Fossil	I.	Elongated canine teeth
B.	Connecting Link	II.	Vermiform appendix
C.	Vestigial Organ	III.	*Echidna*
D.	Atavism	IV.	*Latimeria*

Choose the **correct** answer from the options given below:

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

Answer (1)

181. Match **List-I** with **List -II**

	List-I		**List-II**
A.	Schwann cells	I.	Neurotransmitter
B.	Synaptic knob	II.	Cerebral cortex
C.	Bipolar neurons	III.	Myelin sheath
D.	Multipolar neurons	IV.	Retina

Choose the correct answer from the options given below:

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

Answer (1)

182. Diuresis is prevented by:

(1) Renin from JG cell via switching off the osmoreceptors

(2) ANF from adrenal medulla

(3) Aldosterone from adrenal medulla

(4) Vasopressin from Neurohypophysis

Answer (4)

183. Following is the list of STD's. Select the discases which are not completely curable.

A.	Genital warts	B.	Genital herpes
C	Syphilis	D	Hepatius-B
E	Trichomoniasis		

Choose the correct answer from the options given below:

(1) A and D only

(2) B and D only

(3) A and C only

(4) D and E only

Answer (2)

184. What is the correct order (old to recent) of periods in Paleozoic era?

(1) Silurian, Devonian, Permian, Carboniferous

(2) Silurian, Devonian, Carboniferous, Permian

(3) Permian, Devonian, Silurian, Carboniferous

(4) Silurian, Carboniferous, Permian, Devonian

Answer (2)

185. 'Lub' sound of Heart is caused by the_____.

(1) closure of the semilunar values

(2) opening of tricuspid and bicuspid values

(3) opening of the semilunar valves

(4) closure of the tricuspid and bicuspid valves

Answer (4)

SECTION-B

186. Match List-I with List-II relating to human female external genitalia.

	List I (Structures)		**List II (Features)**
a.	Mons pubis	(i)	A fleshy fold of tissue surrounding the vaginal opening
b.	Clitoris	(ii)	Fatty cushion of cells covered by skin and hair
c.	Hymen	(iii)	Tiny finger-like structure above labia minora
d	Labina majora	(iv)	A thin membrane-like structure covering vaginal opening

Choose the correct answer from the option given below :

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

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

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

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

Answer (1)

187. Aneuploidy is a chromosomal disorder where chromosome number is not the exact copy of its haploid set of chromosomes, due to :

(a) Substitution

(b) Addition

(c) Deletion

(d) Translocation

(e) Inversion

Choose the **most appropriate** answer from the options given below :

(1) (c) and (d) only

(2) (d) and (e) only

(3) (a) and (b) only

(4) (b) and (c) only

Answer (4)

188. Given below are two statements :

Statement I : RNA interference takes place in all Eukaryotic organisms as method of cellular defense.

Statement II : RNAi involves the silencing of a specific mRNA due to a complementary single-stranded RNA molecule that binds and prevents translation of mRNA

In the light of the above statements, choose the **correct** answer from the options given below.

(1) **Statement I** is true but **Statement II** is false.

(2) **Statement I** is false but **Statement II** is true.

(3) Both **Statement I** and **Statement II** are true.

(4) Both **Statement I** and **Statement II** are false.

Answer (1)

189. Identify the wrong statements :

(A) Erythropoietin is produced by juxtaglomerular cells of the kidney

(B) Leydig cells produce Androgens

(C) Atrial Natriuretic factor, a peptide hormone is secreted by the seminiferous tubules of the testes

(D) Cholecystokinin is produced by gastrointestinal tract

(E) Gastrin acts on intestinal wall and helps in the production of pepsinogen

Choose the **most appropriate** answer from the options given below :

(1) (D) and (E) only

(2) (A) and (B) only

(3) (C) and (E) only

(4) (A) and (C) only

Answer (3)

190. Following are the steps involved in the process of PCR.

a. Annealing

b. Amplification (~1 billion times)

c. Denaturation

d. Treatment with Taq polymerase and deoxynucleotides

e. Extension

Choose the correct sequence of steps of PCR from the options given below :

(1) $c \rightarrow a \rightarrow d \rightarrow e \rightarrow b$ (2) $a \rightarrow b \rightarrow e \rightarrow d \rightarrow c$

(3) $a \rightarrow c \rightarrow e \rightarrow d \rightarrow b$ (4) $d \rightarrow b \rightarrow e \rightarrow c \rightarrow a$

Answer (1)

191. Given below are two statements:

Statements I: Concentrated urine is formed due to counter current mechanism in nephron.

Statement II: Counter current mechanism helps to maintain osmotic gradient in the medullary interstitium.

In the light of the above statements, choose the most appropriate answer from the options given below.

(1) **Statement I** is correct but **Statement II** is incorrect.

(2) **Statement I** is incorrect but **Statement II** is correct.

(3) Both **Statement I** and **Statement II** are correct.

(4) Both **Statement I** and **Statement II** are incorrect.

Answer (3)

192. Given below are two statements:

Statement I: Concentrically arranged cisternae of Golgi complex are arranged near the nucleus with distinct convex cis or maturing and concave *trans* or forming face.

Statement II: A number of proteins are modified in the cisternae of Golgi complex before they are released from *cis* face.

In the light of the above statements, choose the **correct** answer from the option given below.

(1) **Statement I** is true but **Statement II** is false. (2) **Statement I** is false but **Statement II** is true.

(3) Both **Statement I** and **Statement II** are true (4) Both **Statement I** and **Statement II** are false

Answer (4)

193. Match **List-I** with **List-II**:

List-I		**List-II**	
A.	Parturition	I.	Several antibodies for new-born babies
B.	Placenta	II.	Collection of ovum after ovulation
C.	Colostrum	III.	Foetal ejection reflex
D.	Fimbriae	IV.	Secretion of the hormone hCG

Choose the correct answer from the option given below:

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

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

Answer (1)

194. Given below are two statements: One is labelled as **Assertion A** and the other is labelled as **Reason R**.

Assertion A: Members of subphylum vertebrates possess notochord during the embryonic period. The notochord is replaced by a cartilaginous or bony vertebral column in the adult**.**

Reason R: Thus all chordates are vertebrates not all vertebrates are chordates.

In the light of the above statements choose the correct answer from the option given below.

(1) **A** is true but **R** is false.

(2) **A** is false but **R** is true

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

(4) Both **A** and **R** are true but **R** is NOT the correct explanation of **A**.

Answer (1)

195. The mother has A+ blood group the father has B+ and the child is A+. What can be the possibility of genotypes of all three, respectively?

(A) $I^AI^A \mid I^Bi \mid I^Bi$

(B) $I^AI^A \mid I^Bi \mid I^Ai$

(C) $I^Bi \mid I^AI^A \mid I^AI^B$

(D) $I^AI^A \mid I^BI^B \mid I^Ai$

(E) $I^Ai \mid I^Bi \mid I^Ai$

Choose the **correct** answer from the option given below:

(1) C and D

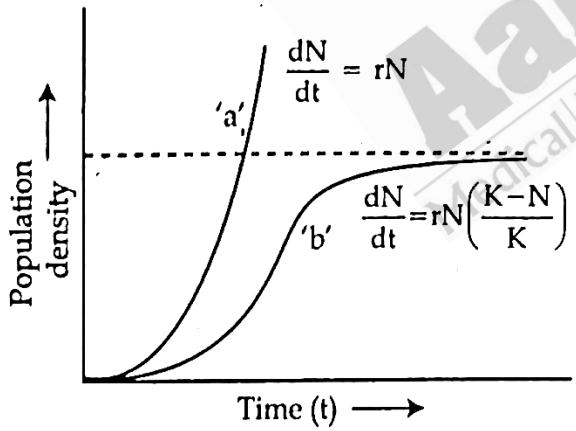
(2) D and A

(3) A and B

(4) B and E

Answer (4)

196. What do 'a' and 'b' represent in the following population growth curve?



(1) 'a' represents exponential growth when responses are not limiting the growth; and 'b' represents logistic growth when responses are limiting the growth.

(2) 'a' represents logistic grwoth when responses are not limiting the growth; 'b' represnrs exponential growth when responses are limiting the growth.

(3) 'a' represents carrying capacity and 'b' shows logistic growth when responses are limiting the growth.

(4) 'a' represents exponential growth when responses are not limiting the growth and 'b' shows carrying capacity.

Answer (1)

197. Select the correct statements regarding mechanism of muscle contraction.

A. It is initiated by a signal sent by CNS via sensory neuron.

B. Neurotransmitter generates action potential in the sarcolemma.

C. Increased Ca^{++} level leads to the binding of calcium with troponin on action filaments.

D. Masking of active site for actin is activated.

E. Utilising the energy from ATP hydrolysis to form cross bridge.

Choose the most appropriate answer from the options given below:

(1) B, C and E only

(2) C, D and E only

(3) A and D only

(4) B, D and E only

Answer (1)

198. Match List I with List II :

	List - I		**List – II**
A.	Squamous Epithelium	I.	Goblet cells of alimentary canal
B.	Ciliated Epithelium	II.	Inner lining of pancreatic ducts
C.	Glandular Epithelium	III.	Walls of blood vessels
D.	Compound Epithelium	IV.	Inner surface of Fallopian tubes

Choose the correct answer from the options given below :

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

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

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

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

Answer (4)

199. Match List I with List II :

	List - I		**List – II**
A.	B-Lymphocytes	I.	Passive immunity
B.	Interferons	II.	Cell mediated immunity
C.	T-Lymphocytes	III.	Produce an army of proteins in response to pathogens
D.	Colostrum	IV.	Innate immunity

Choose the correct answer from the options given below :

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

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

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

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

Answer (3)

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

Assertion A: During the transportation of gases, about 20-25 percent of CO_2 is carried by Haemoglobin as carbamino-haemoglobin.

Reason R: This binding is related to high p CO_2 and low p O_2 in tissues.

In the light of the above statements, choose the correct answer from the options given below.

(1) A is true but R is false.

(2) A is false but R is true.

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

(4) Both A and R are true but R is NOT the correct explanation of A.

Answer (3)

❑ ❑ ❑