MHT CET 2026 PCB Apr 25 Shift 2 Question Paper

Conducted by the State Common Entrance Test Cell, Maharashtra

Time Allowed: 180 Minutes **Total Questions: 200** **Maximum Marks: 200**

General Instructions

(i) This **PCB** paper is from **MHT CET 2026**, conducted by the **State Common Entrance Test Cell, Maharashtra**.

(ii) Answer all **200 multiple choice questions**: **50 Physics**, **50 Chemistry** and **100 Biology**.

(iii) Each question offers **four choices**, with **one correct answer**.

(iv) Allow **90 minutes for Physics and Chemistry together**, followed by **90 minutes for Biology**. The first group closes before the second opens.

(v) Every correct answer earns **1 mark**.

(vi) There is **no negative marking**. Unanswered questions score zero.

1. For the vector $\vec{A}$ making an angle θ with the negative X-axis and lying in the third quadrant, the standard resolved form is

(A) $-A\sin\theta\hat{i} + A\cos\theta\hat{j}$

(B) $-A\cos\theta\hat{i} - A\sin\theta\hat{j}$

(C) $A\sin\theta\hat{i} - A\cos\theta\hat{j}$

(D) $A\cos\theta\hat{i} + A\sin\theta\hat{j}$

2. The heat generated in a circuit is given by $Q = I^2Rt$. If the percentage error in the measurement of Q is 1%, R is 2%, and t is 1%, then the percentage error in the measurement of current I is

(A) 3% (B) 2%

(C) 4% (D) 5%

3. Two cars, P and Q move toward each other, getting 8 m closer every second. If they move in the same direction, they get 0.6 m closer every second. If car P is faster than car Q then, the ratio of speeds of car P to car Q is

(A) 43 : 37 (B) 37 : 43

(C) 74 : 43 (D) 74 : 37

4. The ratio of the weight of the man in stationary lift and in a lift accelerating upwards with uniform acceleration is 2 : 3. The acceleration of lift is

(A) $\frac{g}{3}$ (B) g

(C) $\frac{g}{2}$ (D) $\frac{5g}{2}$

5. A point mass m is moved in a vertical circle of radius r with the help of a string. The velocity of the particle is $\sqrt{ngr}$ when the string makes an angle of 60° with the lower vertical. The tension T in the string at an angle of 60° is $\left(\cos 60^\circ = \frac{1}{2}\right)$

(A) $mg\left(n - \frac{1}{2}\right)$ (B) $\frac{nmg}{2}$

(C) $mg\left(n + \frac{1}{2}\right)$ (D) $\frac{3}{2}nmg$

6. A gas molecule of mass m, moving with velocity $\vec{v} = a\hat{i} + b\hat{j} + c\hat{k}$ hits a container wall that is parallel to the xz-plane. Assuming a perfectly elastic collision, what is the change in momentum of the molecule?

(A) $-2ma\hat{i}$ (B) $-2mb\hat{j}$

(C) $-2mc\hat{k}$ (D) zero

7. A solid disc of radius 40 cm and the mass of 20 kg is rotating with an angular velocity of 300 rpm, about an axis passing through its centre of mass and perpendicular to its plane. The magnitude of retarding torque required to bring the disc at rest in 20 s is $x\pi$ Nm. The value of x is

(A) 0.8 (B) 0.6

(C) 0.4 (D) 0.2

8. The radius of gyration of a thin hollow cylinder of radius R about a tangential axis passing perpendicular to the plane of the cylinder and parallel to the geometrical axis is

(A) $\sqrt{3}R$ (B) $\sqrt{2}R$

(C) $2R$ (D) $\sqrt{5}R$

9. A planet of mass m moves in an elliptical orbit around the Sun of mass M. Let r_1 be the distance at aphelion and r_2 be the distance at perihelion. If v_1 and v_2 are the velocities of the planet at these points, then ratio of kinetic energy at aphelion to kinetic energy at perihelion is

(A) $\frac{r_1}{r_2}$ (B) $\frac{r_1^2}{r_2^2}$

(C) $\frac{r_2}{r_1}$ (D) $\frac{r_2^2}{r_1^2}$

10. The periodic time T_1 of a simple pendulum is 4 s at a place, at a height R above the earth's surface. If the pendulum is brought at a height $\frac{2}{3}R$ above the earth surface, the periodic time decreases by xT_1. The value of x is

(A) 6 (B) $\frac{1}{6}$

(C) $\frac{11}{6}$ (D) $\frac{5}{6}$

11. Two small balls of same density σ and radii r and $\frac{r}{3}$ are dropped into two different tubes of length L, filled with liquids of densities $\frac{\sigma}{2}$ and $\frac{\sigma}{3}$ and coefficients of viscosity η_1 and η_2 respectively. If both balls reach the bottom of the tubes simultaneously, having moved at their respective terminal velocities, and the ratio $\frac{\eta_1}{\eta_2} = \frac{x}{4}$, the value of x is

(A) 27 (B) 24

(C) 26 (D) 28

12. In a capillary tube of radius r, water rises to a height 10 cm on Earth. If the apparatus is taken to the Moon ($g_{moon} = g/6$) and the tube is replaced with one having double the radius ($2r$), the water will rise to height

(A) 60 cm (B) 30 cm

(C) 20 cm (D) 5 cm

13. The pressure at the surface of mercury in a barometer tube is P_1 and the pressure at the surface of mercury filled in a conical flask is P_2. The ratio of $\frac{P_1}{P_2}$ is

(A) zero (B) 1 : 1

(C) 1 : 2 (D) infinity

14. A metal sphere cools at a rate of 2°C/min when the temperature is 80°C. If the temperature of the surroundings is 30°C, then the rate of cooling when its temperature is 50°C will be

(A) 0.4°C/min (B) 2°C/min

(C) 1.2°C/min (D) 0.8°C/min

15. Assuming the Sun to be a perfectly spherical black body of radius R and is at a temperature T K, then the total radiant power incident on the Earth at a distance r from the sun is (consider R_o is the radius of the Earth and σ is Stefan's constant).

(A) $\frac{\pi R^2 R_o^2 \sigma T^4}{r^2}$ (B) $\frac{\pi R_o^2 \sigma T^4}{R_o^2 r^2}$

(C) $\frac{\pi R_o^2 \sigma T^4}{R^2 r^2}$ (D) $\frac{R_o^2 \sigma T^4}{\pi R^2 r^2}$

16. Let η_1 be the efficiency of a Carnot engine at $T_H = 547°C$ and $T_C = 247°C$ while η_2 is the efficiency at $T_H = 847°C$ and $T_C = 147°C$. If $\eta_1 = \frac{x}{41}\eta_2$, the value of x is

(A) 24 (B) 25

(C) 20 (D) 22

17. Identify the INCORRECT statement for isobaric process.

(A) $\Delta p = 0$ (B) $W \neq 0$

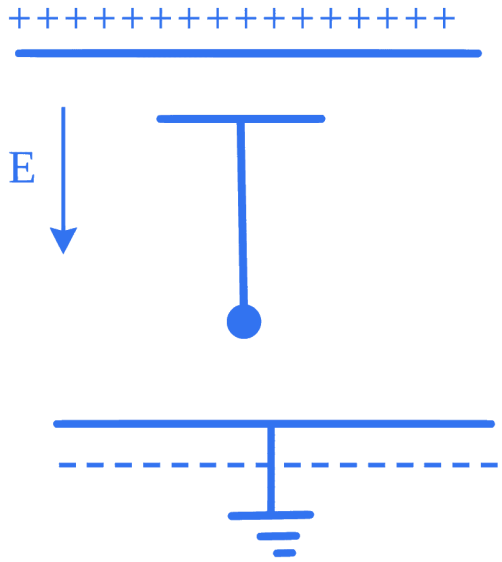
(C) $Q \neq 0$ (D) $\Delta U = 0$

18. If the ratio of specific heat of gas $\gamma = \frac{C_p}{C_v}$, then the value of C_p in terms of γ and gas constant R is

(A) $\frac{\gamma R}{\gamma - 1}$ (B) $\frac{R}{\gamma - 1}$

(C) $\frac{(\gamma - 1)R}{\gamma}$ (D) $\frac{R}{\gamma}$

19. A simple pendulum having length l and mass 'm' is suspended between two plates having uniform electric field 'E' as shown in figure. The bob is given a charge q. The time period 'T' of its vibration is



(A) $2\pi\sqrt{\frac{l}{g - \frac{Eq}{m}}}$ (B) $2\pi\sqrt{\frac{l}{g + \frac{Eq}{m}}}$

(C) $2\pi\sqrt{\frac{l}{\left[g^2 - \left(\frac{Eq}{m}\right)^2\right]^{1/2}}}$ (D) $2\pi\sqrt{\frac{l}{g}}$

20. Two SHM's $x_1 = a\sin\left(\omega t + \frac{3\pi}{2}\right)$ and $x_2 = a\sin(\omega t + \pi)$ are superimposed on each other. The resultant amplitude of motion is ($\sin \pi/2 = 1$ and $\cos \pi/2 = 0$)

(A) $2a$ (B) $2a^2$

(C) $a\sqrt{2}$ (D) 0

21. A boy stands x m away from a high wall and claps his hands at a steady rate so that each clap coincides with the echo of the one before. If he makes 60 claps in 2 minutes and the velocity of sound is 340 m/s, then the distance x from the wall is

(A) 170 m (B) 340 m

(C) 255 m (D) 510 m

22. For the given wave equation $y = 10\cos\pi\left(\frac{x}{4} + \frac{t}{2}\right)$, the CORRECT statement is (where x is in metre and time t is in second.)

(A) frequency = 0.25 Hz (B) Wavelength = 10 m

(C) velocity = 20 cm/s (D) angular velocity = 2π

23. A tuning fork produces 6 beats per second with both, 60 cm and 40 cm of the stretched wire of sonometer. The frequency of fork is

(A) 60 Hz (B) 40 Hz

(C) 30 Hz (D) 10 Hz

24. A uniform electric field is given as $\vec{E} = 4 \times 10^4 \hat{j}$ N/C. The flux of this field through a square of side 10 cm whose plane is parallel to the Y-Z plane is

(A) 400 Vm (B) 200 Vm

(C) zero (D) 1600 Vm

25. A hollow metal sphere of radius 5 cm is charged such that the potential on its surface is 10 V. The electric field at its centre is

(A) 0 V/m (B) 10 V/m

(C) 2 V/m (D) 0.5 V/m

26. In an ideal LC circuit, if the energy stored in the inductor is equal to energy stored in a capacitor, then the magnitude of charge Q stored in capacitor is (Q_0 is the maximum charge)

(A) $\frac{Q_0}{\sqrt{2}}$ (B) $\frac{Q_0}{2}$

(C) $\sqrt{2}Q_0$ (D) Q_0

27. Four identical capacitors are joined in series, across a battery of 20 V. The capacitors are separated and then connected in parallel. The potential difference across the parallel combination is

(A) 20 V (B) 10 V

(C) 5 V (D) 15 V

28. A parallel plate capacitor with capacitance 1 μF is being charged at a rate such that the potential difference across it changes at 10^6 V/s. The instantaneous displacement current between the plates is

(A) 0 A (B) 0.1 A

(C) 1 A (D) 10^{-2} A

29. A potentiometer wire of 400 cm length has a resistance of 20 Ω. It is connected in series with a resistance of 15 Ω and a accumulator of EMF 6 V (negligible internal resistance). The potential gradient $k = \frac{x}{7}$ V/m. The value of x is

(A) 6 (B) 7

(C) 4 (D) 8

30. A closed loop consists of a 15 V battery, a 5 V battery (opposing the first), and a 25 Ω resistor. The current through the loop is

(A) 0.8 A (B) 0.2 A

(C) 1.2 A (D) 0.4 A

31. The ratio of cyclotron frequency f to the radius of the path of a charged particle R is $\frac{q^2B^2}{2\pi m^2}x$. Then the value of x is (v is velocity of charged particle)

(A) v^2 (B) v^{-2}

(C) v (D) v^{-1}

32. If a single-turn circular coil (of radius R_1) carrying a current I is rewound into a coil of N turns (of radius R_2) using the same total length of wire and carrying the same current I, the ratio of the magnetic field at the centre of the new coil (B_2) to that of the original coil (B_1) is

(A) N (B) N^2

(C) $\frac{1}{N^2}$ (D) $2N$

33. A magnetic material has a relative permeability (μ_r) of 6001. If it is placed in a magnetizing field (magnetic intensity) of $H = 2000$ A/m, The total magnetic induction (B) inside the material is nearly equal to
$\mu_0 = 4\pi \times 10^{-7}$ T · m/A

(A) 5π T (B) 3π T

(C) 4.8π T (D) 12π T

34. Two coils have mutual inductance of 0.004 H. The current changes in the first coil according to the relation $i = i_0 \cos \omega t$, where $i_0 = 6$ A and $\omega = 100\pi$ rad/s. The maximum value of emf induced in second coil is

(A) 1.2π V (B) 2.4π V

(C) 12π V (D) 24π V

35. The coefficient of coupling is 0.8. If the mutual inductance is 8 H, then the values of self-inductances L_1 and L_2 of the coil are

(A) 60 H and 40 H (B) 90 H and 10 H

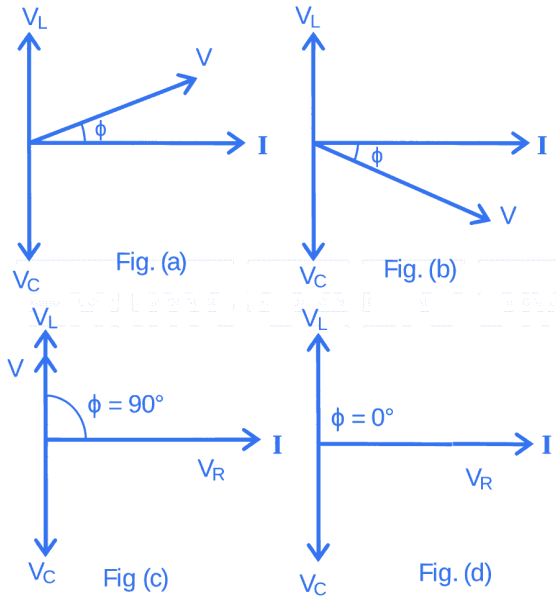
(C) 5 H and 20 H (D) 5 H and 10 H

36. A square loop of area A is moving out of the uniform magnetic field (B) with constant velocity v. The EMF (e) induced in the loop is

(A) $Bv^2\sqrt{A}$ (B) BvA

(C) $Bv\sqrt{A}$ (D) $\sqrt{BvA}$

37. Which phasor diagram represents LCR circuit at resonance?



(A) fig.(c) (B) fig.(a)
(C) fig.(d) (D) fig.(b)

38. For an R-L series circuit, the power factor is $\frac{\sqrt{3}}{2}$, for a supply frequency of f Hz. If the frequency doubles, the new power factor will be

(A) $\frac{3}{\sqrt{7}}$ (B) $\frac{\sqrt{3}}{7}$
(C) $\frac{3}{7}$ (D) $\sqrt{\frac{3}{7}}$

39. The focal length of the objective of astronomical telescope is 2 m. Under normal adjustment, length of telescope is 2.10 m. The magnifying power of the telescope under normal adjustment is

(A) 20 (B) 2
(C) 200 (D) 15

40. What is the total optical path length of two media in contact with thicknesses of d and $\frac{d}{4}$ and refractive indices of n_1 and n_2, respectively?

(A) $\frac{d(n_1+4n_2)}{4}$ (B) $\frac{d(4n_1+n_2)}{4}$
(C) $\frac{d(n_1+n_2)}{4}$ (D) $d(4n_1+n_2)$

41. An unpolarized light beam of intensity I_0 passes through a series of n Polaroids $P_1, P_2, P_3, \ldots P_n$. The pass axis of each Polaroid makes an angle of 60° with the other Polaroid. What is the final intensity of the transmitted beam? $(\cos 60^\circ = 1/2)$

(A) $\frac{I_0}{2^{2n-1}}$ (B) $\frac{I_0}{2^{n-1}}$
(C) $\frac{I_0}{2^{2n}}$ (D) $\frac{I_0}{2^{2n+1}}$

42. Two images are considered "just resolved" according to Rayleigh's criterion when

(A) the central maxima of the diffraction pattern of two sources nearly overlap.
(B) the first minimum of the diffraction pattern of one source coincides with the central maximum of the diffraction pattern of other source.
(C) the first minimum of the diffraction pattern of one source coincides with the first secondary maximum of the diffraction pattern of the other source.
(D) the first minimum of the diffraction pattern of one source is far from the central maximum of diffraction pattern of the other source.

43. The path difference between the two waves $y_1 = a_1 \sin\left(\omega t - \frac{2\pi x}{\lambda} + \pi\right)$ and $y_2 = a_2 \cos\left(\omega t - \frac{2\pi x}{\lambda} + \phi\right)$ is

(A) $\frac{\lambda}{2\pi}\phi$ (B) $\frac{\lambda}{2\pi}\left(\phi - \frac{\pi}{2}\right)$
(C) $\frac{\lambda}{2\pi}(\phi - \pi)$ (D) $\frac{\lambda}{2\pi}\left(2\phi - \frac{\pi}{2}\right)$

44. A light of wavelength λ $(\lambda < \lambda_0)$ falls on a metal surface. The momentum of the fastest moving electron is p. In order to have the momentum of an electron equal to $2p$, the required wavelength λ' of incident light must be

(A) $\frac{\lambda\lambda_0}{4\lambda_0 - 3\lambda}$ (B) $\frac{4\lambda_0 - 3\lambda}{\lambda\lambda_0}$
(C) $\frac{\lambda_0}{4\lambda_0 - 3\lambda}$ (D) $\frac{4\lambda_0 - 3\lambda}{\lambda}$

45. The de Broglie wavelength of an electron with kinetic energy K_1 is λ_1. If the kinetic energy increases to $5K_1$, the new wavelength is $\lambda_2 = x\lambda_1$. The value of x is

(A) 5 (B) $\sqrt{5}$
(C) $\frac{1}{\sqrt{5}}$ (D) $\frac{1}{5}$

46. A hydrogen atom in its ground state is irradiated by light of wavelength 1026 Å. The electron gets excited to higher energy state n. Given the ground state energy is $-13.6\,\text{eV}$ and $hc = 1242\,\text{eV}\cdot\text{nm}$, then the value of principal quantum number n is

(A) 5 (B) 3

(C) 4 (D) 2

47. Consider the following nuclear fission reaction
${}^{1}_{0}n + {}^{235}_{92}U \rightarrow {}^{A}_{Z}Y + {}^{99}_{41}Nb + neutrons.$
If 4 neutrons are released during the fission process, then A and Z are

(A) $A = 133$ and $Z = 51$ (B) $A = 51$ and $Z = 133$

(C) $A = 339$ and $Z = 133$ (D) $A = 133$ and $Z = 339$

48. A silicon crystal is doped with $5 \times 10^{17}\ \text{cm}^{-3}$ atoms of boron. The electron concentration (n_e) at room temperature is $(n_i = 1.5 \times 10^{10}\ \text{cm}^{-3})$

(A) $45.0 \times 10^{2}\ \text{cm}^{-3}$ (B) $4.5 \times 10^{10}\ \text{cm}^{-3}$

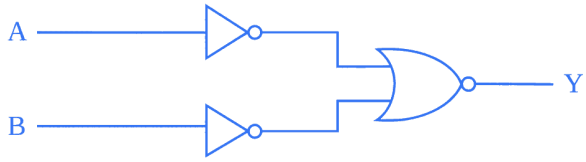
(C) $4.5 \times 10^{2}\ \text{cm}^{-3}$ (D) $4.5 \times 10^{7}\ \text{cm}^{-3}$

49. The color of light emitted by an LED is determined primarily by which of the following factors?

(A) The forward current flowing through the junction. (B) Concentration of doping materials in the p-n junction.

(C) The physical dimensions of light-emitting diode. (D) The band gap energy of the semiconductor material used.

50. The logic gate equivalent to given logic gate is



(A) OR Gate (B) AND Gate

(C) NAND Gate (D) NOR Gate

51. Calculate the de-Broglie wavelength of an electron having velocity $1000\ \text{ms}^{-1}$ [$h = 6.626 \times 10^{-34}$ js, mass of an electron $= 9.1 \times 10^{-31}$ kg]

(A) 7.28×10^{-7} m
(B) 6.68×10^{-7} m
(C) 7.76×10^{-7} m
(D) 7.45×10^{-7} m

52. The bond order of N_2^+ ion is:

(A) 2.0
(B) 2.5
(C) 3.0
(D) 1.5

53. A bubble of air is underwater at temperature 15 °C and the pressure 1.5 bar. If the bubble rises to the surface where the temperature is 25 °C and the pressure is 1.0 bar, what will happen to the volume of the bubble?

(A) Volume will become greater by a factor of 1.6.
(B) Volume will become greater by a factor of 1.1
(C) Volume will become smaller by a factor of 0.70
(D) Volume will become greater by a factor of 2.5

54. 500 mL of nitrogen gas and 750 mL hydrogen gas were allowed to react at 1 bar pressure according to reaction,
$N_{2(g)} + 3H_{2(g)} \rightarrow 2NH_{3(g)}$
What is PV type of work done during reaction?

(A) +50 J
(B) −50 J
(C) +100 J
(D) −100 J

55. If,
i) $C + 2S \rightarrow CS_2$, $\Delta H = 117$ kJ
ii) $C + O_2 \rightarrow CO_2$, $\Delta H = -393$ kJ
iii) $S + O_2 \rightarrow SO_2$, $\Delta H = -297$ kJ
Find the heat of combustion of CS_2.

(A) -1104 kJ mol^{-1}
(B) 1104 kJ mol^{-1}
(C) 807 kJ mol^{-1}
(D) -807 kJ mol^{-1}

56. Which of the following statements regarding spontaneous process is NOT true?

(A) It occurs of its own.
(B) It proceeds in both directions even in absence of external stimulant.
(C) Spontaneity is not concerned with rate of reaction.
(D) It continues till equilibrium is reached.

57. The solubility of $Fe(OH)_3$ is x mole per liter. Find its K_{sp}.

(A) $9x^3$
(B) $3x^4$
(C) $27x^4$
(D) $9x^4$

58. Find the pH of 0.02 M HCl.

(A) 1.7
(B) 2.7
(C) 1.5
(D) 2.5

59. The degree of dissociation of weak acid is directly proportional to

(A) volume of the solution containing 1 mole of the weak acid
(B) square of volume of the solution containing 1 mole of the weak acid
(C) square root of the volume containing 1 mole of the weak acid
(D) concentration of solution containing 1 mole of the weak acid

60. The Basic buffer solution is made with 0.1 M NH_4OH and 0.2 M NH_4Cl. If K_b for the base is 1.8×10^{-5}, what is the pH of the buffer?

(A) 4.74
(B) 9.26
(C) 8.96
(D) 5.05

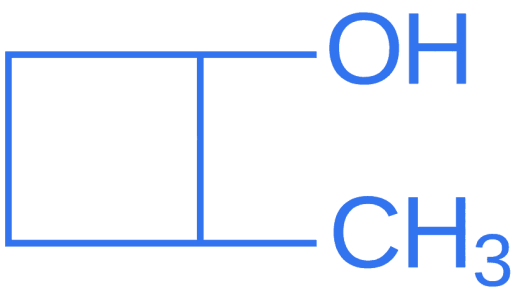
61. What is the oxidation number of phosphorus in $Mg_2P_2O_7$?

(A) +3
(B) −3
(C) +7
(D) +5

62. Which of the following elements is the radioactive alkaline earth metal?

(A) Cs
(B) Rb
(C) Fr
(D) Ra

63. Identify the IUPAC name of the compound.



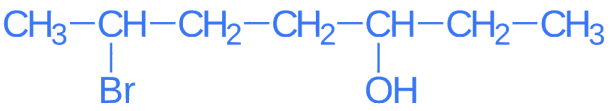
(A) Cyclobutanol

(B) 2-Methoxypropane

(C) 2-Methylcyclobutanol

(D) 2-Hydroxyethylcyclopentane

64. What is the IUPAC name of the following compound?



(A) 6-Bromoheptan-3-ol

(B) 2-Bromoheptane-5-ol

(C) 3-Hydroxy-6-bromoheptane

(D) 6-Bromo-3-hydroxyheptane

65. Identify the overlapping orbitals involved in hyperconjugation from following.

(A) $\sigma - p$

(B) $\pi - \pi$

(C) $\sigma - \sigma$

(D) $p - p$

66. Which one of the following alkenes forms the same product with HBr in the absence as well as in the presence of peroxide?

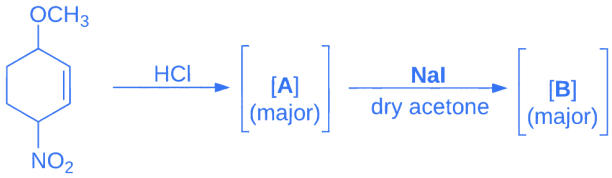
(A) 2-butene

(B) 1-butene

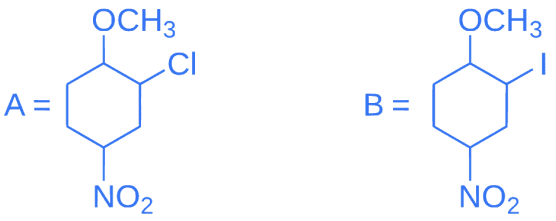
(C) propene

(D) 2-methyl propene

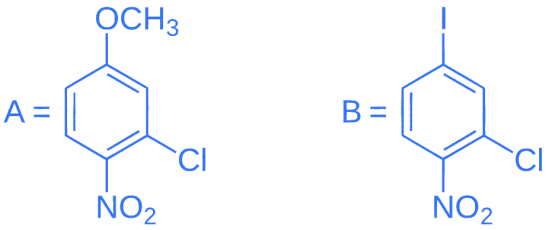
67. Identify A and B in above reaction.



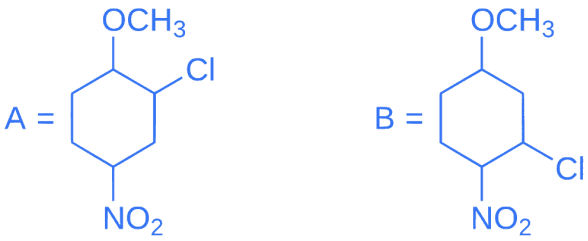
(A)



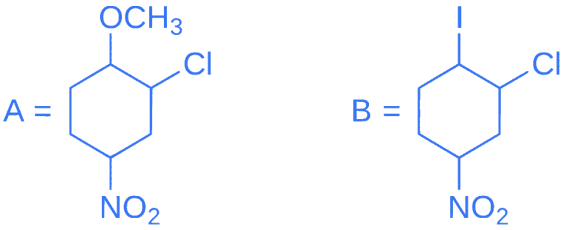
(B)



(C)



(D)



68.

$$H_3C - CH = CH_2 + H - Br \xrightarrow[(C_6H_5CO)_2O_2,\ \text{Benzoyl peroxide}]{} H_3C - CH_2 - CH_2 - Br$$

Which of the following rules is followed when the above reaction occurs?

(A) Markovnikovs rule

(B) Anti-Markovnikovs rule

(C) Saytzeff rule

(D) Huckel rule

69. Which of the following is responsible for depletion of ozone layer in stratosphere?

(A) N_2O_5 (B) NO_3

(C) NO_2 (D) NO

70. A solid is formed of two different elements, A and B. In this atoms of A are arranged in the CCP array, and atoms of B occupy all octahedral voids and half of tetrahedral voids. Find the formula of the solid.

(A) AB (B) A_2B

(C) AB_2 (D) AB_3

71. A metal forms fcc unit cell with unit edge length 400 pm. Calculate the number of atoms present in 0.6 g of metal if the density of metal is 12.0 g/cm^3

(A) 2.720×10^{21} (B) 3.125×10^{21}

(C) 2.235×10^{21} (D) 3.650×10^{21}

72. What is the total number of tetrahedral voids present in a single fcc unit cell?

(A) 2 (B) 8

(C) 4 (D) 12

73. What is boiling point of solution containing 7.45 g of KCl in 500 g of water, assuming 80% dissociation of KCl? (molar mass of KCl = 74.5 g/mole, k_b for water = 0.52 K/molal)

(A) 99.8128 °C (B) 100.1872 °C

(C) 100.0936 °C (D) 100.3744 °C

74. Find the freezing point of a solution containing 27 g urea in 1 dm^3 of the aqueous solution. [$K_f = 1.8$ K kg mol^{-1} and molar mass of urea = 60 g mol^{-1}]

(A) −0.81 °C (B) −0.78 °C

(C) −0.84 °C (D) −0.87 °C

75. Identify from the following the pair of solutions which on mixing exhibits positive deviation from Raoult's law.

(A) Chloroform and acetone (B) Carbon disulfide and acetone

(C) Phenol and aniline (D) Benzene and toluene

76.

$2MnO_{2(s)} + 2NH_4^+ + 2e^- \rightarrow Mn_2O_{3(s)} + 2NH_{3(aq)} + H_2O_{(l)}$

Which of the following cell exhibits above net reduction reaction?

(A) Leclanche cell (B) $H_2 - O_2$ Fuel cell

(C) Lead accumulator (D) NICAD cell

77. Calculate the equilibrium constant at 25 °C for the cell reaction, $Ni(s) + Cu^{2+}(1M) \rightarrow Ni^{2+}(1M) + Cu(s)$ if E°_{cell} is 0.592 V.

(A) 1.25×10^{20} (B) 1.75×10^{20}

(C) 1.50×10^{20} (D) 1.0×10^{20}

78. Which of the following cell reactions is exhibited by fuel cell?

(A) $Cd_{(s)} + 2Ni(OH)_{3(s)} \rightarrow CdO_{(s)} + 2Ni(OH)_{2(s)} + 2H_2O_{(l)}$

(B) $Pb_{(s)} + PbO_{2(s)} + 2H_2SO_{4(aq)} \rightarrow 2PbSO_{4(s)} + 2H_2O_{(l)}$

(C) $2H_{2(g)} + O_{2(g)} \rightarrow 2H_2O_{(l)}$

(D) $2Fe_{(s)} + O_2 + 4H^+ \rightarrow 2Fe^{2+}_{(aq)} + 2H_2O_{(l)}$

79. For a reaction $aA + bB \rightarrow$ Products, the rate law is found to be: Rate $= k[A][B]^2$. What is the overall order of the reaction?

(A) 3 (B) 2

(C) 1 (D) 0

80. If the rate of a first order reaction is 1.8×10^{-3} mol L^{-1}minute^{-1} at the initial concentration 0.3 mol L^{-1}. Find the rate constant in terms of second.

(A) 1×10^{-2} s^{-1} (B) 1×10^{-4} s^{-1}

(C) 6×10^{-2} s^{-1} (D) 6×10^{-2} s^{-2}

81. The combination of $NO_2(g)$ and $CO(g)$ occurs in two steps as follows: What is the rate law for the reaction?

$2NO_2 \rightarrow NO + NO_3$ (k_1) - slow

$NO_3 + CO \rightarrow CO_2 + NO_2$ (k_2) - fast

(A) Rate $= k_2[NO_3][CO]$ (B) Rate $= k_1[NO_2]$

(C) Rate $= k_1[NO_2]^3$ (D) Rate $= k_1[NO_2]^2$

82. Identify the colloidal system if the dispersed phase and dispersion medium are both liquids.

(A) gel. (B) foam.

(C) an emulsion. (D) aerosol.

83. Which of the following catalysts is used in manufacturing of ammonia by Haber's process?

(A) Mo/Fe (B) V_2O_5

(C) MnO_2 (D) Co-Th

84. Which of the following is the correct statement for O_3 and O_2?

(A) Ozone and Oxygen are isotopes of each other

(B) Ozone and Oxygen are allotropes of each other

(C) Ozone and Oxygen are antelopes of each other

(D) Ozone and Oxygen both exhibit amphoterism

85. Which of the following coordinate complexes contains one or more neutral ligand / ligands in its coordination sphere?

(A) Potassium trioxalatoaluminate(III)

(B) Pentaammineaquacobalt(III) iodide

(C) Sodium hexanitrocobaltate(III)

(D) Hexacyanoferrate(II) ion

86. What type of ligand is ethylenediamine?

(A) Monodentate (B) Bidentate

(C) Hexadentate (D) Ambidentate

87. $[Ti(H_2O)_6]^{2+}$ is a colored compound where as $[Zn(H_2O)_6]^{2+}$ is colorless, because

(A) Titanium has completely filled 3d orbitals and Zinc has partially filled 3d orbitals.

(B) Zinc has completely filled 3d orbitals and Titanium has partially filled 3d orbitals.

(C) Zinc has completely filled 4d orbitals.

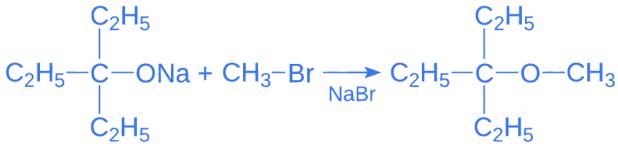
(D) Titanium has completely filled 4d orbitals.

88. Which order of kinetics is followed by the reaction between tert-butyl bromide and hydroxide ion to give tert-Butyl alcohol?

(A) Zero-order kinetics. (B) First-order kinetics.

(C) Second-order kinetics. (D) Third-order kinetics.

89. Identify the type of the following reaction?



(A) Williamson synthesis

(B) Gattermann-koch reaction

(C) Williamson continuous etherification process

(D) Etard reaction

90. When a mixture of an aldehyde and Fehling solution is boiled in hot water, a red precipitate is formed. Here the obtained red precipitate is of -

(A) Cuprous oxide (B) Cupric chloride

(C) Cuprous hydroxide (D) Cupric sulphate

91. Aromatic aldehydes are less reactive than the aliphatic aldehydes in nucleophilic addition reaction this is due to

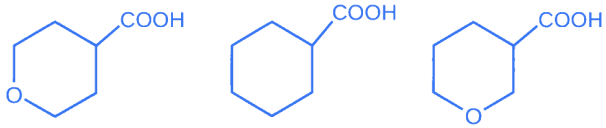
(A) electron donating resonance effect of aromatic ring

(B) electron withdrawing resonance effect of aromatic ring

(C) carbonyl carbon is less nucleophilic

(D) Presence of two alkyl group.

92. The order of strength of carboxylic acid is



(I) (II) (III)

Find the correct order.

(A) III > I > II (B) I > II > III

(C) II > III > I (D) III > II > I

93. Identify the process of making soap by the hydrolysis of fats and oils.

(A) Hydrogenation (B) Esterification

(C) Saponification (D) Fermentation

94. Identify the product obtained when nitro alkanes are treated with Sn / HCl.

(A) R-NH_2 (B) R_2NH

(C) R_3N (D) $R_4N^+X^-$

95. What type of amine is tert-Butyl amine?

(A) 2° amine
(B) 1° amine
(C) 3° amine
(D) quaternary ammonium salt

96. Which of the following is having largest size?

(A) Antibody
(B) Virus
(C) Bacteria
(D) Cancer cell

97. Identify the structure of alanine when pH is 11.

(A) $^{+}NH_3$-CH(CH_3)-COOH
(B) $^{+}NH_3$-CH(CH_3)-COO^{-}
(C) NH_2-CH(CH_3)-COO^{-}
(D) NH_2-CH(CH_3)-COOH

98. What type of sugar is the stachyose?

(A) monosaccharide
(B) disaccharide
(C) trisaccharide
(D) tetrasaccharide

99. Identify a monomer used to prepare nylon 6,6 along with hexamethylene-diamine.

(A) adipic acid
(B) picric acid
(C) phthalic acid
(D) terephthalic acid

100. Which of the following polymers is not an example of addition polymerization?

(A) PVC
(B) Bakelite
(C) Polyethylene
(D) Teflon

101. Lemurs and Tarsiers are included in suborder _____.

(A) Prosimii (B) Anthropoidea
(C) Hominoidea (D) Hyalobatidae

102. Match the whorls of angiospermic flower given in Column I with their functions given in Column II.

Column I (Whorls of a flower)	Column II (Function)
(A) Androecium	(I) Protection of inner parts
(B) Gynoecium	(II) Production of microspores
(C) Corolla	(III) Production of embryo
(D) Calyx	(IV) Attraction of pollinating agents

Choose the correct option.

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

103. Velamen tissue present in the epiphytic roots of orchids help in the absorption of _____.

(A) Oxygen (B) CO_2
(C) water vapour (D) heat

104. Lenticels are absent in _____ of plants

(A) woody stem (B) bark of old stem
(C) pericarp of woody fruits (D) leaves

105. _____ to _____ ratio is greater than 2 : 1 in lipids.

(A) Oxygen, nitrogen (B) Hydrogen, oxygen
(C) Oxygen, hydrogen (D) Nitrogen, carbon

106. A basic protein contains more basic amino acids such as _____.

(A) Lysine and methionine (B) Methionine and arginine
(C) Arginine and lysine (D) Valine and lysine

107. Enzymes generally get destroyed at temperature of _____ °C.

(A) 10 – 20 (B) 30 – 40
(C) 50 – 60 (D) 60 – 70

108. Water in the xylem cells of plants shows capillarity due to its properties like _____.

(A) surface tension only (B) adhesive forces only
(C) cohesive forces only (D) surface tension and forces of cohesion and adhesion

109. Which of the following statements are correct about absorption of water in plants?
A. When water is absorbed by root hair cell its turgor pressure increases.
B. Its D.P.D. decreases.
C. The cortical cells immediately next to epiblema has more D. P. D.
D. A gradient of suction pressure develops from cells of the epiblema to the pericycle of the roots.
E. In roots, metaxylem is in close proximity with pericycle.
Choose the correct option given below.

(A) A, B, C and D only (B) A, B, C and E only
(C) B, C, D and E only. (D) A, C, D and E only

110. The process by which water from the interface of cell wall and plasma membrane enters into the cytoplasm of root hair cell is _____.

(A) osmosis (B) diffusion
(C) imbibition (D) ion-exchange

111. Manganese competes with _____ and _____ for uptake, but inhibits translocation of calcium to shoot apex in plants.

(A) Iron and Magnesium (B) Iron and Potassium
(C) Magnesium and Potassium (D) Iron and Calcium

112. Which one of the following bacteria helps in the denitrification process of nitrates into gaseous nitrogen?

(A) *Nitrosomonas* (B) *Nitrobacter*
(C) *Nitrosococcus* (D) *Bacillus sp*

113. Given below are two statements.
Statement I - Protons are channeled from inner chamber of mitochondria into outer chamber by F_0 part of oxysome during ETS.
Statement II - Cytochrome C is a small, iron containing protein tightly associated with inner membrane.
In the light of above statements, select the correct option given below:

(A) Both statement I and statement II are correct
(B) Both statement I and statement II are incorrect.
(C) Statement I is correct but statement II is incorrect
(D) Statement I is incorrect but statement II is correct.

114. Identify the INCORRECT statement regarding glycolysis. There is _____.

(A) production of ATP
(B) expenditure of ATP
(C) formation of Pyruvic acid
(D) formation of CO_2

115. Oxidation of one NADH + H^+ leads to production of _____ ATP molecules.

(A) one
(B) two
(C) three
(D) four

116. Respiratory quotient is represented as _____

(A) $\frac{CO_2 \text{ consumed}}{O_2 \text{ evolved}}$
(B) $\frac{O_2 \text{ released}}{CO_2 \text{ consumed}}$
(C) $\frac{O_2 \text{ consumed}}{CO_2 \text{ released}}$
(D) $\frac{CO_2 \text{ released}}{O_2 \text{ consumed}}$

117. Which one of the following is the activator for enzyme hexokinase in glycolysis?

(A) Mn^{++}
(B) Mg^{++}
(C) Mo^{++}
(D) Zn^{++}

118. Gibberellins promote flowering in _____.

(A) Dahlia
(B) Aster
(C) Radish
(D) Tobacco

119. Match the instruments given in Column I with the type of growth measured by them given in Column II:

Column I (Instrument)	**Column II (Type of growth)**
(A) Horizontal microscope	(I) Records primary growth
(B) Auxanometer	(II) measure growth in crop plants
(C) Crescograph	(III) linear growth of shoot

Choose the correct answer form the following option

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

120. Given below are two statements about vernalization.
Statement I - Generally vernalization is effective at seed stage in annual plants.
Statement II - The site of vernalization is believed to be shoot apical meristem.
In the light of above statements, select the correct option given below:

(A) Both statement I and statement II are correct
(B) Both statement I and statement II are incorrect
(C) Statement I is correct but statement II is incorrect
(D) Statement I is incorrect but statement II is correct

121. Protein deficiency malnutrition disease showing symptoms like protruding belly, oedema of lower legs is _____.

(A) Kwashiorkor
(B) Marasmus
(C) Jaundice
(D) Malaria

122. Select the INCORRECT statement regarding salivary glands.

(A) Parotid glands are present in front of the ear
(B) Sublingual glands are present below the lower jaw
(C) Serous cells secrete salivary amylase
(D) Mucus present in saliva helps in lubrication of food

123. The end products of protein digestion is (a) and nucleic acid digestion is (b).

(A) (a) Amino acid, (b) sugar + nitrogenous base
(B) (a) Amino acid, (b) pentose sugar only
(C) (a) Monoglycerides, (b) glucose
(D) (a) Glucose, (b) fatty acids + Monoglycerides

124. Which of the following statement is correct?

(A) Pepsin acts on protein in acidic medium.
(B) Trypsin acts on protein in acidic medium.
(C) Pepsinogen is converted to pepsin by enterokinase.
(D) Release of gastric juice from stomach is stimulated by secretin.

125. Entry of food into trachea is prevented by _____.

(A) Gullet
(B) epiglottis
(C) glottis
(D) iter

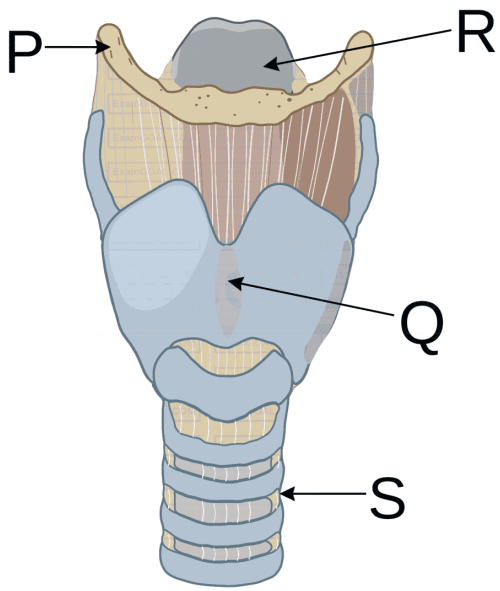
126. Before the formation of oxyhaemoglobin, the O_2 has to pass through _____ membranes from the alveolar air.

(A) 2
(B) 7
(C) 3
(D) 4

127. Given below are two statements:
Statement I - The oxygen transported in dissolved state by the plasma in human beings is about 10% .
Statement II - The CO_2 transported by the plasma in dissolved form is about 3%.
In the light of above statements, select the correct option given below:

(A) Both statement I and statement II are correct
(B) Both statement I and statement II are incorrect
(C) Statement I is correct but statement II is incorrect
(D) Statement I is incorrect but statement II is correct

128. In the given diagram, what should be P, Q, R and S respectively?



(A) Hyoid bone, Thyroid cartilage, Epiglottis, Trachea
(B) Epiglottis, Cricoid cartilage, Hyoid bone, Trachea
(C) Epiglottis, Larynx, Hyoid bone, Bronchus
(D) Thyroid cartilage, Cricoid cartilage, Epiglottis, Trachea

129. The fossa present on the interatrial septum is the remnant of _____.

(A) foramen of Monro
(B) foramen of Luschka
(C) foramen of Magendie
(D) foramen ovale

130. Which of the following statement is INCORRECT regarding blood group B?

(A) It shows two types of genotypes.
(B) Antibody 'a' is present on the surface of WBCs
(C) Antigen B is present on the surface of RBCs.
(D) They can receive blood from B and O blood groups.

131. Given below are two statements.
Statement I - Prothrombinase converts inactive prothrombin into active thrombin.
Statement II - Thrombin converts insoluble fibrinogen into soluble fibrin.
In the light of above statements, select the correct option given below:

(A) Both statement I and statement II are correct
(B) Both statement I and statement II are incorrect
(C) Statement I is correct but statement II is incorrect
(D) Statement I is incorrect but statement II is correct

132. If the number of total WBCs in the blood of a person is 10000 /mm^3, then how many neutrophils would be there in the same person's blood?

(A) 7000 /mm^3
(B) 100 /mm^3
(C) 300 /mm^3
(D) 2600 /mm^3

133. Mode of excretion in tadpole of frog is _____ and adult frog is _____.

(A) ureotelic, ammonotelic
(B) ammonotelic, uricotelic
(C) uricotelic, aminotelic
(D) ammonotelic, ureotelic

134. Juxtaglomerular cells along with _____ forms Juxta Glomerular Apparatus

(A) Macula lutea
(B) Macula of saccule
(C) Macula densa
(D) Macula of utricle

135. Which of the following plays a significant role in the concentration of urine under conditions such as low intake of water or high water loss?

(A) PCT and DCT
(B) Collecting duct and DCT
(C) Glomerulus and Bowman's capsule
(D) Henle's loop and vasa recta

136. Deficiency of ADH causes following, EXCEPT

(A) urine becomes dilute
(B) person feels thirsty
(C) Diabetes insipidus occurs
(D) Concentrated urine is produced

137. Which one of the following is INCORRECT about Acute Renal failure?

(A) It is sudden worsening of renal function
(B) Oliguria is seen
(C) It can be detected biochemically by elevated serum creatinine level.
(D) It may be caused due to glomerulonephritis

138. Match the Column I with Column II

Column I (Organisms)	**Column II (Mode of Excretion)**
(A) Spiders and scorpions	(I) uricotelic
(B) Cartilagenous fishes and many aquatic reptiles	(II) ammonotelic
(C) Birds and land snails	(III) ureotelic
(D) Bony fishes and tadpole	(IV) guanotelic

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

139. Posture control and muscle tone is an important function of _____

(A) Pons varolli
(B) Red nucleus
(C) Crura cerebri
(D) Thalamus

140. Select the INCORRECT statement about axon

(A) It is a single, long and usually unbranched process of neuron
(B) It arises from the cyton at axon hillock
(C) It carries the messages away from the cyton
(D) Bundle of axons outside the CNS is called 'tract'

141. Forebrain of human includes _____.
a) Rhinencephalon
b) Myelencephalon
c) Metencephalon
d) Telencephalon
e) Diencephalon.
Select the correct answer from the options given below:

(A) a, b and c
(B) c, d and e
(C) a, d and e
(D) b, c and d

142. Cranial nerve bearing geniculate ganglion is _____.

(A) abducens (B) hypoglossal
(C) glossopharyngeal (D) facial

143. Match parts of human eye in Column I with their structure characteristic in Column II:

Column I	Column II
(A) Fovea	(I) Visible coloured portion of eye that regulates diameter of pupil.
(B) Iris	(II) External layer of dense connective tissue
(C) Blind spot	(III) The place of sharpest vision
(D) Sclera	(IV) Point where optic nerve leaves the eyeball and photoreceptor cells are absent.

Choose the correct answer form the following options.

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

144. Select the INCORRECT statement about cortisol.

(A) It regulates the metabolism of proteins, fats and carbohydrates
(B) It is immunosuppressive
(C) It causes decrease in blood glucose level
(D) It prepares the animals to face emergencies in nature

145. Match the Column I with Column II:

Column I (Cells of islet of Langerhans)	Column II (Action of hormone)
(A) Alpha cells	(I) Inhibits release of pancreatic juice
(B) Beta cells	(II) Glycogenolysis
(C) Delta cells	(III) Glycogenesis
(D) F-cells	(IV) Decrease in gastric secretion and motility of digestive tract

Choose the correct answer form the following options

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

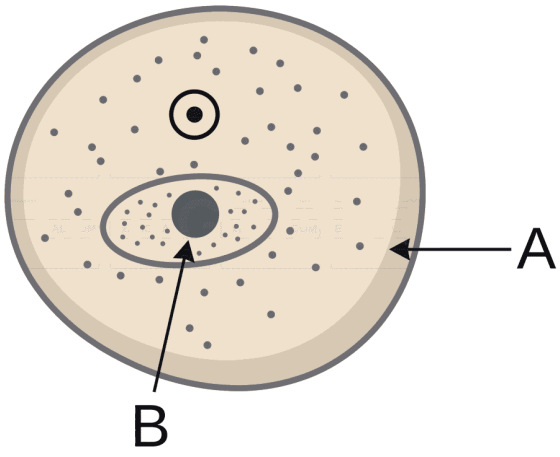
146. Which hormone supports the process of RBC production as well as regulates the reproductive cycle in females?

(A) Thyroxine (B) Adrenaline
(C) Calcitonin (D) Estrogen

147. Which of the following glands is endodermal in origin?

(A) Lacrimal (B) Salivary
(C) Thyroid (D) Mammary

148. In the given diagram of pollen grain, identify the labels 'A' and 'B'



(A) A – Exine, B – Intine (B) A – Intine, B – vegetative nucleus
(C) A – Intine, B – Generative nucleus (D) A – Exine, B – Generative nucleus

149. Given below are two statements.
Statement I - Adventive embryony gives rise to a condition called polyembryony.
Statement II - Generally, *Nicotiana* plants produced by non-recurrent apomixis are sterile and do not reproduce sexually.
In the light of the above statements, select the correct option given below:

(A) Both statement I and statement II are correct (B) Both statement I and statement II are incorrect
(C) Statement I is correct but statement II is incorrect (D) Statement I is incorrect but statement II is correct

150. Which of the following layer of anther wall shows fibrous thickenings?

(A) Epidermis (B) Endothecium
(C) Middle layers (D) Tapetum

151. Self incompatibility is seen in

(A) *Calotropis* (B) Apple
(C) Sunflower (D) *Thea*

152. Which one of the following is NOT an outbreeding device to promote cross pollination?

(A) Herkogamy (B) Self sterility
(C) Heteromorphy (D) Cleistogamy

153. Which of the following pair of animals indicates continuous breeder?

(A) Ape and donkey (B) Donkey and sheep
(C) Ape and human (D) Goat and sheep

154. The pancreas develops from _____ layer of embryo.

(A) ectoderm (B) mesoderm
(C) endoderm (D) epiblast

155. Which of the following cells undergoes meiosis II in gametogenesis?

(A) Oogonia (B) Secondary spermatocyte
(C) Primary spermatocyte (D) 2nd polar body

156. Which of the following does NOT communicate directly with the urethra?

(A) Vas deferens (B) Cowper's gland
(C) Prostate gland (D) Ejaculatory duct

157. Which of the following layers covering the secondary follicle is fibrous?

(A) Theca externa (B) Theca interna
(C) Membrana granulosa (D) Cumulus oophorus

158. Which of the following contraceptive devices is usually used only by males?

(A) Condom (B) Diaphragm
(C) Lippes Loop (D) Oral pills

159. In a population with two alleles B and b with frequency 0.6 and 0.4 in Hardy-Weinberg equilibrium. How many heterozygous individuals in a sample of 250 can be expected?

(A) 30 (B) 60
(C) 90 (D) 120

160. Extra copy of 21st chromosome causes _____ in human.

(A) Turner's syndrome (B) Klinefelter's syndrome
(C) Thalassemia (D) Down's syndrome

161. The number of linkage groups of a particular species corresponds to its _____ number of chromosomes.

(A) haploid (B) diploid
(C) triploid (D) tetraploid

162. Development of feminine characters and no spermatogenesis are characteristic feature of people with _____.

(A) Down's syndrome (B) Turner's syndrome
(C) Klinefelter's syndrome (D) Huntington's disease

163. Which one of the following characters does NOT belong to Down's Syndrome?

(A) Mild to moderate mental retardation (B) Change in size and shape of RBCs
(C) Open mouth, protruding tongue, flat nose (D) Poor skeletal development

164. Choose the group of correct statements regarding sex-linked inheritance.
A) Y-linked genes are inherited only in males.
B) X-linked genes are inherited only in females.
C) Colourblindness shows criss-cross inheritance.
D) Haemophilia is Y-linked recessive disorder.
E) The frequency of colourblind women is much less than colourblind men.

(A) A, D and E only (B) B and D only
(C) A, C and E only (D) B, D and E only

165. Two different amino acids will never be encoded by the same codon, which property of genetic code does this represent?

(A) Code is non-overlapping (B) Code is ambiguous
(C) Code is non-ambiguous (D) Code has degeneracy

166. Match the gene in Column I with its role in Column II.

Column I (Gene)	Column II (Role of gene)
(A) Structural gene	(I) Binding site for repressor
(B) Operator gene	(II) Codes for repressor
(C) Promoter gene	(III) Codes for enzyme
(D) Regulator gene	(IV) Binding site for RNA polymerase

Choose the correct option.

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

167. Part of gene that is transcribed but NOT translated is _____.

(A) exon (B) intron
(C) cistron (D) codon

168. Given below are two statements:
Statement I - The unit of DNA, in which replication occur is called replicon.
Statement II - In eukaryotes, there is only one replicon whereas in prokaryotes there are several replicons.
In the light of above statements, select the correct option given below:

(A) Both statement I and statement II are correct (B) Both statement I and statement II are incorrect
(C) Statement I is correct but statement II is incorrect (D) Statement I is incorrect but statement II is correct.

169. A 340 Å long segment of DNA molecule has 40 thymine nitrogenous bases, what will be the number of guanine bases in the same segment?

(A) 10 (B) 20
(C) 40 (D) 60

170. Formation of peptide bond between amino acids during translation is catalyzed by _____.

(A) Ribozyme (B) Polynucleotide phosphorylase
(C) Permease (D) Transacetylase

171. *Triticum aestivum*, a hybrid formed by doubling of chromosomes, is an example of _____.

(A) Interspecific speciation (B) Intergeneric speciation
(C) Sympatric speciation (D) Allopatric speciation

172. The industrial melanism phenomenon demonstrates _____

(A) Isolation (B) Genetic drift
(C) natural selection (D) migration

173. Lob fin fish _____ is considered living fossil.

(A) Coelacanth (B) Cichlid fish
(C) *Seymouria* (D) Ichthyosaurs

174. Pneumonitis and Eosinophilia are symptoms of _____.

(A) Amoebiasis (B) Ascariasis
(C) Typhoid (D) nasopharyngitis

175. Pus is a mixture of _____.

(A) dead neutrophils, damaged tissues and dead microbes (B) living neutrophils, damaged tissues and dead microbes.
(C) dead neutrophils, damaged tissues and living microbes. (D) living neutrophils, damaged tissues and living microbes.

176. Smoking causes _____.
A) Sinusitis
B) Laryngitis
C) Chronic bronchitis
D) Emphysema
E) Pneumonia
Select the correct option:

(A) B, D and E only (B) C and D only
(C) A, B and E only (D) B and D only

177. Paratope of immunoglobulins is _____

(A) antigen binding site (B) antigen antibody complex
(C) antigenic determinant (D) cellular barrier

collegedunia

178. Human being obtain antibodies from hyper immunised horses against rabies pathogen. It is _____ type of immunity.

(A) natural active acquired
(B) natural passive acquired
(C) artificial active acquired
(D) artificial passive acquired

179. Which one of the following variety of wheat is produced by mutation breeding?

(A) Himgiri
(B) NP 836
(C) Sonalika
(D) Kalyan sona

180. Which of the following forms Hartig net in the intercellular spaces of root cortex?

(A) Endomycorrhizae
(B) Ectomycorrhizae
(C) Lichens
(D) All biofertilizers which develop on roots

181. (Terror of Bengal) 'Water hyacinth' is controlled by using the fungus _____.

(A) *Phytophthora palmivora*
(B) *Fusarium spp*
(C) *Alternaria crassa*
(D) *Trichoderma spp*

182. Match Column I containing names of antibiotics with Column II containing their microbial sources.

Column I (Names of antibiotics)	**Column II (Microbial source)**
(A) Chloromycetin	(I) *Penicillium griseofulvum*
(B) Erythromycin	(II) *Streptomyces aureofaciens*
(C) Griseofulvin	(III) *Streptomyces venezuelae*
(D) Terramycin	(IV) *Streptomyces erythreus*

Choose the correct option

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

183. In sewage treatment, formation of activated sludge takes place during _____.

(A) preliminary
(B) primary
(C) secondary
(D) tertiary

184. Which one of the following is NOT used as competent host in rDNA technology?

(A) *Bacillus, Haemophilus*
(B) *Helicobacter pylori*
(C) *Escherichia coli*
(D) Bacteriophage M13

185. Vehicle DNA is the common name given to which of the following?

(A) r-DNA
(B) C-DNA
(C) Cloning vector
(D) template DNA

186. The amplified DNA fragments can be separated by _____.

(A) autoradiography
(B) gel electrophoresis
(C) x-ray crystallography
(D) ultra centrifugation

187. The technique of PCR was discovered in 1985 by _____.

(A) Stanley Cohen
(B) Herbert Boyer
(C) Kary Mullis
(D) Karl Ereky

188. The gene of α-amylase inhibitor for the development of pest resistant tobacco plant has been isolated from _____.

(A) *Pisum sativum*
(B) *Phaseolus vulgaris*
(C) *Capsicum annum*
(D) *Bacillus thuringiensis*

189. Which one of the following is INCORRECT regarding brood parasitism?

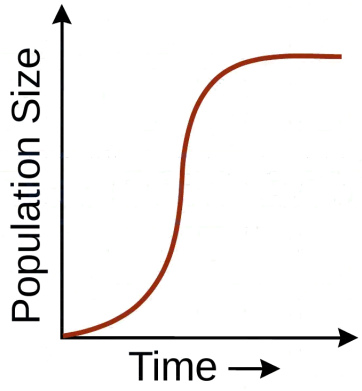
(A) Asian koel lays eggs in the nest of Indian crow
(B) Indian crow incubates eggs of Asian koel
(C) Eggs of Indian crow have evolved to resemble Asian koel's eggs to avoid ejection.
(D) Eggs of Asian Koel hatch before that of common Indian crow

190. As an efficient reproductive strategy under environmental selection pressure, some organisms like _____ and _____ produce a small number of large-sized offspring

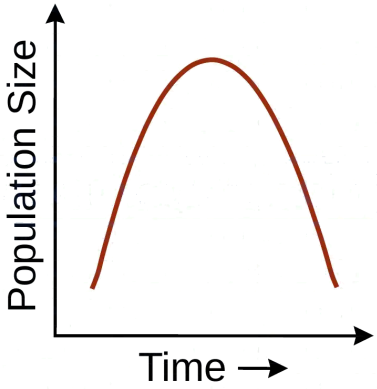
(A) oysters and pelagic fishes
(B) birds and mammals
(C) clown fish and sea anemone
(D) zebra mussels and chlamydomonas

191. Which of the following depicts Exponential growth curve of a population?

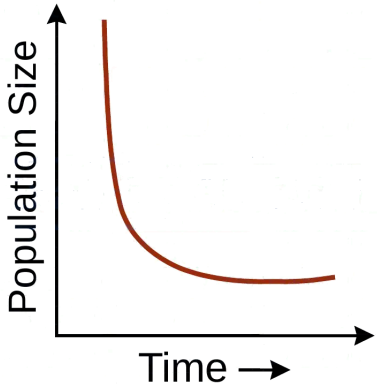
(A)



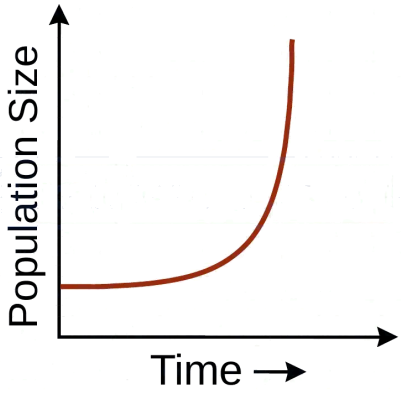
(B)



(C)



(D)



192. Which of the following statements is INCORRECT regarding Niche?

(A) It is not species specific

(B) It is an activity or role performed by organism

(C) It supports single species at a time

(D) It deals with flow of energy from one organism to another

193. Which one of the following is the most important services provided by an ecosystem?

(A) Photosynthesis by photoautotrophs.

(B) Respiration by all aerobes.

(C) Synthesis of food by chemoautotrophs.

(D) Predation regulating prey population.

194. Long-term storage places of carbon in the form of fossil fuel are known as _____.

(A) sinks

(B) atmosphere

(C) mountain tops

(D) sea bed

195. What do you mean by sere?

(A) Series of communities in an area

(B) The entire sequence of communities that successively change in a given area

(C) The entire sequence of communities that do not change in a given area

(D) Constant community occupying the given area over a period of time.

196. Which one of the following statements is INCORRECT regarding genetic diversity?

(A) Genetic diversity is interspecific diversity

(B) Allelic genes lead to individual differences within species.

(C) Existence of subspecies, races are examples of genetic diversity.

(D) It includes variation within a population

197. In Satpuda hills of Maharashtra, Pawra tribals by farming, have protected (*in situ* conservation) _____.

(A) flavr savr tomato

(B) golden mustard

(C) corn with different coloured kernels

(D) adzuki beans

198. In which part of India, the Jhum cultivation is followed?

(A) North - east
(B) South - east
(C) South - west
(D) North - west

199. With which the Montreal protocol is concerned?

(A) Control emission of ozone depleting substances
(B) Global warming
(C) Biomagnification of DDT
(D) Thermal pollution of water

200. Which one among the following is NOT a reason for increase in concentration of carbon dioxide in the atmosphere?

(A) Burning of fossil fuel
(B) Rapid deforestation
(C) Weathering of rocks
(D) Respiration by plants and animals

- End of Question Paper -