

PYQSide

AIPMT 2011 (PRELIMS) — QUESTION PAPER

Max. Marks: 800

Questions: 200

Section A (MCQ)

Q.1 The dimensions of $(\mu_0 \epsilon_0)^{-1/2}$ are

[AIPMT 2011 (Prelims)]

- (1) $[L^{1/2}T^{-1/2}]$ (2) $[L^{-1}T]$
(3) $[LT^{-1}]$ (4) $[L^{1/2}T^{1/2}]$

Scan or tap for the full solution



Q.2 A boy standing at the top of a tower of 20 m height drops a stone. Assuming $g = 10 \text{ m s}^{-2}$, the velocity with which it hits the ground is

[AIPMT 2011 (Prelims)]

- (1) 10.0 m/s (2) 20.0 m/s (3) 40.0 m/s (4) 5.0 m/s

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Q.3 A particle moves in a circle of radius 5 cm with constant speed and time period $0.2\pi \text{ s}$. The acceleration of the particle is

[AIPMT 2011 (Prelims)]

- (1) 15 m/s^2 (2) 25 m/s^2 (3) 36 m/s^2 (4) 5 m/s^2

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Q.4 A missile is fired for maximum range with an initial velocity of 20 m/s. If $g = 10 \text{ m/s}^2$, the range of the missile is

[AIPMT 2011 (Prelims)]

- (1) 40 m (2) 50 m (3) 60 m (4) 20 m

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Q.5 A body is moving with velocity 30 m/s towards east. After 10 seconds its velocity becomes 40 m/s towards north. The average acceleration of the body is

[AIPMT 2011 (Prelims)]

- (1) 1 m/s^2 (2) 7 m/s^2
(3) $\sqrt{7} \text{ m/s}^2$ (4) 5 m/s^2

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Q.6 A person of mass 60 kg is inside a lift of mass 940 kg and presses the button on control panel. The lift starts moving upwards with an acceleration 1.0 m/s^2 . If $g = 10 \text{ m/s}^2$, the tension in the supporting cable is

[AIPMT 2011 (Prelims)]

- (1) 8600 N (2) 9680 N (3) 11000 N (4) 1200 N

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Q.7 A body of mass M hits normally a rigid wall with velocity V and bounces back with the same velocity. The impulse experienced by the body is

[AIPMT 2011 (Prelims)]

- (1) MV (2) $1.5 MV$ (3) $2MV$ (4) zero

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Q.8 The potential energy of a system increases if work is done

[AIPMT 2011 (Prelims)]

- (1) upon the system by a nonconservative force
(2) by the system against a conservative force.
(3) by the system against a nonconservative force.
(4) upon the system by a conservative force.

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Q.9 A body projected vertically from the earth reaches a height equal to earth's radius before returning to the earth. The power exerted by the gravitational force is greatest

[AIPMT 2011 (Prelims)]

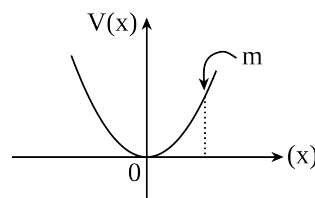
- (1) at the highest position of the body
(2) at the instant just before the body hits the earth.
(3) it remains constant all through.
(4) at the instant just after the body is projected.

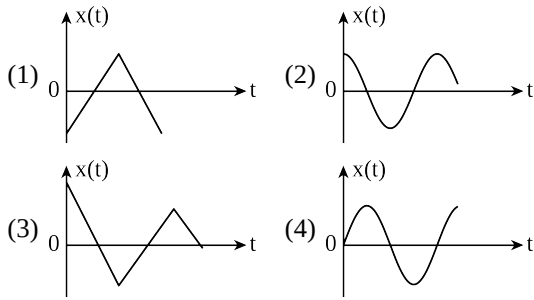
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Q.10 A particle of mass m is released from rest and follows a parabolic path as shown. Assuming that the displacement of the mass from the origin is small, which graph correctly depicts the position of the particle as a function of time?

[AIPMT 2011 (Prelims)]

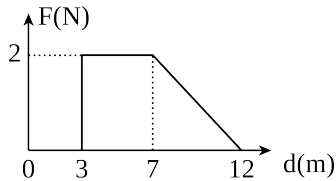




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- Q.11** Force F on a particle moving in a straight line varies with distance d as shown in figure.



The work done on the particle during its displacement of 12 m is [AIPMT 2011 (Prelims)]

- (1) 18 J (2) 21 J (3) 26 J (4) 13 J

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- Q.12** The instantaneous angular position of a point on a rotating wheel is given by the equation

$$\theta(t) = 2t^3 - 6t^2$$

The torque on the wheel becomes zero at

[AIPMT 2011 (Prelims)]

- (1) $t = 1$ s (2) $t = 0.5$ s
(3) $t = 0.25$ s (4) $t = 2$ s

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- Q.13** The moment of inertia of a thin uniform rod of mass M and length L about an axis passing through its midpoint and perpendicular to its length is I_0 . Its moment of inertia about an axis passing through one of its ends and perpendicular to its length is

[AIPMT 2011 (Prelims)]

- (1) $I_0 + ML^2/2$ (2) $I_0 + ML^2/4$
(3) $I_0 + 2ML^2$ (4) $I_0 + ML^2$

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- Q.14** A planet moving along an elliptical orbit is closest to the sun at a distance r_1 and farthest away at a distance of r_2 . If v_1 and v_2 are the linear velocities at these points respectively, then the ratio $\frac{v_1}{v_2}$ is

[AIPMT 2011 (Prelims)]

- (1) $(r_1/r_2)^2$ (2) r_2/r_1 (3) $(r_2/r_1)^2$ (4) r_1/r_2

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- Q.15** During an isothermal expansion, a confined ideal gas does 150 J of work against its surroundings. This implies that [AIPMT 2011 (Prelims)]

- (1) 150 J of heat has been removed from the gas
(2) 300 J of heat has been added to the gas
(3) no heat is transferred because the process is isothermal
(4) 150 J of heat has been added to the gas

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- Q.16** When 1 kg of ice at 0°C melts to water at 0°C , the resulting change in its entropy, taking latent heat of ice to be 80 cal/g, is [AIPMT 2011 (Prelims)]

- (1) 273 cal/K (2) 8×10^4 cal/K
(3) 80 cal/K (4) 293 cal/K

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- Q.17** Out of the following functions representing motion of a particle which represents SHM

- (1) $y = \sin \omega t - \cos \omega t$
(2) $y = \sin^3 \omega t$
(3) $y = 5 \cos\left(\frac{3\pi}{4} - 3\omega t\right)$
(4) $y = 1 + \omega t + \omega^2 t^2$

[AIPMT 2011 (Prelims)]

- (1) Only (1)
(2) Only (4) does not represent SHM
(3) Only (1) and (3)
(4) Only (1) and (2)

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- Q.18** Two waves are represented by the equations $y_1 = a \sin(\omega t + kx + 0.57)$ m and $y_2 = a \cos(\omega t + kx)$ m, where x is in metre and t in second. The phase difference between them is

[AIPMT 2011 (Prelims)]

- (1) 1.0 radian (2) 1.25 radian
(3) 1.57 radian (4) 0.57 radian

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- Q.19** Sound waves travel at 350 m/s through warm air and at 3500 m/s through brass. The wavelength of a 700 Hz acoustic wave as it enters brass from warm air

[AIPMT 2011 (Prelims)]

- (1) decrease by a factor 10
(2) increase by a factor 20
(3) increase by a factor 10
(4) decrease by a factor 20

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- Q.20** A parallel plate capacitor has a uniform electric field E in the space between the plates. If the distance between the plates is d and area of each plate is A , the energy stored in the capacitor is

[AIPMT 2011 (Prelims)]

- (1) $\frac{1}{2}\epsilon_0 E^2$ (2) $\frac{E^2 A d}{\epsilon_0}$
 (3) $\frac{1}{2}\epsilon_0 E^2 A d$ (4) $\epsilon_0 E A d$

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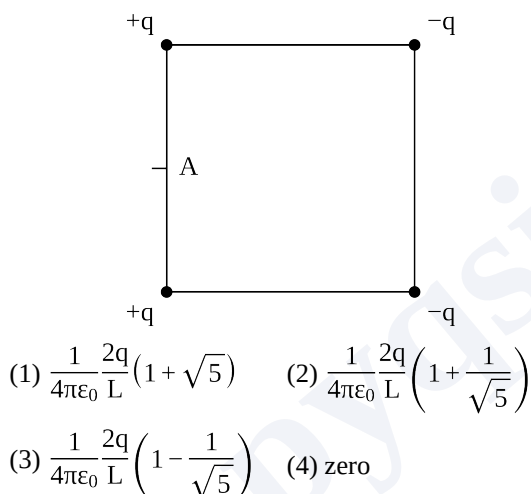
- Q.21** A charge Q is enclosed by a Gaussian spherical surface of radius R . If the radius is doubled, then the outward electric flux will [AIPMT 2011 (Prelims)]

- (1) increase four times (2) be reduced to half
 (3) remain the same (4) be doubled

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- Q.22** Four electric charges $+q$, $+q$, $-q$ and $-q$ are placed at the corners of a square of side $2L$ (see figure). The electric potential at point A , midway between the two charges $+q$ and $+q$, is [AIPMT 2011 (Prelims)]



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- Q.23** A current of 2 A flows through a $2\ \Omega$ resistor when connected across a battery. The same battery supplies a current of 0.5 A when connected across a $9\ \Omega$ resistor. The internal resistance of the battery is

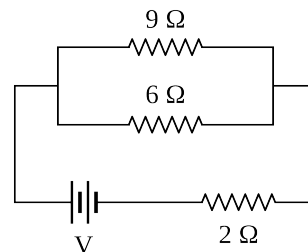
[AIPMT 2011 (Prelims)]

- (1) $0.5\ \Omega$ (2) $1/3\ \Omega$ (3) $1/4\ \Omega$ (4) $1\ \Omega$

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- Q.24** If power dissipated in the $9\ \Omega$ resistor in the circuit shown is 36 watt, the potential difference across the $2\ \Omega$ resistor is [AIPMT 2011 (Prelims)]

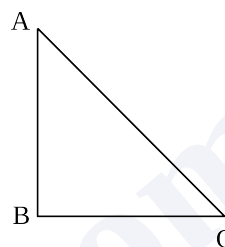


- (1) 4 volt (2) 8 volt (3) 10 volt (4) 2 volt

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- Q.25** A current carrying closed loop in the form of a right angle isosceles triangle ABC is placed in uniform magnetic field acting along AB . If the magnetic force on the arm BC is $\vec{F}$, the force on the arm AC is [AIPMT 2011 (Prelims)]



- (1) $-\sqrt{2}\vec{F}$ (2) $-\vec{F}$ (3) $\vec{F}$ (4) $\sqrt{2}\vec{F}$

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- Q.26** A uniform electric field and a uniform magnetic field are acting along the same direction in a certain region. If an electron is projected in the region such that its velocity is pointed along the direction of fields, then the electron [AIPMT 2011 (Prelims)]

- (1) will turn towards right of direction of motion
 (2) speed will decrease
 (3) speed will increase
 (4) will turn towards left of direction of motion

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- Q.27** There are four light-weight-rod samples A, B, C, D separately suspended by threads. A bar magnet is slowly brought near each sample and the following observations are noted

- (i) A is feebly repelled
 (ii) B is feebly attracted
 (iii) C is strongly attracted
 (iv) D remains unaffected

Which one of the following is true ?

[AIPMT 2011 (Prelims)]

- (1) B is of a paramagnetic material
 (2) C is of a diamagnetic material
 (3) D is of a ferromagnetic material
 (4) A is of a non-magnetic material

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Q.28 An ac voltage is applied to a resistance R and an inductor L in series. If R and the inductive reactance are both equal to $3\ \Omega$, the phase difference between the applied voltage and the current in the circuit is

[AIPMT 2011 (Prelims)]

- (1) $\pi/6$ (2) $\pi/4$ (3) $\pi/2$ (4) zero

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Q.29 In the ac circuit an alternating voltage $e = 200\sqrt{2} \sin 100t$ volts is connected to a capacitor of capacity $1\ \mu\text{F}$. The r.m.s. value of the current in the circuit is

[AIPMT 2011 (Prelims)]

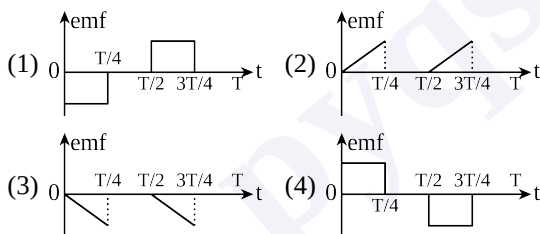
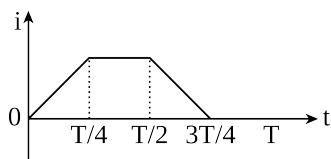
- (1) 10 mA (2) 100 mA (3) 200 mA (4) 20 mA

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Q.30 The current i in a coil varies with time as shown in the figure. The variation of induced emf with time would be

[AIPMT 2011 (Prelims)]



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Q.31 The electric and the magnetic field, associated with an e.m. wave, propagating along the $+z$ -axis, can be represented by

[AIPMT 2011 (Prelims)]

- (1) $\vec{E} = E_0\hat{i}$, $\vec{B} = B_0\hat{j}$ (2) $\vec{E} = E_0\hat{k}$, $\vec{B} = B_0\hat{i}$
 (3) $\vec{E} = E_0\hat{j}$, $\vec{B} = B_0\hat{i}$ (4) $\vec{E} = E_0\hat{j}$, $\vec{B} = B_0\hat{k}$

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Q.32 The decreasing order of wavelength of infrared, microwave, ultraviolet and gamma rays is

[AIPMT 2011 (Prelims)]

- (1) microwave, infrared, ultraviolet, gamma rays
 (2) gamma rays, ultraviolet, infrared, microwaves
 (3) microwaves, gamma rays, infrared, ultraviolet
 (4) infrared, microwave, ultraviolet, gamma rays

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Q.33 Which of the following is not due to total internal reflection?

[AIPMT 2011 (Prelims)]

- (1) Working of optical fibre
 (2) Difference between apparent and real depth of a pond
 (3) Mirage on hot summer days
 (4) Brilliance of diamond

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Q.34 A biconvex lens has a radius of curvature of magnitude 20 cm. Which one of the following options best describes the image formed of an object of height 2 cm placed 30 cm from the lens?

[AIPMT 2011 (Prelims)]

- (1) Virtual, upright, height = 1 cm
 (2) Virtual, upright, height = 0.5 cm
 (3) Real, inverted, height = 4 cm
 (4) Real, inverted, height = 1 cm

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Q.35 Photoelectric emission occurs only when the incident light has more than a certain minimum

[AIPMT 2011 (Prelims)]

- (1) power (2) wavelength
 (3) intensity (4) frequency

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Q.36 Light of two different frequencies whose photons have energies 1 eV and 2.5 eV respectively illuminate a metallic surface whose work function is 0.5 eV successively. Ratio of maximum speeds of emitted electrons will be

[AIPMT 2011 (Prelims)]

- (1) 1 : 4 (2) 1 : 2 (3) 1 : 1 (4) 1 : 5

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Q.37 Electrons used in an electron microscope are accelerated by a voltage of 25 kV. If the voltage is increased to 100 kV, then the de Broglie wavelength associated with the electrons would

[AIPMT 2011 (Prelims)]

- (1) increase by 2 times (2) decrease by 2 times
 (3) decrease by 4 times (4) increase by 4 times

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- Q.38** In photoelectric emission process from a metal of work function 1.8 eV, the kinetic energy of most energetic electrons is 0.5 eV. The corresponding stopping potential is [AIPMT 2011 (Prelims)]
 (1) 1.8 V (2) 1.3 V (3) 0.5 V (4) 2.3 V

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- Q.39** The wavelength of the first line of Lyman series for hydrogen atom is equal to that of the second line of Balmer series for a hydrogen-like ion. The atomic number Z of hydrogen-like ion is [AIPMT 2011 (Prelims)]

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

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- Q.40** The power obtained in a reactor using ^{235}U disintegration is 1000 kW. The mass decay of ^{235}U per hour is [AIPMT 2011 (Prelims)]
 (1) 10 microgram (2) 20 microgram
 (3) 40 microgram (4) 1 microgram

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- Q.41** Fusion reaction takes place at high temperature because [AIPMT 2011 (Prelims)]
 (1) nuclei break up at high temperature
 (2) atoms get ionised at high temperature
 (3) kinetic energy is high enough to overcome the Coulomb repulsion between nuclei
 (4) molecules break up at high temperature

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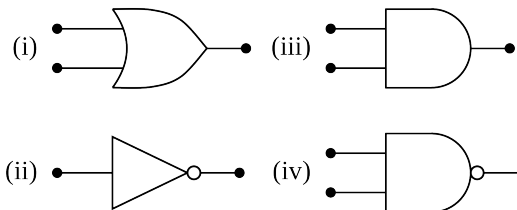


- Q.42** In forward biasing of the p-n junction [AIPMT 2011 (Prelims)]
 (1) the positive terminal of the battery is connected to p-side and the depletion region becomes thick.
 (2) the positive terminal of the battery is connected to n-side and the depletion region becomes thin.
 (3) the positive terminal of the battery is connected to n-side and the depletion region becomes thick.
 (4) the positive terminal of the battery is connected to p-side and the depletion region becomes thin.

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- Q.43** Symbolic representations of four logic gates are shown as



Pick out which ones are for AND, NAND and NOT gates, respectively [AIPMT 2011 (Prelims)]

- (1) (ii), (iii) and (iv) (2) (iii), (ii) and (i)
 (3) (iii), (ii) and (iv) (4) (iii), (iv) and (ii)

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- Q.44** If a small amount of antimony is added to germanium crystal [AIPMT 2011 (Prelims)]
 (1) it becomes a p-type semiconductor
 (2) the antimony becomes an acceptor atom
 (3) there will be more free electrons than holes in the semiconductor
 (4) its resistance is increased

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- Q.45** In the Davisson and Germer experiment, the velocity of electrons emitted from the electron gun can be increased by [AIPMT 2011 (Prelims)]
 (1) increasing the potential difference between the anode and filament
 (2) increasing the filament current
 (3) decreasing the filament current
 (4) decreasing the potential difference between the anode and filament

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- Q.46** The half life of a radioactive isotope X is 50 years. It decays to another element Y which is stable. The two elements X and Y were found to be in the ratio of 1 : 15 in a sample of a given rock. The age of the rock was estimated to be [AIPMT 2011 (Prelims)]
 (1) 150 years (2) 200 years
 (3) 250 years (4) 100 years

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- Q.47** A radioactive nucleus of mass M emits a photon of frequency ν and the nucleus recoils. The recoil energy will be [AIPMT 2011 (Prelims)]
 (1) $Mc^2 - h\nu$ (2) $h^2\nu^2/2Mc^2$
 (3) zero (4) $h\nu$

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Q.48 A nucleus ${}^m_nX$ emits one α particle and two β particles. The resulting nucleus is

[AIPMT 2011 (Prelims)]

- (1) ${}^{m-6}_{n-4}Z$ (2) ${}^{m-6}_nZ$ (3) ${}^{m-4}_nX$ (4) ${}^{m-4}_{n-2}Y$

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Q.49 A transistor is operated in common emitter configuration at $V_C = 2$ V such that a change in the base current from 100 μ A to 300 μ A produces a change in the collector current from 10 mA to 20 mA. The current gain is

[AIPMT 2011 (Prelims)]

- (1) 50 (2) 75 (3) 100 (4) 25

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Q.50 The total number of atomic orbitals in fourth energy level of an atom is

[AIPMT 2011 (Prelims)]

- (1) 8 (2) 16 (3) 32 (4) 4

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Q.51 The energies E_1 and E_2 of two radiations are 25 eV and 50 eV respectively. The relation between their wavelengths i.e., λ_1 and λ_2 will be

[AIPMT 2011 (Prelims)]

- (1) $\lambda_1 = \lambda_2$ (2) $\lambda_1 = 2\lambda_2$ (3) $\lambda_1 = 4\lambda_2$ (4) $\lambda_1 = \frac{1}{2}\lambda_2$

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Q.52 If $n = 6$, the correct sequence for filling of electrons will be

[AIPMT 2011 (Prelims)]

- (1) $ns \rightarrow (n-2)f \rightarrow (n-1)d \rightarrow np$
 (2) $ns \rightarrow (n-1)d \rightarrow (n-2)f \rightarrow np$
 (3) $ns \rightarrow (n-2)f \rightarrow np \rightarrow (n-1)d$
 (4) $ns \rightarrow np \rightarrow (n-1)d \rightarrow (n-2)f$

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Q.53 Which of the following has the minimum bond length?

[AIPMT 2011 (Prelims)]

- (1) O_2^+ (2) O_2^- (3) O_2^{2-} (4) O_2

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Q.54 Which of the two ions from the list given below that have the geometry that is explained by the same hybridization of orbitals, NO_2^- , NO_3^- , NH_2^- , NH_4^+ , SCN^- ?

[AIPMT 2011 (Prelims)]

- (1) NO_2^- and NO_3^- (2) NH_4^+ and NO_3^-
 (3) SCN^- and NH_2^- (4) NO_2^- and NH_2^-

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Q.55 The correct order of increasing bond length of C–H, C–O, C–C and C=C is

[AIPMT 2011 (Prelims)]

- (1) $C-H < C=C < C-O < C-C$
 (2) $C-C < C=C < C-O < C-H$
 (3) $C-O < C-H < C-C < C=C$
 (4) $C-H < C-O < C-C < C=C$

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Q.56 The pairs of species of oxygen and their magnetic behavior are noted below. Which of the following presents the correct description?

[AIPMT 2011 (Prelims)]

- (1) O_2^- , O_2^{2-} - Both diamagnetic
 (2) O^+ , O_2^{2-} - Both paramagnetic
 (3) O_2^+ , O_2 - Both paramagnetic
 (4) O , O_2^{2-} - Both paramagnetic

Scan or tap for the full solution



Q.57 If the enthalpy change for the transition of liquid water to steam is 30 kJ mol $^{-1}$ at 27°C, the entropy change for the process would be

[AIPMT 2011 (Prelims)]

- (1) 10 J mol $^{-1}$ K $^{-1}$ (2) 1.0 J mol $^{-1}$ K $^{-1}$
 (3) 0.1 J mol $^{-1}$ K $^{-1}$ (4) 100 J mol $^{-1}$ K $^{-1}$

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Q.58 Enthalpy change for the reaction, $4H(g) \rightarrow 2H_2(g)$ is -869.6 kJ. The dissociation energy of H–H bond is

[AIPMT 2011 (Prelims)]

- (1) -434.8 kJ (2) -869.6 kJ
 (3) +434.8 kJ (4) +217.4 kJ

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Q.59 Which of the following is correct option for free expansion of an ideal gas under adiabatic condition?

[AIPMT 2011 (Prelims)]

- (1) $q = 0$, $\Delta T \neq 0$, $w = 0$ (2) $q \neq 0$, $\Delta T = 0$, $w = 0$
 (3) $q = 0$, $\Delta T = 0$, $w = 0$ (4) $q = 0$, $\Delta T < 0$, $w \neq 0$

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Q.60 The value of ΔH for the reaction $X_2(g) + 4Y_2(g) \rightleftharpoons 2XY_4(g)$ is less than zero. Formation of $XY_4(g)$ will be favoured at

[AIPMT 2011 (Prelims)]

- (1) high temperature and high pressure
 (2) low pressure and low temperature
 (3) high temperature and low pressure
 (4) high pressure and low temperature

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Q.61 A buffer solution is prepared in which the concentration of NH_3 is 0.30 M and the concentration of NH_4^+ is 0.20 M. If the equilibrium constant, K_b for NH_3 equals 1.8×10^{-5} , what is the pH of this solution? ($\log 2.7 = 0.43$)

[AIPMT 2011 (Prelims)]

- (1) 9.08 (2) 9.43 (3) 11.72 (4) 8.73

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Q.62 Which of the following is least likely to behave as Lewis base?

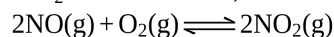
[AIPMT 2011 (Prelims)]

- (1) H_2O (2) NH_3 (3) BF_3 (4) OH^-

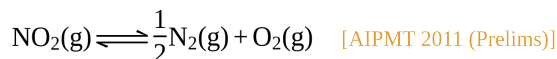
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Q.63 For the reaction, $\text{N}_2(\text{g}) + \text{O}_2(\text{g}) \rightleftharpoons 2\text{NO}(\text{g})$, the equilibrium constant is K_1 . The equilibrium constant is K_2 for the reaction,



What is K for the reaction,



[AIPMT 2011 (Prelims)]

(1) $\frac{1}{2K_1K_2}$ (2) $\frac{1}{4K_1K_2}$

(3) $\left[\frac{1}{K_1K_2}\right]^{1/2}$ (4) $\frac{1}{K_1K_2}$

Scan or tap for the full solution



Q.64 Considering the state of hybridization of carbon atoms, find out the molecule among the following which is linear?

[AIPMT 2011 (Prelims)]

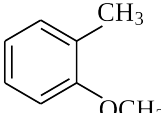
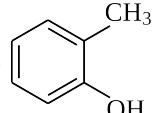
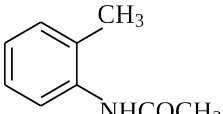
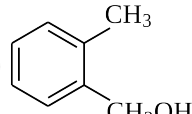
- (1) $\text{CH}_3\text{--CH=CH--CH}_3$
 (2) $\text{CH}_3\text{--C}\equiv\text{C--CH}_3$
 (3) $\text{CH}_2\text{=CH--CH}_2\text{--C}\equiv\text{CH}$
 (4) $\text{CH}_3\text{--CH}_2\text{--CH}_2\text{--CH}_3$

Scan or tap for the full solution



Q.65 Which one of the following is most reactive towards electrophilic reagent?

[AIPMT 2011 (Prelims)]

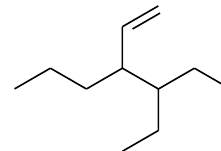
- (1)  (2) 
 (3)  (4) 

Scan or tap for the full solution



Q.66 The correct IUPAC name for the compound is

[AIPMT 2011 (Prelims)]



- (1) 4-ethyl-3-propylhex-1-ene
 (2) 3-ethyl-4-ethenylheptane
 (3) 3-ethyl-4-propylhex-5-ene
 (4) 3-(1-ethylpropyl)hex-1-ene

Scan or tap for the full solution



Q.67 Which one is a nucleophilic substitution reaction among the following?

[AIPMT 2011 (Prelims)]

- (1) $\text{CH}_3\text{--CH=CH}_2 + \text{H}_2\text{O} \xrightarrow{\text{H}^+} \text{CH}_3\text{--}\underset{\text{OH}}{\text{CH}}\text{--CH}_3$
 (2) $\text{RCHO} + \text{R}'\text{MgX} \rightarrow \text{R--}\underset{\text{OH}}{\text{CH}}\text{--R}'$

- (3) $\text{CH}_3\text{--CH}_2\text{--}\overset{\text{CH}_3}{\underset{|}{\text{CH}}}\text{--CH}_2\text{Br} + \text{NH}_3 \rightarrow \text{CH}_3\text{--CH}_2\text{--}\overset{\text{CH}_3}{\underset{|}{\text{CH}}}\text{--CH}_2\text{NH}_2$
 (4) $\text{CH}_3\text{CHO} + \text{HCN} \rightarrow \text{CH}_3\text{CH}(\text{OH})\text{CN}$

Scan or tap for the full solution



Q.68 The Lassaigne's extract is boiled with conc. HNO_3 while testing for halogens. By doing so it

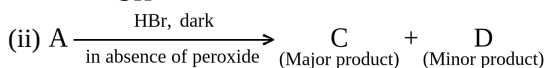
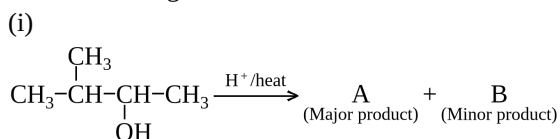
[AIPMT 2011 (Prelims)]

- (1) decomposes Na_2S and NaCN , formed
 (2) helps in the precipitation of AgCl
 (3) increases the solubility product of AgCl
 (4) increases the concentration of NO_3^- ions

Scan or tap for the full solution

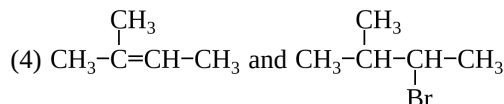
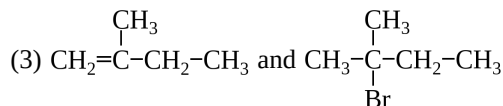
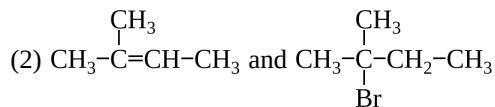
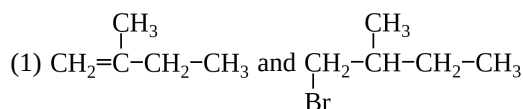


Q.69 In the following reactions,



the major products (A) and (C) are respectively

[AIPMT 2011 (Prelims)]



Scan or tap for the full solution



Q.70 Clemmensen reduction of a ketone is carried out in the presence of which of the following?

[AIPMT 2011 (Prelims)]

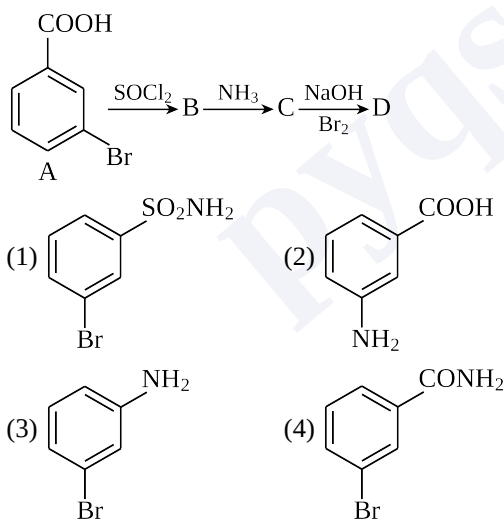
- (1) Glycol with KOH (2) Zn-Hg with HCl
(3) LiAlH_4 (4) H_2 and Pt as catalyst

Scan or tap for the full solution



Q.71 In a set of reactions m-bromobenzoic acid gave a product D. Identify the product D.

[AIPMT 2011 (Prelims)]

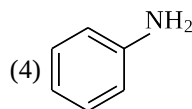
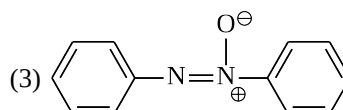
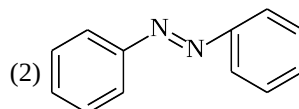
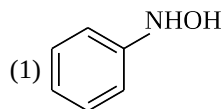
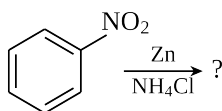


Scan or tap for the full solution



Q.72 What is the product obtained in the following reaction?

[AIPMT 2011 (Prelims)]



Scan or tap for the full solution



Q.73 Which one of the following statements is not true regarding (+) lactose? [AIPMT 2011 (Prelims)]

- (1) On hydrolysis (+) lactose gives equal amount of D(+) glucose and D(+) galactose.
(2) (+) Lactose is a β -glucoside formed by the union of a molecule of D(+) glucose and a molecule of D(+) galactose.
(3) (+) Lactose is a reducing sugar and does not exhibit mutarotation.
(4) (+) Lactose, $\text{C}_{12}\text{H}_{22}\text{O}_{11}$ contains 8 -OH groups

Scan or tap for the full solution



Q.74 The freezing point depression constant for water is $1.86^\circ\text{C m}^{-1}$. If 5.00 g Na_2SO_4 is dissolved in 45.0 g H_2O , the freezing point is changed by -3.82°C . Calculate the van't Hoff factor for Na_2SO_4 .

[AIPMT 2011 (Prelims)]

- (1) 2.05 (2) 2.63 (3) 3.11 (4) 0.381

Scan or tap for the full solution



Q.75 The van't Hoff factor i for a compound which undergoes dissociation in one solvent and association in other solvent is respectively

[AIPMT 2011 (Prelims)]

- (1) less than one and greater than one
(2) less than one and less than one
(3) greater than one and less than one
(4) greater than one and greater than one

Scan or tap for the full solution



Q.76 Standard electrode potential of three metals X, Y and Z are -1.2 V , $+0.5\text{ V}$ and -3.0 V respectively. The reducing power of these metals will be

[AIPMT 2011 (Prelims)]

- (1) $Y > Z > X$ (2) $Y > X > Z$
 (3) $Z > X > Y$ (4) $X > Y > Z$

Scan or tap for the full solution



Q.77 The electrode potentials for $\text{Cu}_{(\text{aq})}^{2+} + \text{e}^- \longrightarrow \text{Cu}_{(\text{aq})}^+$ and $\text{Cu}_{(\text{aq})}^+ + \text{e}^- \longrightarrow \text{Cu}_{(\text{s})}$ are +0.15 V and +0.50 V respectively. The value of $E^\circ_{\text{Cu}^{2+}/\text{Cu}}$ will be

[AIPMT 2011 (Prelims)]

- (1) 0.500 V (2) 0.325 V (3) 0.650 V (4) 0.150 V

Scan or tap for the full solution



Q.78 Standard electrode potential for $\text{Sn}^{4+}/\text{Sn}^{2+}$ couple is +0.15 V and that for the Cr^{3+}/Cr couple is -0.74 V. These two couples in their standard state are connected to make a cell. The cell potential will be

[AIPMT 2011 (Prelims)]

- (1) +1.19 V (2) +0.89 V (3) +0.18 V (4) +1.83 V

Scan or tap for the full solution



Q.79 Which one of the following statements for the order of a reaction is incorrect? [AIPMT 2011 (Prelims)]

- (1) Order can be determined only experimentally.
 (2) Order is not influenced by stoichiometric coefficient of the reactants.
 (3) Order of a reaction is sum of power to the concentration terms of reactants to express the rate of reaction.
 (4) Order of reaction is always whole number.

Scan or tap for the full solution



Q.80 Name the type of the structure of silicate in which one oxygen atom of $[\text{SiO}_4]^{4-}$ is shared.

[AIPMT 2011 (Prelims)]

- (1) Linear chain silicate (2) Sheet silicate
 (3) Pyrosilicate (4) Three dimensional

Scan or tap for the full solution



Q.81 For the four successive transition elements (Cr, Mn, Fe and Co), the stability of +2 oxidation state will be there in which of the following order? (At. nos. Cr = 24, Mn = 25, Fe = 26, Co = 27)

[AIPMT 2011 (Prelims)]

- (1) $\text{Mn} > \text{Fe} > \text{Cr} > \text{Co}$ (2) $\text{Fe} > \text{Mn} > \text{Co} > \text{Cr}$
 (3) $\text{Co} > \text{Mn} > \text{Fe} > \text{Cr}$ (4) $\text{Cr} > \text{Mn} > \text{Co} > \text{Fe}$

Scan or tap for the full solution



Q.82 Acidified $\text{K}_2\text{Cr}_2\text{O}_7$ solution turns green when Na_2SO_3 is added to it. This is due to the formation of [AIPMT 2011 (Prelims)]

- (1) $\text{Cr}_2(\text{SO}_4)_3$ (2) CrO_4^{2-}
 (3) $\text{Cr}_2(\text{SO}_3)_3$ (4) CrSO_4

Scan or tap for the full solution



Q.83 Of the following complex ions, which is diamagnetic in nature? [AIPMT 2011 (Prelims)]

- (1) $[\text{NiCl}_4]^{2-}$ (2) $[\text{Ni}(\text{CN})_4]^{2-}$
 (3) $[\text{CuCl}_4]^{2-}$ (4) $[\text{CoF}_6]^{3-}$

Scan or tap for the full solution



Q.84 The complexes $[\text{Co}(\text{NH}_3)_6][\text{Cr}(\text{CN})_6]$ and $[\text{Cr}(\text{NH}_3)_6][\text{Co}(\text{CN})_6]$ are the examples of which type of isomerism? [AIPMT 2011 (Prelims)]

- (1) Linkage isomerism
 (2) Ionization isomerism
 (3) Coordination isomerism
 (4) Geometrical isomerism

Scan or tap for the full solution



Q.85 The complex, $[\text{Pt}(\text{Py})(\text{NH}_3)\text{BrCl}]$ will have how many geometrical isomers? [AIPMT 2011 (Prelims)]

- (1) 3 (2) 4 (3) 0 (4) 2

Scan or tap for the full solution



Q.86 The d-electron configurations of Cr^{2+} , Mn^{2+} , Fe^{2+} and Co^{2+} are d^4 , d^5 , d^6 and d^7 respectively. Which one of the following will exhibit minimum paramagnetic behaviour? (At. Nos. Cr = 24, Mn = 25, Fe = 26, Co = 27)

[AIPMT 2011 (Prelims)]

- (1) $[\text{Mn}(\text{H}_2\text{O})_6]^{2+}$ (2) $[\text{Fe}(\text{H}_2\text{O})_6]^{2+}$
 (3) $[\text{Co}(\text{H}_2\text{O})_6]^{2+}$ (4) $[\text{Cr}(\text{H}_2\text{O})_6]^{2+}$

Scan or tap for the full solution



Q.87 Which of the following carbonyls will have the strongest C—O bond? [AIPMT 2011 (Prelims)]

- (1) $\text{Mn}(\text{CO})_6^+$ (2) $\text{Cr}(\text{CO})_6$
 (3) $\text{V}(\text{CO})_6^-$ (4) $\text{Fe}(\text{CO})_5$

Scan or tap for the full solution



Q.88 Which of the following complex compounds will exhibit highest paramagnetic behaviour? [AIPMT 2011 (Prelims)]

- (1) $[\text{Ti}(\text{NH}_3)_6]^{3+}$ (2) $[\text{Cr}(\text{NH}_3)_6]^{3+}$
 (3) $[\text{Co}(\text{NH}_3)_6]^{3+}$ (4) $[\text{Zn}(\text{NH}_3)_6]^{2+}$

Scan or tap for the full solution



Q.89 By what factor does the average velocity of a gaseous molecule increase when the temperature (in Kelvin) is doubled? [AIPMT 2011 (Prelims)]

- (1) 2.0 (2) 2.8 (3) 4.0 (4) 1.4

Scan or tap for the full solution



Q.90 Two gases A and B having the same volume diffuse through a porous partition in 20 and 10 seconds respectively. The molecular mass of A is 49 u. Molecular mass of B will be [AIPMT 2011 (Prelims)]

- (1) 50.00 u (2) 12.25 u (3) 6.50 u (4) 25.00 u

Scan or tap for the full solution



Q.91 A gaseous mixture was prepared by taking equal moles of CO and N₂. If the total pressure of the mixture was found to be 1 atmosphere, the partial pressure of the nitrogen (N₂) in the mixture is [AIPMT 2011 (Prelims)]

- (1) 0.5 atm (2) 0.8 atm (3) 0.9 atm (4) 1 atm

Scan or tap for the full solution



Q.92 In Dumas method of estimation of nitrogen, 0.35 g of an organic compound gave 55 mL of nitrogen collected at 300 K temperature and 715 mm pressure. The percentage composition of nitrogen in the compound would be (aqueous tension at 300 K = 15 mm). [AIPMT 2011 (Prelims)]

- (1) 15.45 (2) 16.45 (3) 17.45 (4) 14.45

Scan or tap for the full solution



Q.93 Which of the following compounds has the lowest melting point? [AIPMT 2011 (Prelims)]

- (1) CaCl₂ (2) CaBr₂ (3) CaI₂ (4) CaF₂

Scan or tap for the full solution



Q.94 Which one of the following is present as an active ingredient in bleaching powder for bleaching action? [AIPMT 2011 (Prelims)]

- (1) CaOCl₂ (2) Ca(OCl)₂
(3) CaO₂Cl (4) CaCl₂

Scan or tap for the full solution



Q.95 Of the following which one is classified as polyester polymer? [AIPMT 2011 (Prelims)]

- (1) Terylene (2) Bakelite
(3) Melamine (4) Nylon-6,6

Scan or tap for the full solution



Q.96 If x is amount of adsorbate and m is amount of adsorbent, which of the following relations is not related to adsorption process? [AIPMT 2011 (Prelims)]

- (1) $x/m = f(p)$ at constant T
(2) $x/m = f(T)$ at constant p
(3) $p = f(T)$ at constant (x/m)
(4) $\frac{x}{m} = p \times T$

Scan or tap for the full solution



Q.97 Which of the following elements is present as the impurity to the maximum extent in pig iron? [AIPMT 2011 (Prelims)]

- (1) Manganese (2) Carbon
(3) Silicon (4) Phosphorus

Scan or tap for the full solution



Q.98 Which of the following pairs of metals is purified by van Arkel method? [AIPMT 2011 (Prelims)]

- (1) Ga and In (2) Zr and Ti
(3) Ag and Au (4) Ni and Fe

Scan or tap for the full solution



Q.99 Which one of the following is employed as antihistamine? [AIPMT 2011 (Prelims)]

- (1) Chloramphenicol (2) Diphenhydramine
(3) Norethindrone (4) Omeprazole

Scan or tap for the full solution



Q.100 Which one of the following statements is not true? [AIPMT 2011 (Prelims)]

- (1) pH of drinking water should be between 5.5–9.5.
(2) Concentration of DO below 6 ppm is good for the growth of fish.
(3) Clean water would have a BOD value of less than 5 ppm.
(4) Oxides of sulphur, nitrogen and carbon are the most widespread air pollutants.

Scan or tap for the full solution



Q.101 Which one of the following animals is correctly matched with its particular taxonomic category? [AIPMT 2011 (Prelims)]

- (1) Tiger – *tigris*, species
(2) Cuttlefish – Mollusca, class
(3) Humans – Primata, family
(4) Housefly – *Musca*, order

Scan or tap for the full solution



Q.102 Which one of the following also acts as a catalyst in a bacterial cell? [AIPMT 2011 (Prelims)]

- (1) 5S rRNA (2) snRNA
(3) hnRNA (4) 23S rRNA

Scan or tap for the full solution



Q.103 In eubacteria, a cellular component that resembles eukaryotic cell is [AIPMT 2011 (Prelims)]

- (1) plasma membrane (2) nucleus
(3) ribosomes (4) cell wall

Scan or tap for the full solution



Q.104 Which one of the following organisms is not a eukaryote? [AIPMT 2011 (Prelims)]

- (1) *Paramecium caudatum*
(2) *Escherichia coli*
(3) *Euglena viridis*
(4) *Amoeba proteus*

Scan or tap for the full solution



Q.105 Which one of the following is incorrectly matched? [AIPMT 2011 (Prelims)]

- (1) Root pressure – guttation
(2) *Puccinia* – smut
(3) Root – exarch protoxylem
(4) *Cassia* – imbricate aestivation

Scan or tap for the full solution



Q.106 The gametophyte is **not** an independent, free-living generation in [AIPMT 2011 (Prelims)]

- (1) *Polytrichum* (2) *Adiantum*
(3) *Marchantia* (4) *Pinus*

Scan or tap for the full solution



Q.107 Compared with the gametophytes of the bryophytes, the gametophytes of vascular plants tend to be [AIPMT 2011 (Prelims)]

- (1) smaller but to have larger sex organs
(2) larger but to have smaller sex organs
(3) larger and to have larger sex organs
(4) smaller and to have smaller sex organs

Scan or tap for the full solution



Q.108 Archegoniophore is present in [AIPMT 2011 (Prelims)]

- (1) *Marchantia* (2) *Chara*
(3) *Adiantum* (4) *Funaria*

Scan or tap for the full solution



Q.109 A prokaryotic autotrophic nitrogen fixing symbiont is found in [AIPMT 2011 (Prelims)]

- (1) *Alnus* (2) *Cycas* (3) *Cicer* (4) *Pisum*

Scan or tap for the full solution



Q.110 Which one of the following statements is correct? [AIPMT 2011 (Prelims)]

- (1) In tomato, fruit is a capsule.
(2) Seeds of orchids have oil-rich endosperm.
(3) Placentation in primrose is basal.
(4) Flower of tulip is a modified shoot.

Scan or tap for the full solution



Q.111 Flowers are zygomorphic in [AIPMT 2011 (Prelims)]

- (1) mustard (2) gulmohur
(3) tomato (4) *Datura*

Scan or tap for the full solution



Q.112 The ovary is half inferior in flowers of [AIPMT 2011 (Prelims)]

- (1) peach (2) cucumber
(3) cotton (4) guava

Scan or tap for the full solution



Q.113 A drupe develops in [AIPMT 2011 (Prelims)]

- (1) mango (2) wheat (3) pea (4) tomato

Scan or tap for the full solution



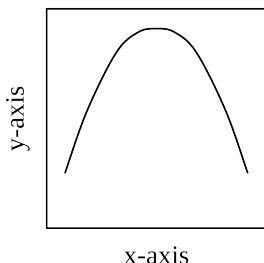
Q.114 The correct floral formula of chilli is [AIPMT 2011 (Prelims)]

- (1) $\oplus \begin{array}{c} \nearrow \\ \circ \\ \perp \end{array} K_{(5)} C_5 A_5 \underline{G}_{(2)}$
(2) $\oplus \begin{array}{c} \nearrow \\ \circ \\ \perp \end{array} K_{(5)} \overbrace{C_{(5)} A_5} G_{(2)}$
(3) $\oplus \begin{array}{c} \nearrow \\ \circ \\ \perp \end{array} K_{(5)} C_{(5)} A_5 \underline{G}_2$
(4) $\oplus \begin{array}{c} \nearrow \\ \circ \\ \perp \end{array} K_5 \overbrace{C_5 A_{(5)}} \underline{G}_2$

Scan or tap for the full solution



Q.115 The curve given below shows enzymatic activity in relation to three conditions (pH, temperature and substrate concentration). What do the two axes (x and y) represent? [AIPMT 2011 (Prelims)]



- (1)

x-axis	y-axis
enzymatic activity	pH
- (2)

x-axis	y-axis
temperature	enzyme activity
- (3)

x-axis	y-axis
substrate concentration	enzymatic activity
- (4)

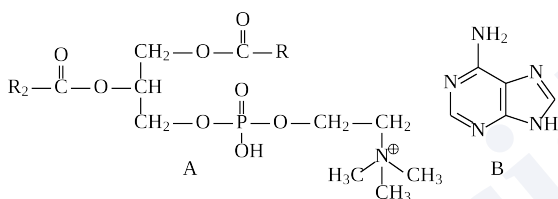
x-axis	y-axis
enzymatic activity	temperature

Scan or tap for the full solution



Q.116 Which one of the following structural formulae of two organic compounds is correctly identified along with its related function?

[AIPMT 2011 (Prelims)]



- (1) B : Adenine – A nucleotide that makes up nucleic acids
- (2) A : Triglyceride – Major source of energy
- (3) B : Uracil – A component of DNA
- (4) A : Lecithin – A component of cell membrane

Scan or tap for the full solution



Q.117 Select the correct option with respect to mitosis.

[AIPMT 2011 (Prelims)]

- (1) Chromatids separate but remain in the centre of the cell in anaphase
- (2) Chromatids start moving towards opposite poles in telophase
- (3) Golgi complex and endoplasmic reticulum are still visible at the end of prophase
- (4) Chromosomes move to the spindle equator and get aligned along equatorial plate in metaphase

Scan or tap for the full solution



Q.118 CAM helps the plants in [AIPMT 2011 (Prelims)]

- (1) conserving water (2) secondary growth
(3) disease resistance (4) reproduction.

Scan or tap for the full solution



Q.119 Filiform apparatus is a characteristic feature of [AIPMT 2011 (Prelims)]

- (1) suspensor (2) egg
(3) synergid (4) zygote.

Scan or tap for the full solution



Q.120 Nucellar polyembryony is reported in species of [AIPMT 2011 (Prelims)]

- (1) *Citrus* (2) *Gossypium*
(3) *Triticum* (4) *Brassica*.

Scan or tap for the full solution



Q.121 Which one of the following pollinations is autogamous? [AIPMT 2011 (Prelims)]

- (1) Geitonogamy (2) Xenogamy
(3) Chasmogamy (4) Cleistogamy

Scan or tap for the full solution



Q.122 The "eyes" of the potato tuber are [AIPMT 2011 (Prelims)]

- (1) root buds (2) flower buds
(3) shoot buds (4) axillary buds.

Scan or tap for the full solution



Q.123 Wind pollination is common in [AIPMT 2011 (Prelims)]

- (1) legumes (2) lilies (3) grasses (4) orchids.

Scan or tap for the full solution



Q.124 When two unrelated individuals or lines are crossed, the performance of F_1 hybrid is often superior to both parents. This phenomenon is called : [AIPMT 2011 (Prelims)]

- (1) Splicing (2) Transformation
(3) Heterosis (4) Metamorphosis

Scan or tap for the full solution



Q.125 Which one of the following conditions correctly describes the manner of determining the sex ? [AIPMT 2011 (Prelims)]

- (1) XO condition in humans as found in Turner Syndrome, determines female sex
- (2) XO type of sex chromosomes determine male sex in grasshopper
- (3) Homozygous sex chromosomes (ZZ) determine female sex in Birds
- (4) Homozygous sex chromosomes (XX) produce male in *Drosophila*

Scan or tap for the full solution



Q.126 What are those structures that appear as 'beads-on-string' in the chromosomes when viewed under electron microscope ? [AIPMT 2011 (Prelims)]

- (1) Nucleosomes (2) Genes
- (3) Nucleotides (4) Base pairs

Scan or tap for the full solution



Q.127 The most common substrate used in distilleries for the production of ethanol is : [AIPMT 2011 (Prelims)]

- (1) Ground gram (2) Molasses
- (3) Soyabean (4) Corn meal

Scan or tap for the full solution



Q.128 Which one of the following is not a biofertilizer ?

[AIPMT 2011 (Prelims)]

- (1) *Agrobacterium* (2) *Nostoc*
- (3) *Rhizobium* (4) Mycorrhiza

Scan or tap for the full solution



Q.129 Secondary sewage treatment is mainly a :

[AIPMT 2011 (Prelims)]

- (1) Mechanical process (2) Chemical process
- (3) Biological process (4) Physical process

Scan or tap for the full solution



Q.130 Which of the following is mainly produced by the activity of anaerobic bacteria on sewage ?

[AIPMT 2011 (Prelims)]

- (1) Propane (2) Mustard gas
- (3) Marsh gas (4) Laughing gas

Scan or tap for the full solution



Q.131 An organism used as a Biofertilizer for raising soyabean crop is : [AIPMT 2011 (Prelims)]

- (1) *Azotobacter* (2) *Azospirillum*
- (3) *Nostoc* (4) *Rhizobium*

Scan or tap for the full solution



Q.132 Ethanol is commercially produced through a particular species of : [AIPMT 2011 (Prelims)]

- (1) *Clostridium* (2) *Trichoderma*
- (3) *Aspergillus* (4) *Saccharomyces*

Scan or tap for the full solution



Q.133 Continuous addition of sugars in 'fed batch' fermentation is done to : [AIPMT 2011 (Prelims)]

- (1) obtain antibiotics (2) produce methane
- (3) purify enzymes (4) degrade sewage

Scan or tap for the full solution



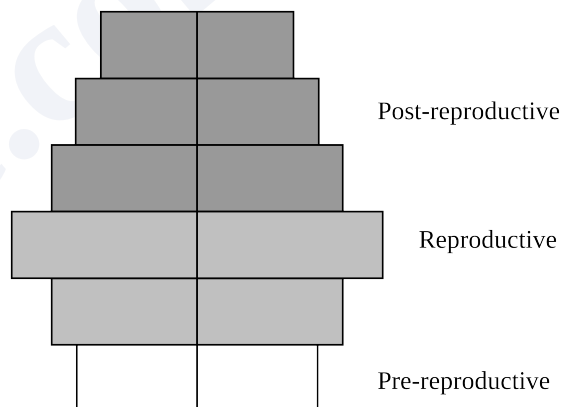
Q.134 Organisms called Methanogens are most abundant in a : [AIPMT 2011 (Prelims)]

- (1) Polluted stream (2) Hot spring
- (3) Cattle yard (4) Sulphur rock

Scan or tap for the full solution



Q.135 What type of human population is represented by the following age pyramid? [AIPMT 2011 (Prelims)]



- (1) Declining population
- (2) Vanishing population
- (3) Expanding population
- (4) Stable population

Scan or tap for the full solution



Q.136 Large woody vines are more commonly found in

[AIPMT 2011 (Prelims)]

- (1) Mangroves (2) Tropical rainforests
- (3) Alpine forests (4) Temperate forests

Scan or tap for the full solution



Q.137 Consider the following four conditions (a – d) and select the correct pair of them as adaptation to environment in desert lizards.

The conditions : [AIPMT 2011 (Prelims)]

- (a) burrowing in soil to escape high temperature
- (b) losing heat rapidly from the body during high temperature

- (c) bask in sun when temperature is low
 (d) insulating body due to thick fatty dermis
 (1) (c), (d) (2) (b), (d) (3) (a), (c) (4) (a), (b)

Scan or tap for the
full solution



Q.138 Which one of the following is categorised as a parasite in true sense? [AIPMT 2011 (Prelims)]

- (1) The female *Anopheles* bites and sucks blood from humans
 (2) Head louse living on the human scalp as well as laying eggs on human hair
 (3) The cuckoo (koel) lays its eggs in crow's nest
 (4) Human foetus developing inside the uterus draws nourishment from the mother

Scan or tap for the
full solution



Q.139 Mass of living matter at a trophic level in an area at any time is called : [AIPMT 2011 (Prelims)]

- (1) Humus (2) Detritus
 (3) Standing state (4) Standing crop

Scan or tap for the
full solution



Q.140 Of the total incident solar radiation the proportion of PAR is [AIPMT 2011 (Prelims)]

- (1) About 60% (2) More than 80%
 (3) Less than 50% (4) About 70%

Scan or tap for the
full solution



Q.141 Which one of the following statements is correct for secondary succession? [AIPMT 2011 (Prelims)]

- (1) It follows primary succession
 (2) It occurs on deforested site
 (3) It is similar to primary succession except that it has a relatively fast pace.
 (4) It begins on a bare rock.

Scan or tap for the
full solution



Q.142 Which one of the following statements for pyramid of energy is incorrect, whereas the remaining three are correct? [AIPMT 2011 (Prelims)]

- (1) It shows energy content of different trophic level organisms
 (2) It is upright in shape
 (3) It is inverted in shape
 (4) Its base is broad

Scan or tap for the
full solution



Q.143 Which of the following has maximum genetic diversity in India? [AIPMT 2011 (Prelims)]

- (1) Wheat (2) Mango
 (3) Rice (4) Groundnut

Scan or tap for the
full solution



Q.144 Which one of the following has the highest number of species in nature? [AIPMT 2011 (Prelims)]

- (1) Fungi (2) Angiosperms
 (3) Birds (4) Insects

Scan or tap for the
full solution



Q.145 The cork cambium, cork and secondary cortex are collectively called : [AIPMT 2011 (Prelims)]

- (1) Periderm (2) Phellem
 (3) Phellogen (4) Phelloderm

Scan or tap for the
full solution



Q.146 Ground tissue includes : [AIPMT 2011 (Prelims)]

- (1) All tissues external to endodermis
 (2) Epidermis and cortex
 (3) All tissues internal to endodermis
 (4) All tissues except epidermis and vascular bundles

Scan or tap for the
full solution



Q.147 Peptide synthesis inside a cell takes place in :

[AIPMT 2011 (Prelims)]

- (1) Chromoplast (2) Ribosomes
 (3) Chloroplast (4) Mitochondria

Scan or tap for the
full solution



Q.148 Important site for formation of glycoproteins and glycolipids is : [AIPMT 2011 (Prelims)]

- (1) Plastid (2) Lysosome
 (3) Golgi apparatus (4) Vacuole

Scan or tap for the
full solution



Q.149 Mutations can be induced with :

[AIPMT 2011 (Prelims)]

- (1) Gamma radiation (2) Infra Red radiations
 (3) IAA (4) Ethylene

Scan or tap for the
full solution



Q.150 "Jaya" and "Ratna" developed for green revolution in India are the varieties of : [AIPMT 2011 (Prelims)]

- (1) Bajra (2) Wheat (3) Maize (4) Rice

Scan or tap for the
full solution



Q.151 What would be the number of chromosomes of the aleurone cells of a plant with 42 chromosomes in its root tip cells? [AIPMT 2011 (Prelims)]

- (1) 42 (2) 63 (3) 84 (4) 21

Scan or tap for the full solution



Q.152 In land plants, the guard cells differ from other epidermal cells in having [AIPMT 2011 (Prelims)]

- (1) cytoskeleton
(2) mitochondria
(3) endoplasmic reticulum
(4) chloroplasts

Scan or tap for the full solution



Q.153 Which one of the following elements in plants is not remobilised? [AIPMT 2011 (Prelims)]

- (1) Phosphorus (2) Calcium
(3) Potassium (4) Sulphur

Scan or tap for the full solution



Q.154 Nitrifying bacteria [AIPMT 2011 (Prelims)]

- (1) oxidize ammonia to nitrates
(2) convert free nitrogen to nitrogen compounds
(3) convert proteins into ammonia
(4) reduce nitrates to free nitrogen

Scan or tap for the full solution



Q.155 The function of leghaemoglobin in the root nodules of legumes is [AIPMT 2011 (Prelims)]

- (1) inhibition of nitrogenase activity
(2) oxygen removal
(3) nodule differentiation
(4) expression of *nif* gene

Scan or tap for the full solution



Q.156 Which one of the following helps in absorption of phosphorus from soil by plants? [AIPMT 2011 (Prelims)]

- (1) *Glomus* (2) *Rhizobium*
(3) *Frankia* (4) *Anabaena*

Scan or tap for the full solution



Q.157 A collection of plants and seeds having diverse alleles of all the genes of a crop is called : [AIPMT 2011 (Prelims)]

- (1) Gene library (2) Genome
(3) Germplasm (4) Herbarium

Scan or tap for the full solution



Q.158 'Himgiri' developed by hybridisation and selection for disease resistance against rust pathogens is a variety of : [AIPMT 2011 (Prelims)]

- (1) Chilli (2) Sugarcane
(3) Wheat (4) Maize

Scan or tap for the full solution



Q.159 Eutrophication is often seen in : [AIPMT 2011 (Prelims)]

- (1) Ocean (2) Mountains
(3) Deserts (4) Fresh water lakes

Scan or tap for the full solution



Q.160 Which one of the following pairs of gases is the major cause of "greenhouse effect"? [AIPMT 2011 (Prelims)]

- (1) CFCs and SO₂ (2) CO₂ and CO
(3) CO₂ and N₂O (4) CO₂ and O₃

Scan or tap for the full solution



Q.161 Which one of the following statements is wrong in case of Bhopal tragedy? [AIPMT 2011 (Prelims)]

- (1) Thousands of human beings died
(2) It took place in the night of December 2/3, 1984
(3) Radioactive fallout engulfed Bhopal
(4) Methyl isocyanate gas leakage took place

Scan or tap for the full solution



Q.162 Which one of the following is the correct expanded form of the given acronym? [AIPMT 2011 (Prelims)]

- (1) IPCC = International Panel for Climate Change
(2) EPA = Environmental Pollution Agency
(3) UNEP = United Nations Environmental policy
(4) IUCN = International Union for Conservation of Nature and Natural Resources

Scan or tap for the full solution



Q.163 What will you look for to identify the sex of the following? [AIPMT 2011 (Prelims)]

- (1) Female *Ascaris* – sharply curved posterior end
(2) Male frog – a copulatory pad on the first digit of the hind limb
(3) Female cockroach – anal cerci
(4) Male shark – claspers borne on pelvic fins

Scan or tap for the full solution



Q.164 Which one of the following groups of animals is correctly matched with its characteristic feature without any exception? [AIPMT 2011 (Prelims)]

- (1) Reptilia : possess 3-chambered heart with an incompletely divided ventricle
- (2) Chordata : possess a mouth with an upper and a lower jaw
- (3) Chondrichthyes : possess cartilaginous endoskeleton
- (4) Mammalia : give birth to young ones

Scan or tap for the full solution



Q.165 In which one of the following the genus name, its two characters and its class/phylum are correctly matched? [AIPMT 2011 (Prelims)]

Genus name	Two characters	Class/Phylum
(1) Ascaris	(i) Body segmented (ii) Males and females distinct	Annelida
Genus name	Two characters	Class/Phylum
(2) Salamandra	(i) A tympanum represents ear (ii) Fertilization is external	Amphibia
Genus name	Two characters	Class/Phylum
(3) Pteropus	(i) Skin possesses hair (ii) Oviparous	Mammalia
Genus name	Two characters	Class/Phylum
(4) Aurelia	(i) Cnidoblasts (ii) Organ level of organization	Coelenterata

Scan or tap for the full solution



Q.166 A large proportion of oxygen remains unused in the human blood even after its uptake by the body tissues. This O_2 [AIPMT 2011 (Prelims)]

- (1) acts as a reserve during muscular exercise
- (2) raises the pCO_2 of blood to 75 mm of Hg.
- (3) is enough to keep oxyhaemoglobin saturation at 96%
- (4) helps in releasing more O_2 to the epithelial tissues.

Scan or tap for the full solution



Q.167 'Bundle of His' is a part of which one of the following organs in humans? [AIPMT 2011 (Prelims)]

- (1) Brain (2) Heart (3) Kidney (4) Pancreas

Scan or tap for the full solution



Q.168 Which one of the following plasma proteins is involved in the coagulation of blood? [AIPMT 2011 (Prelims)]

- (1) Albumin (2) Serum amylase
(3) Globulin (4) Fibrinogen

Scan or tap for the full solution



Q.169 Arteries are best defined as the vessels which

[AIPMT 2011 (Prelims)]

- (1) supply oxygenated blood to the different organs
- (2) carry blood away from the heart to different organs
- (3) break up into capillaries which reunite to form a vein
- (4) carry blood from one visceral organ to another visceral organ.

Scan or tap for the full solution



Q.170 Which one of the following statements is correct regarding blood pressure? [AIPMT 2011 (Prelims)]

- (1) 130/90 mm Hg is considered high and requires treatment.
- (2) 100/55 mm Hg is considered an ideal blood pressure.
- (3) 105/50 mm Hg makes one very active.
- (4) 190/110 mm Hg may harm vital organs like brain and kidney.

Scan or tap for the full solution



Q.171 A person with unknown blood group under ABO system, has suffered much blood loss in an accident and needs immediate blood transfusion. His friend who has valid certificate of his own blood type, offers for blood donation without delay. What would have been the type of blood group of the donor friend? [AIPMT 2011 (Prelims)]

- (1) Type B (2) Type AB
(3) Type O (4) Type A

Scan or tap for the full solution



Q.172 Which one of the following is not a part of a renal pyramid? [AIPMT 2011 (Prelims)]

- (1) Peritubular capillaries
- (2) Convolved tubules
- (3) Collecting ducts
- (4) Loop of Henle

Scan or tap for the full solution



Q.173 Which one of the following correctly explains the function of a specific part of the human nephron? [AIPMT 2011 (Prelims)]

- (1) Podocytes : create minute spaces (slit pores) for the filtration of blood into the Bowman's capsule
- (2) Henle's loop : most reabsorption of the major substances from the glomerular filtrate
- (3) Distal convoluted tubule : reabsorption of K^+ ions into the surrounding blood capillaries
- (4) Afferent arteriole : carries the blood away from the glomerulus towards renal vein.

Scan or tap for the full solution



Q.174 Which one of the following statements is correct with respect to kidney function regulation?

[AIPMT 2011 (Prelims)]

- (1) When someone drinks a lot of water, ADH release is suppressed.
- (2) Exposure to cold temperature stimulates ADH release.
- (3) An increase in glomerular blood flow stimulates formation of angiotensin II.
- (4) During summer when body loses a lot of water by evaporation, the release of ADH is suppressed.

Scan or tap for the full solution



Q.175 Three of the following pairs of the human skeletal parts are correctly matched with their respective inclusive skeletal category and one pair is not matched. Identify the non-matching pair.

[AIPMT 2011 (Prelims)]

- | Pair of skeletal parts | Category |
|------------------------|----------------|
| (1) Sternum and ribs | Axial skeleton |
- | Pair of skeletal parts | Category |
|--------------------------|---------------|
| (2) Clavicle and glenoid | Pelvic girdle |
- | Pair of skeletal parts | Category |
|------------------------|-----------------------|
| (3) Humerus and ulna | Appendicular skeleton |
- | Pair of skeletal parts | Category |
|------------------------|--------------|
| (4) Malleus and stapes | Ear ossicles |

Scan or tap for the full solution



Q.176 When a neuron is in resting state i.e., not conducting any impulse, the axonal membrane is

[AIPMT 2011 (Prelims)]

- (1) comparatively more permeable to Na^+ ions and nearly impermeable to K^+ ions
- (2) equally permeable to both Na^+ and K^+ ions
- (3) impermeable to both Na^+ and K^+ ions
- (4) comparatively more permeable to K^+ ions and nearly impermeable to Na^+ ions.

Scan or tap for the full solution



Q.177 Match the source gland with its respective hormone and function and select the correct option.

[AIPMT 2011 (Prelims)]

- | Source gland | Hormone | Function |
|------------------------|----------|--|
| (1) Anterior pituitary | Oxytocin | Contraction of uterus muscles during child birth |
- | Source gland | Hormone | Function |
|-------------------------|-------------|---|
| (2) Posterior pituitary | Vasopressin | Stimulates reabsorption of water in the distal tubules in the nephron |
- | Source gland | Hormone | Function |
|-------------------|----------|--------------------|
| (3) Corpus luteum | Estrogen | Supports pregnancy |
- | Source gland | Hormone | Function |
|--------------|-----------|-------------------------------|
| (4) Thyroid | Thyroxine | Regulates blood calcium level |

Scan or tap for the full solution



Q.178 Given below is an incomplete table on hormones, their source glands and one major effect of each on human body. Identify the option representing correct grouping of hormone, its gland and effect.

Gland	Secretion	Effect on body
A	Estrogen	Maintenance of secondary sexual characters
Alpha cells of Islets of Langerhans	B	Raises blood sugar level
Anterior pituitary	C	Over secretion leads to gigantism

[AIPMT 2011 (Prelims)]

(1)	A	B	C
	Ovary	Glucagon	Growth hormone

(2)	A	B	C
	Placenta	Insulin	Vasopressin

(3)	A	B	C
	Ovary	Insulin	Calcitonin

(4)	A	B	C
	Placenta	Glucagon	Calcitonin

Scan or tap for the full solution



Q.179 If for some reason, the vasa efferentia in the human reproductive system get blocked, the gametes will not be transported from : [AIPMT 2011 (Prelims)]

- (1) Vagina to uterus
- (2) Testes to epididymis
- (3) Epididymis to vas deferens
- (4) Ovary to uterus

Scan or tap for the full solution



Q.180 The testes in humans are situated outside the abdominal cavity inside a pouch called scrotum. The purpose served is for : [AIPMT 2011 (Prelims)]

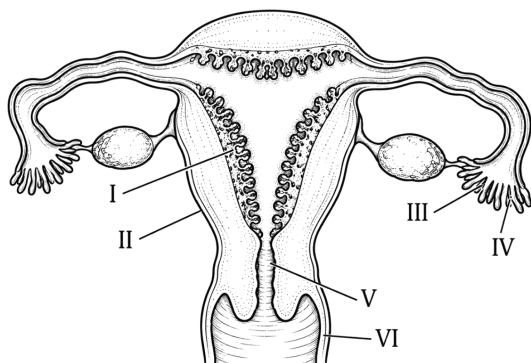
- (1) providing a secondary sexual feature for exhibiting the male sex
- (2) maintaining the scrotal temperature lower than the internal body temperature
- (3) escaping any possible compression by the visceral organs
- (4) providing more space for the growth of epididymis

Scan or tap for the full solution



Q.181 The figure given below depicts a diagrammatic sectional view of the female reproductive system of humans. Which one set of three parts out of I-VI have been correctly identified?

[AIPMT 2011 (Prelims)]



- (1) (I) Perimetrium, (II) Myometrium, (III) Fallopian tube
- (2) (II) Endometrium, (III) Infundibulum, (IV) Fimbriae
- (3) (III) Infundibulum, (IV) Fimbriae, (V) Cervix
- (4) (IV) Oviducal funnel, (V) Uterus, (VI) Cervix

Scan or tap for the full solution



Q.182 Which one of the following is the most widely accepted method of contraception in India, as at present ? [AIPMT 2011 (Prelims)]

- (1) IUDs (Intra uterine devices)
- (2) Tubectomy
- (3) Cervical caps
- (4) Diaphragms

Scan or tap for the full solution



Q.183 Medical Termination of Pregnancy (MTP) is considered safe up to how many weeks of pregnancy ? [AIPMT 2011 (Prelims)]

- (1) Twelve weeks
- (2) Eighteen weeks
- (3) Six weeks
- (4) Eight weeks

Scan or tap for the full solution



Q.184 What was the most significant trend in the evolution of modern man (*Homo sapiens*) from his ancestors ? [AIPMT 2011 (Prelims)]

- (1) Upright posture
- (2) Shortening of jaws
- (3) Binocular vision
- (4) Increasing cranial capacity

Scan or tap for the full solution



Q.185 Where will you look for the sporozoites of the malarial parasite ? [AIPMT 2011 (Prelims)]

- (1) red blood corpuscles of humans suffering from malaria
- (2) spleen of infected humans
- (3) Salivary glands of freshly moulted female *Anopheles* mosquito
- (4) Saliva of infected female *Anopheles* mosquito

Scan or tap for the full solution



Q.186 Given below is a sample of a portion of DNA strand giving the base sequence on the opposite strands. What is so special shown in it ?

5' GAATTC 3'
3' CTTAAG 5'

[AIPMT 2011 (Prelims)]

- (1) Start codon at the 5' end
- (2) Replication completed
- (3) Deletion mutation
- (4) Palindromic sequence of base pairs

Scan or tap for the full solution



Q.187 There is a restriction endonuclease called EcoRI. What does "co" part in it stand for ?

[AIPMT 2011 (Prelims)]

- (1) colon
- (2) coelom
- (3) coenzyme
- (4) coli

Scan or tap for the full solution



Q.188 Agarose extracted from sea weeds finds use in :

[AIPMT 2011 (Prelims)]

- (1) Spectrophotometry
- (2) PCR
- (3) Tissue Culture
- (4) Gel electrophoresis

Scan or tap for the full solution



Q.189 Maximum number of existing transgenic animals is of :

[AIPMT 2011 (Prelims)]

- (1) Mice
- (2) Cow
- (3) Pig
- (4) Fish

Scan or tap for the full solution



Q.190 The process of RNA interference has been used in the development of plants resistant to :

[AIPMT 2011 (Prelims)]

- (1) Nematodes
- (2) Fungi
- (3) Viruses
- (4) Insects

Scan or tap for the full solution



Q.191 The ciliated columnar epithelial cells in humans are known to occur in :

[AIPMT 2011 (Prelims)]

- (1) Eustachian tube and stomach lining
- (2) Bile duct and oesophagus
- (3) Fallopian tubes and urethra
- (4) Bronchioles and Fallopian tubes

Scan or tap for the full solution



Q.192 One very special feature in the earthworm *Pheretima* is that :

[AIPMT 2011 (Prelims)]

- (1) The S-shaped setae embedded in the integument are the defensive weapons used against the enemies
- (2) It has a long dorsal tubular heart
- (3) The typhlosole greatly increases the effective absorption area of the digested food in the intestine
- (4) Fertilisation of eggs occurs inside the body

Scan or tap for the full solution



Q.193 Which of the following is correctly stated as it happens in the common cockroach?

[AIPMT 2011 (Prelims)]

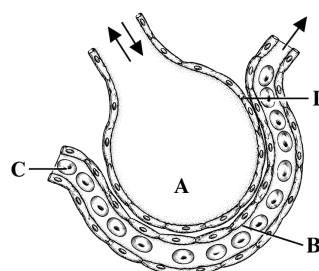
- (1) Oxygen is transported by haemoglobin in blood
- (2) The food is ground by mandibles and gizzard
- (3) Nitrogenous excretory product is urea
- (4) Malpighian tubules are excretory organs projecting out from the colon

Scan or tap for the full solution



Q.194 The figure given below shows a small part of human lung where exchange of gases takes place. Select the option which represents labelled part (A, B, C or D) correctly identified along with its function.

[AIPMT 2011 (Prelims)]



- (1) D : capillary wall - exchange of O_2 and CO_2 takes place here
- (2) B : red blood cells - transport of CO_2 mainly.
- (3) A : alveolar cavity - main site of exchange of respiratory gases
- (4) C : arterial capillary - passes oxygen to tissues

Scan or tap for the full solution



Q.195 Which one of the following acts as a physiological barrier to the entry of microorganisms in human body?

[AIPMT 2011 (Prelims)]

- (1) Epithelium of urogenital tract
- (2) Tears
- (3) Monocytes
- (4) Skin

Scan or tap for the full solution



Q.196 A certain patient is suspected to be suffering from Acquired Immuno Deficiency Syndrome. Which diagnostic technique will you recommend for its detection? [AIPMT 2011 (Prelims)]

- (1) ELISA (2) MRI
(3) Ultra sound (4) WIDAL

Scan or tap for the full solution



Q.197 At which stage of HIV infection does one usually show symptoms of AIDS? [AIPMT 2011 (Prelims)]

- (1) When the infecting retrovirus enters host cells
(2) When viral DNA is produced by reverse transcriptase
(3) When HIV replicates rapidly in helper T-lymphocytes and damages large number of these
(4) Within 15 days of sexual contact with an infected person

Scan or tap for the full solution



Q.198 Two friends are eating together on a dining table. One of them suddenly starts coughing while swallowing some food. This coughing would have been due to improper movement of

[AIPMT 2011 (Prelims)]

- (1) epiglottis (2) diaphragm
(3) neck (4) tongue

Scan or tap for the full solution



Q.199 The purplish red pigment rhodopsin contained in the rod type of photoreceptor cells of the human eye, is a derivative of [AIPMT 2011 (Prelims)]

- (1) vitamin B₁ (2) vitamin C
(3) vitamin D (4) vitamin A

Scan or tap for the full solution



Q.200 Which one of the following enzymes carries out the initial step in the digestion of milk in humans?

[AIPMT 2011 (Prelims)]

- (1) Trypsin (2) Pepsin (3) Rennin (4) Lipase

Scan or tap for the full solution



ANSWER KEY

Ques.	1	2	3	4	5	6	7
Ans.	3	2	4	1	4	3	3
Ques.	8	9	10	11	12	13	14
Ans.	2	2	2	4	1	2	2
Ques.	15	16	17	18	19	20	21
Ans.	4	4	3	1	3	3	3

Ques.	22	23	24	25	26	27	28
Ans.	3	2	3	2	2	1	2
Ques.	29	30	31	32	33	34	35
Ans.	4	1	1	1	2	3	4
Ques.	36	37	38	39	40	41	42
Ans.	2	2	3	4	3	3	4
Ques.	43	44	45	46	47	48	49
Ans.	4	3	1	2	2	3	1
Ques.	50	51	52	53	54	55	56
Ans.	2	2	1	1	1	1	3
Ques.	57	58	59	60	61	62	63
Ans.	4	3	3	4	2	3	3
Ques.	64	65	66	67	68	69	70
Ans.	2	2	1	3	1	2	2
Ques.	71	72	73	74	75	76	77
Ans.	3	1	3	2	3	3	2
Ques.	78	79	80	81	82	83	84
Ans.	2	4	3	1	1	2	3
Ques.	85	86	87	88	89	90	91
Ans.	1	3	1	2	4	2	1
Ques.	92	93	94	95	96	97	98
Ans.	2	3	2	1	4	2	2
Ques.	99	100	101	102	103	104	105
Ans.	2	2	1	4	1	2	2
Ques.	106	107	108	109	110	111	112
Ans.	4	4	1	2	4	2	1
Ques.	113	114	115	116	117	118	119
Ans.	1	2	2	4	4	1	3
Ques.	120	121	122	123	124	125	126
Ans.	1	4	4	3	3	2	1
Ques.	127	128	129	130	131	132	133
Ans.	2	1	3	3	4	4	1
Ques.	134	135	136	137	138	139	140
Ans.	3	1	2	3	2	4	3
Ques.	141	142	143	144	145	146	147
Ans.	2	3	3	4	1	4	2
Ques.	148	149	150	151	152	153	154
Ans.	3	1	4	2	4	2	1
Ques.	155	156	157	158	159	160	161
Ans.	2	1	3	3	4	3	3
Ques.	162	163	164	165	166	167	168
Ans.	4	4	3	2	1	2	4
Ques.	169	170	171	172	173	174	175
Ans.	2	4	3	2	1	1	2
Ques.	176	177	178	179	180	181	182
Ans.	4	2	1	2	2	3	1
Ques.	183	184	185	186	187	188	189
Ans.	1	4	4	4	4	4	1
Ques.	190	191	192	193	194	195	196
Ans.	1	4	3	2	3	2	1
Ques.	197	198	199	200			
Ans.	3	1	4	3			