MDCAT (UHS entry test) — 2011 · Solved Past Paper

Body: University of Health Sciences, Lahore (UHS) · **Post:** MDCAT (UHS entry test) · **Year:** 2011 · **Questions:** 220 in the original paper — **219 solved and verified**, 1 excluded as defective (Q30) · **Price:** Free

> **How to use this paper:** each question shows the stem, the four options, and the correct answer. Click “Why each option?” under a question to see all four options explained — one question teaches four topics. General Knowledge answers are as of the 2011 sitting.

Source note: Question stems and options: UHS MDCAT 2011, Punjab (educationinkarachi.net/wp-content/uploads/2026/09/UHS-Punjab-MDCAT-2011-Original-Answer-Key.pdf, 34 pp.; Q1-219 with official answer-key table at the end, Q1-219) + mdcatguide.com scan of the original Paper ID-A (UHS-MDCAT-2011-Paper-A-mdcatguide.pdf, 27 pp., CamScanner; complete official UHS answer-key page Q1-220). The scan key agrees with the reproduction key on all 219 shared entries (0 mismatches); Q220 = B comes from the scan key page. Exam year 2011 only — no sitting date is printed in either source. Printed key letter counts A73 / B50 / C45 / D52 (scan, 220 entries, 0 dual, 0 Cancelled). Sections: Physics Q1-44, Chemistry Q45-102, English Q103-132, Biology Q133-220. Q8/Q23/Q24 (graph options) recovered complete from the scan; Q107-Q112 (English error-spotting) recovered from the reproduction's embedded images with sentence tails confirmed in the archive.org 'MCAT Past Papers 2008-2019' djvu text; Q146 and Q220 options recovered from the scan. Q30 DEFECTIVE-excluded (no correct option: the magnetic force on the wire is into the plane of the page; keyed B wrong). 4 PICK-ONE (Q16, Q17, Q36, Q89). 5 printed-key errors corrected on textbook evidence (Q33 D to C, Q70 A to C, Q72 B to C, Q189 A to D, Q213 C to D), each recorded in its explanation. Fraction bars, square-root signs, structure formulae and figure-label leaks

pped from the original paper scan. Answers verified independently against reference facts, worked derivations and targeted sources, never from the printed key alone. Decisions by the assistant under the owner's 8 Nov 2026 delegation.

Question 1 When the dimensions of both sides

When the dimensions of both sides of an equation are equal, then the equation is said to be

- A. Simultaneous
- B. Homologous ✓ **Correct answer**
- C. Instantaneous
- D. Quadratic

A. wrong: simultaneous equations are a set of equations solved together, not a property of one equation's dimensions.

B. correct: an equation whose two sides have equal dimensions is dimensionally homogeneous (the paper's word is 'Homologous').

C. wrong: instantaneous describes something happening at an instant, not dimensional equality.

D. wrong: quadratic describes an equation with a squared term, not dimensional equality. (Note: the standard term is 'homogeneous'; the paper prints 'Homologous'.)

Question 2 Radian is a unit of angular

Radian is a unit of angular displacement which can also be measured in degrees. How many radians are equal to one degree?

- A. 180/π
- B. π/180 ✓ **Correct answer**
- C. 2π/180
- D. π/57.3

0/π is about 57.3, the number of degrees in one radian — not radians in one degree.

B. correct: one degree = π/180 radians (180 degrees = π radians).

C. wrong: 2π/180 is the radian measure of two degrees, not one.

D. wrong: π/57.3 is about 0.055 radians, far smaller than one degree.

Question 3 An elevator is moving upwards with

An elevator is moving upwards with constant velocity of ‘v’. What is a weight of a person of a mass ‘m’ inside the elevator during upward motion?

- A. mg + mv
- B. mg ✓ **Correct answer**
- C. mg — mv
- D. zero

A. wrong: with constant velocity there is no acceleration, so no extra mv term acts on the person.

B. correct: moving up at constant velocity, the lift is not accelerating, so the person's weight is just mg (apparent weight equals true weight).

C. wrong: mg − mv would apply only if the lift were accelerating downward.

D. wrong: the person's weight does not vanish in an unaccelerated lift.

Question 4 An object having spherical shape of

An object having spherical shape of radius ‘r’ experiences a retarding force F from a fluid of co- efficient of viscosity ‘η’ when moving through the fluid with speed ‘v’. What is the ratio of retarding force to speed?

- A. 6πηr^2

/r^2 ✓ **Correct answer**

- C. 6πηr
- D. 6πη/r

A. wrong: Stokes' law gives F = 6πηrv, so F/v = 6πηr — not 6πηr^2.

B. wrong: F/v = 6πηr, not 6πη/r^2.

C. correct: by Stokes' law F = 6πηrv, so the ratio F/v = 6πηr.

D. wrong: F/v = 6πηr, not 6πη/r.

Question 5 When the drag force is equal

When the drag force is equal to the weight of the droplet, the droplet will fall with:

- A. High Speed
- B. Low Speed
- C. Certain acceleration
- D. Constant Speed ✓ **Correct answer**

A. wrong: at terminal velocity the droplet does not keep speeding up.

B. wrong: the droplet does not slow down once drag balances weight.

C. wrong: with drag equal to weight the net force is zero, so there is no acceleration.

D. correct: when drag equals weight the net force is zero, so the droplet falls at constant (terminal) speed.

Question 6 A simple pendulum length L with

A simple pendulum length ‘L’ with bob of mass ‘m’ is slightly displaced from its mean position so that it string makes an angle ‘θ’ with vertical line as shown in the figure. Then bob of pendulum released. What will be the expression of torque with which the bob starts to move towards the mean position?

- B. mgL sin θ ✓ **Correct answer**
- C. 0
- D. mgL cos θ

A. wrong: the torque is mgL sin θ, not mgL — the lever arm depends on the angle.

B. correct: the torque about the pivot is the weight mg times the horizontal distance L sin θ, i.e. τ = mgL sin θ.

C. wrong: the torque is zero only at the mean position (θ = 0), not at the displaced position.

D. wrong: the torque goes as sin θ, not cos θ, for the angle with the vertical.

Question 7 The density of blood is

The density of blood is:

- A. Less than water
- B. Nearly equal to water ✓ **Correct answer**
- C. Greater than water
- D. Three times that of water

A. wrong: blood is slightly denser than water, not less dense.

B. correct: the density of blood (about 1.06 g/cm^3) is nearly equal to that of water (1.00 g/cm^3).

C. wrong: blood is only slightly denser than water, not 'greater' in the sense of the other options.

D. wrong: blood is nowhere near three times as dense as water.

Question 8 A monochromatic light of wavelength is

A monochromatic light of wavelength 'λ' is used to produce the diffraction pattern

ingle slit of width x. Which one of the following represents the intensity distribution across the screen?

- A. Graph: three peaks, the first tall, the middle lower and the third tallest (peaks rise towards the right)
- B. Graph: three peaks of equal height
- C. Graph: a tall central peak with smaller side peaks on both sides, decreasing outwards (symmetric) ✓ **Correct answer**
- D. Graph: a tall peak on the left with two smaller peaks decreasing towards the right

A. wrong: the single-slit pattern is symmetric with a tall central maximum, not peaks rising towards the right.

B. wrong: the maxima of a diffraction pattern decrease in height away from the centre; equal peaks would be an interference fringe pattern, not single-slit diffraction.

C. correct: single-slit diffraction gives a bright, wide central maximum with secondary maxima of rapidly decreasing intensity symmetrically on both sides.

D. wrong: the pattern is symmetric about the centre; a one-sided decay is not the diffraction pattern.

Question 9 For interference of light waves to

For interference of light waves to take place, the required condition is

- A. The path difference of the light waves from the two sources must be large
- B. The interfering waves must be non-coherent
- C. The light waves may come from different sources
- D. The light waves must come from two coherent sources ✓ **Correct answer**

A. wrong: a large path difference destroys the fixed phase relationship; interference needs a small, constant path difference.

B. wrong: non-coherent waves cannot produce a stable interference pattern.

ıves from different (independent) sources are not coherent.

D. correct: interference needs two coherent sources with a constant phase difference.

Question 10 The property of bending of light

The property of bending of light around an obstacle and spreading of light waves into geometric shadow of an obstacle is called:

- A. Diffraction of Light ✓ **Correct answer**
- B. Polarization of Light
- C. Quantization of Light
- D. Interference of Light

A. correct: bending of light around an obstacle into its geometrical shadow is diffraction.

B. wrong: polarisation is the restriction of light vibrations to one plane.

C. wrong: quantisation is the restriction of energy to discrete packets.

D. wrong: interference is the superposition of two coherent waves, not bending around an obstacle.

Question 11 The normal human eye can focus

The normal human eye can focus a sharp image of an object on the eye if the object is located at certain distance called

- A. Least Point
- B. Near Point ✓ **Correct answer**
- C. Far Point
- D. Distinct Point

A. wrong: there is no standard 'least point' of the eye.

B. correct: the near point (about 25 cm) is the closest distance at which the normal eye can

o image.

C. wrong: the far point is the farthest distance of clear vision (infinity for the normal eye), not the closest.

D. wrong: 'distinct point' is not the standard term; the least distance of distinct vision is the near point.

Question 12 A source of sound wave emits

A source of sound wave emits waves of frequency ‘f’. If ‘v’ is speed of sound waves, then what will be the wavelength of the waves

- A. v/f ✓ **Correct answer**
- B. vf
- C. (v − u_o)/f
- D. (v − u_o)f

A. correct: wavelength λ = v/f (speed divided by frequency).

B. wrong: vf has the units of acceleration, not length.

C. wrong: (v − u_o)/f is the Doppler-shifted wavelength for a moving observer, not the plain wavelength.

D. wrong: (v − u_o)f is not a wavelength.

Question 13 The spectrum of a stars light

The spectrum of a star’s light is measured and the wavelength of one of the lines as the sodium’s line is found to be 589 nm. The same line has the wavelength of 497 nm when observed in the laboratory. This means the star is

- A. Moving away from the earth ✓ **Correct answer**
- B. Moving towards the north
- C. Stationary

olving around the planet

A. correct: the sodium line is observed at 589 nm against a laboratory 497 nm — shifted to longer wavelength (red shift), so the star is moving away from the earth (Hubble's law / Doppler effect).

B. wrong: the shift is in wavelength, not direction across the sky.

C. wrong: a stationary star would show the line at its laboratory wavelength.

D. wrong: revolving around a planet would not produce a steady red shift of this size.

Question 14 What is the period of mass

What is the period of mass spring system during SHM if the ratio of mass to spring constant is ¼?

- A. π ✓ **Correct answer**
- B. 2 π
- C. 1/π
- D. ½ π

A. correct: $T = 2\pi\sqrt{(m/k)} = 2\pi\sqrt{(1/4)} = 2\pi \times 1/2 = \pi$.

B. wrong: 2π would need $m/k = 1$.

C. wrong: $1/\pi$ does not follow from $T = 2\pi\sqrt{(m/k)}$.

D. wrong: $(1/2)\pi$ would need $m/k = 1/16$.

Question 15 Waveform of SHM is given in

Waveform of SHM is given in figure. At what time/times displacement is equal to zero?

- A. T/4 only
- B. 3T/4 only
- C. 0, T/4, 3T/4 and T

/2 and T ✓ **Correct answer**

A. wrong: at T/4 the displacement is at its maximum (point B), not zero.

B. wrong: at 3T/4 the displacement is at its negative maximum (point D), not zero.

C. wrong: at T/4 and 3T/4 the displacement is maximum, not zero.

D. correct: the waveform crosses zero at 0, at T/2 (point C) and at T.

Question 16 A wire is stretched by a

A wire is stretched by a force which causes an extension. The energy is stored in it only when:

- A. The extension of wire is proportional to force applied ✓ **Correct answer**
- B. The cross-section area of the wire remains constant
- C. The wire is not stretched beyond its elastic limit
- D. The weight of wire is negligible

A. correct: the work done in stretching is stored as elastic potential energy only while the extension is proportional to the force (Hooke's law holds).

B. wrong: the cross-section staying constant is not the condition for energy storage.

C. correct in fact: the same condition in other words — the wire must not be stretched beyond its elastic limit, which is exactly the region where Hooke's law holds.

D. wrong: the weight of the wire is irrelevant to whether the work is stored. (PICK-ONE: both A and C state the same condition — A is the Hooke's-law form and C is the elastic-limit form; the key records A, which is filed. Decided by the assistant under the owner's 8 Nov 2026 delegation.)

Question 17 Which statement is correct

Which statement is correct:

ticity is that property of body which enables body to regain its original dimension

- B. Elasticity is that property of a body that does not allow it to return to its original shape
- C. Elasticity is that property of a body that allows it to retain its original shape and dimension after the stress is removed ✓ **Correct answer**
- D. Elasticity is that property of a body that obeys Hooke's law

A. correct in fact: elasticity does enable a body to regain its original dimension when the deforming force is removed.

B. wrong: elasticity is precisely the property of returning to the original shape.

C. correct: elasticity lets a body recover its original shape and dimension once the stress is removed.

D. wrong: obeying Hooke's law is a property of elastic behaviour within the limit, not the definition of elasticity itself. (PICK-ONE: both A and C state the elasticity definition in substance; the key records C, which is filed. Decided by the assistant under the owner's 8 Nov 2026 delegation.)

Question 18 Which of the following is the

Which of the following is the expression of root mean square speed of a gas having n number of molecules contained in the container?

- A. √[(v1^2 + v2^2 + ... + vx^2)/N] ✓ **Correct answer**
- B. (v1^2 + v2^2 + ... + vx^2)/N
- C. √[(v1 + v2 + ... + vx)/N]
- D. (v1 + v2 + ... + vx)/N

A. correct: the root mean square speed is v_rms = √[(v1^2 + v2^2 + ... + vx^2)/N] — the square root of the mean of the squared speeds.

B. wrong: this is the mean of the squares, not its square root.

e root mean square uses the squares of the speeds, not the speeds themselves.

D. wrong: this is the mean speed, not the root mean square speed.

Question 19 For a gas of volume V

For a gas of volume V in its equilibrium state, if the pressure does change with time then total kinetic energy of gas is constant because

- A. Collisions between gas molecules occur
- B. Collisions between gas molecules occur linearly
- C. Collisions must be elastic ✓ **Correct answer**
- D. Collisions must be inelastic

A. wrong: collisions merely occurring does not keep the total kinetic energy constant.

B. wrong: 'linearly' is meaningless here; collisions must be elastic.

C. correct: in equilibrium the total kinetic energy stays constant because the molecular collisions are elastic (no kinetic energy is lost).

D. wrong: inelastic collisions would lose kinetic energy.

Question 20 Which of the following is the

Which of the following is the proper way to study the sinusoidal waveform of the voltage?

- A. Voltage is connected to X input and the time base is switched off
- B. Voltage is connected to Y input and the time base is switched on ✓ **Correct answer**
- C. Voltage is connected to Y input and the time base is switched off
- D. Voltage is connected to X input and the time base is switched on

A. wrong: the voltage must go to the Y input (vertical deflection) and the time base must

ead the waveform in time.

B. correct: the voltage is connected to the Y input and the time base is switched on, so the spot traces the sinusoidal waveform against time.

C. wrong: with the time base off, the spot only moves up and down in a vertical line.

D. wrong: the X input is for the time base, not the signal voltage.

Question 21 Electron gun in cathode ray oscilloscope

Electron gun in cathode ray oscilloscope contains

- A. Filament, cathode, grid, anodes ✓ **Correct answer**
- B. Cathode, anode, capacitor, screen
- C. Emitter, base, collector
- D. Resistance, capacitor, inductor

A. correct: the electron gun contains the filament, cathode, control grid and accelerating anodes.

B. wrong: the capacitor and screen are not parts of the electron gun.

C. wrong: emitter, base and collector belong to a transistor, not the electron gun.

D. wrong: resistance, capacitor and inductor are circuit components, not the gun's parts.

Question 22 In which of the following the

In which of the following, the change in internal energy is more? [Figure: two P–V cycles — system A is a rectangle ABCD and system B is a triangle ABC.]

- A. In system A
- B. In system B
- C. Cannot be predicted
- D. Change is zero in both. (both are cyclic) ✓ **Correct answer**

e change in internal energy is zero in both systems, not greater in A.

B. wrong: the change in internal energy is zero in both systems, not greater in B.

C. wrong: it can be predicted — both cycles return to their starting state.

D. correct: both systems go through complete cycles (system A a rectangle ABCD, system B a triangle ABC on the P–V diagram), so each returns to its initial state and ΔU = 0 in both.

Question 23 Pressure volume graph of two systems

Pressure volume graph of two systems 'A' and 'B' are plotted under isothermal and adiabatic conditions. Which of the following observation of graph represents the two systems?

- A. Graph: two curves falling steeply from a common point near the P-axis, the upper (shallower) curve labelled Isothermal and the lower (steeper) curve labelled Adiabatic ✓ **Correct answer**
- B. Graph: a horizontal line labelled Isothermal with an arrow pointing left, then a vertical drop labelled Adiabatic with an arrow pointing down
- C. Graph: two curves forming a lens shape, the upper curve labelled Isothermal and the lower curve labelled Adiabatic, meeting at a point on the right
- D. Graph: two horizontal lines with arrows pointing right, the upper labelled Isothermal and the lower labelled Adiabatic

A. correct: on a P–V diagram both the isotherm (PV = constant) and the adiabat (PV^γ = constant) fall as V increases, and the adiabat is steeper (γ > 1), so the upper, shallower curve is the isotherm and the lower, steeper curve is the adiabat.

B. wrong: an isotherm and an adiabat are smooth falling curves, not a horizontal-then-vertical step.

C. wrong: the two curves do not form a closed lens meeting at a point on the right.

D. wrong: horizontal lines are isobars (constant pressure), not isotherms or adiabats.

24 Which of the following curve is

Which of the following curve is an isotherm?

- A. Graph: a horizontal line (constant P)
- B. Graph: a vertical line (constant V)
- C. Graph: a straight line rising with V
- D. Graph: a falling curve, a rectangular hyperbola (P falls as V rises) ✓ **Correct answer**

A. wrong: a horizontal line on a P–V diagram is an isobar (constant pressure).

B. wrong: a vertical line on a P–V diagram is an isochore (constant volume).

C. wrong: a rising straight line is neither an isotherm nor any constant-temperature curve.

D. correct: an isotherm is PV = constant, a rectangular hyperbola falling as V rises.

Question 25 If 2 A current passes through

If 2 A current passes through a resistor when connected to a certain battery. If the resistance is replaced by the double resistance, then the current will become

- A. 2 A
- B. 4 A
- C. 6 A
- D. 1 A ✓ **Correct answer**

A. wrong: doubling the resistance halves the current, it does not leave it at 2 A.

B. wrong: the current decreases, it does not double to 4 A.

C. wrong: the current decreases, it does not rise to 6 A.

D. correct: by V = IR with the same battery, doubling R halves I: 2 A / 2 = 1 A.

26 In Helium-Neon laser population inversion of

In Helium-Neon laser, population inversion of _____ atoms is achieved which emit radiations, when they are stimulated to fall at lower level.

- A. Neon ✓ **Correct answer**
- B. Helium
- C. Helium and Neon
- D. Chromium

A. correct: in the helium–neon laser, population inversion is achieved in the neon atoms, which emit the laser radiation when stimulated to fall to a lower level (helium only transfers energy to neon).

B. wrong: helium atoms transfer their energy to neon; the inversion and emission are in neon.

C. wrong: the inversion is in the neon atoms, not in both.

D. wrong: chromium is the active ion in the ruby laser, not the helium–neon laser.

Question 27 Three resistors each having value R

Three resistors each having value 'R' are connected as shown in figure. What is the equivalence resistance between 'X' and 'Y'?

- A. 3R ✓ **Correct answer**
- B. R
- C. R/3
- D. R^3

A. correct: the three resistors R are joined end to end in a single chain between X and Y, so they are in series and the equivalent resistance is R + R + R = 3R.

B. wrong: R would be the value of one resistor, not three in series.

3 would be three resistors in parallel, not in series.

D. wrong: the equivalent resistance is 3R, not R^3.

Question 28 If the number of turns of

If the number of turns of a solenoid circular coil is doubled, but the current in the coil and radius of the coil remains same, then what will be the magnetic flux density produced by the coil?

- A. Magnetic flux density will be halved
- B. Magnetic flux density increases by different amount at different points
- C. Magnetic flux density remains unchanged
- D. Magnetic flux density will be doubled ✓ **Correct answer**

A. wrong: doubling the turns doubles the flux density, it does not halve it.

B. wrong: the flux density $B = \mu_0 nI$ increases uniformly, not by different amounts at different points.

C. wrong: $B = \mu_0 nI$, so doubling n changes B.

D. correct: the magnetic flux density inside a solenoid is $B = \mu_0 nI$, so doubling the number of turns (n) doubles B, the current and radius being unchanged.

Question 29 Two long parallel wires Wire 1

Two long parallel wires Wire 1 and Wire 2 repel each other as shown in the figure. What could be the reasons?

- A. Both carry current in same direction
- B. Both carry current in opposite direction ✓ **Correct answer**
- C. Wire 1 has current, but Wire 2 has no current
- D. Wire 2 has current, Wire 1 has no current

A. wrong: parallel wires carrying current in the same direction attract each other.

parallel wires carrying currents in opposite directions repel each other (the figure shows the forces F pushing the two wires apart).

C. wrong: a wire with no current feels no magnetic force, so it could not be pushed away.

D. wrong: a wire with no current feels no magnetic force, so it could not be pushed away.

Question 30 The diagram shows a wire carrying

The diagram shows a wire, carrying a current 'I', placed the poles of a magnet: In which direction does the force on the wire act?

- A. Upwards
- B. Downwards
- C. Towards the 'N' pole of the magnet
- D. Towards the 'S' pole of the magnet

No answer is given for this question, and none is taught. NO CORRECT OPTION — DEFECTIVE-excluded (decided by assistant under owner's 8 Nov 2026 delegation)

A. wrong: the force is not upwards — it is perpendicular to both the current and the field, i.e. into the plane of the page.

B. wrong: the force is not downwards — it is perpendicular to both the current and the field, i.e. into the plane of the page.

C. wrong: the force is not towards the N pole — it is perpendicular to the field, i.e. into the plane of the page.

D. wrong: the force is not towards the S pole — it is perpendicular to the field, i.e. into the plane of the page. (DEFECTIVE-excluded: the current runs upward and the field runs from N to S (left to right), so by Fleming's left-hand rule (F = IL × B) the force on the wire is into the plane of the page, which is not among the options; the keyed answer B (Downwards) is wrong and the question has no correct option as printed. Decided by the assistant under the owner's 8 Nov 2026 delegation.)

31 Wavelength of X-rays is the order

Wavelength of X-rays is the order of:

- A. 10^-6 m
- B. 10^-10 m ✓ **Correct answer**
- C. 10^-13 m
- D. 100 m

A. wrong: 10^-6 m is the order of infrared / visible-light wavelengths, not X-rays.

B. correct: X-ray wavelengths are of the order of 10^-10 m (0.1 nm, the scale of atomic spacings).

C. wrong: 10^-13 m is the order of gamma-ray wavelengths.

D. wrong: 100 m is a radio wavelength, not an X-ray wavelength.

Question 32 Laser beam can be used to

Laser beam can be used to generate three-dimensional image of object in a process called:

- A. Computed technology
- B. Computed tomography
- C. Holography ✓ **Correct answer**
- D. Computerized axial tomography

A. wrong: 'computed technology' is not the name of the process.

B. wrong: computed tomography builds cross-sectional images from X-rays, not three-dimensional images from a laser beam.

C. correct: holography uses a laser beam to record and reconstruct a three-dimensional image of an object.

D. wrong: computerized axial tomography is the CT scan (X-rays), not a laser method.

33 Which of the following is true

Which of the following is true for Lasers?

- A. Electrons are emitted
- B. Stimulated emission of electrons is needed
- C. Coherent monochromatic light is emitted ✓ **Correct answer**
- D. There is a population inversion of photons

A. wrong: a laser emits photons by stimulated emission, not electrons.

B. wrong: a laser needs stimulated emission of radiation (photons), not of electrons.

C. correct: a laser emits coherent, monochromatic light by stimulated emission (with population inversion of the atoms).

D. wrong: population inversion is of the atoms between energy levels, not of photons. (PRINTED-KEY ERROR CORRECTED: the printed key records D ('There is a population inversion of photons'), but population inversion is of the atoms, not of photons, and the laser's defining product is coherent monochromatic light, so the answer is corrected to C. Corrected by the assistant under the owner's 8 Nov 2026 delegation.)

Question 34 Three resistors of resistance R1 R2

Three resistors of resistance R1, R2 and R3 are connected as shown in figure.

Equivalence resistance is:

- A. R1 + R2 + R3
- B. (R1 + R2 + R3)/(R1 R2)
- C. (R1R2 + R2R3 + R2R3)/(R1 + R2) ✓ **Correct answer**
- D. (R1 R2 R3)/(R2 R3)

A. wrong: R1 + R2 + R3 would be all three resistors in series; here R2 and R3 are in parallel.

B. wrong: (R1 + R2 + R3)/(R1 R2) is not the equivalent resistance of this network.

I is in series with the parallel combination of R2 and R3, so R_eq = R1 + (R2 R3)/(R2 + R3) = (R1R2 + R2R3 + R1R3)/(R2 + R3) — option C as printed, whose numerator and denominator carry the paper's misprints.

D. wrong: (R1 R2 R3)/(R2 R3) = R1, which ignores R2 and R3. (Note: option C as printed reads (R1R2 + R2R3 + R2R3)/(R1 + R2) — the third term of the numerator and the denominator are the paper's misprints; the intended form is (R1R2 + R2R3 + R1R3)/(R2 + R3).)

Question 35 What is meant by spontaneous emission

What is meant by spontaneous emission of electrons in solids?

- A. Electrons being emitted by the solids through photoelectric effect when irradiated with electromagnetic radiation
- B. Incident electrons colliding with electrons in solids and releasing doubling the number of incident electrons
- C. Electrons in solids are emitted without any external stimulus through radiation
- D. Excited electrons going back to lower energy states immediately by releasing energy ✓ **Correct answer**

A. wrong: emission through the photoelectric effect needs incident radiation — that is not spontaneous emission.

B. wrong: incident electrons colliding and doubling is secondary emission, not spontaneous emission.

C. wrong: spontaneous emission releases energy as radiation when excited electrons fall back — it is not the emission of electrons themselves.

D. correct: spontaneous emission is the return of excited electrons to lower energy states, releasing the excess energy as radiation, with no external stimulus.

36 When electrons lose all their kinetic

When electrons lose all their kinetic energy in the first collision, the entire kinetic appears as an X-ray photon of energy:

- A. K.E = eV ✓ **Correct answer**
- B. K.E = hλ_min/c
- C. K.E = hc/λ_min
- D. K.E = h/λ_max

A. correct: the electron's kinetic energy eV (from the accelerating potential) appears entirely as the X-ray photon's energy.

B. wrong: hλ_min/c has the wrong dimensions for an energy.

C. correct in fact: hc/λ_min is the same photon energy — eV = hc/λ_min for the shortest wavelength.

D. wrong: h/λ_max is not an energy (it lacks the speed of light). (PICK-ONE: both A and C give the photon energy — A as eV and C as hc/λ_min; the key records A, which is filed. Decided by the assistant under the owner's 8 Nov 2026 delegation.)

Question 37 The characteristic X-ray spectrum is due

The characteristic X-ray spectrum is due to:

- A. The absorption of neutrons by target material
- B. The bombardment of target material by protons
- C. The bombardment of target material by electrons ✓ **Correct answer**
- D. The bombardment of target material by alpha particles

A. wrong: the characteristic spectrum is an emission spectrum, not an absorption of neutrons.

B. wrong: protons do not bombard the target in an X-ray tube.

e characteristic X-ray spectrum comes from the bombardment of the target material by fast electrons, which knock out inner-shell electrons.

D. wrong: alpha particles do not bombard the target in an X-ray tube.

Question 38 Ionizing capability of gamma rays is

Ionizing capability of gamma rays is:

- A. Equal to alpha and beta particle
- B. Less than alpha but greater than beta particles
- C. Less than both alpha and beta particles ✓ **Correct answer**
- D. Less than beta but greater than alpha particles

A. wrong: gamma rays ionise far less than alpha or beta particles.

B. wrong: gamma rays ionise less than beta particles, not more.

C. correct: gamma rays have the lowest ionising capability of the three — less than both alpha and beta particles (their penetrating power is the highest).

D. wrong: gamma rays ionise less than beta particles, not more.

Question 39 Half-life of a radioactive element is

Half-life of a radioactive element is:

- A. Inversely proportional to square of decay constant
- B. Directly proportional to square of decay constant
- C. Directly proportional to decay constant
- D. Inversely proportional to decay constant ✓ **Correct answer**

A. wrong: half-life is inversely proportional to the decay constant itself, not its square.

B. wrong: half-life decreases as the decay constant increases.

C. wrong: half-life is inversely, not directly, proportional to the decay constant.

$t_{1/2} = 0.693/\lambda$, so the half-life is inversely proportional to the decay constant.

Question 40 The transformation of a neutron into

The transformation of a neutron into proton in the nucleus gives rise to emission of:

- A. Beta particles ✓ **Correct answer**
- B. Alpha particles
- C. Gamma particles
- D. X-rays

A. correct: a neutron changing into a proton emits an electron — a beta particle ($n \rightarrow p + e^-$).

B. wrong: alpha emission is the loss of a helium nucleus, not a neutron–proton change.

C. wrong: gamma rays are emitted when an excited nucleus drops to a lower energy state.

D. wrong: X-rays come from electron transitions, not from a neutron becoming a proton.

Question 41 The ratio of the rate of

The ratio of the rate of decay of a parent atom to the number of radioactive nuclei present at that time is equal to:

- A. Half-life of radioactive element
- B. Mean life
- C. Decay constant of radioactive element ✓ **Correct answer**
- D. Activity if radioactive element

A. wrong: the half-life is $0.693/\lambda$, not the ratio of decay rate to the number of nuclei.

B. wrong: the mean life is $1/\lambda$, not the ratio of decay rate to the number of nuclei.

C. correct: the decay constant λ = (rate of decay)/(number of radioactive nuclei present), i.e. $-dN/dt = \lambda N$.

e activity is the rate of decay itself (−dN/dt), not the ratio.

Question 42 Which one of the following particle

Which one of the following particle is emitted as a result of nuclear reaction? Ra^226 → Rn^222

- A. Beta
- B. Alpha ✓ **Correct answer**
- C. Gamma rays
- D. One alpha and one beta

A. wrong: a beta particle changes the atomic number by one and the mass number not at all.

B. correct: Ra^226 → Rn^222 loses mass 4 and atomic number 2 — an alpha particle (He^4).

C. wrong: gamma rays carry no mass or charge, so they cannot change Ra^226 into Rn^222.

D. wrong: one alpha and one beta together would change the mass by 4 but the atomic number by only 1.

Question 43 Which of following is used to

Which of following is used to estimate the circulation of blood in a patient?

- A. Carbon-14
- B. Carbon-12
- C. Phosphorus-32
- D. Sodium-24 ✓ **Correct answer**

A. wrong: carbon-14 is used for dating ancient material, not for blood circulation.

B. wrong: carbon-12 is the stable reference isotope, not a tracer for blood flow.

osphorus-32 is used for phosphate / fertiliser and cancer studies, not blood circulation.

D. correct: sodium-24 (a short-lived gamma emitter) is injected to trace and estimate the circulation of blood.

Question 44 For the radiotherapy of a patient

For the radiotherapy of a patient, it is required to double the absorbed dose in gray. What step must be taken?

- A. Energy must be quadrated
- B. Energy must be halved
- C. Energy must be raised four times
- D. Energy must be doubled ✓ **Correct answer**

A. wrong: quadrupling the energy would quadruple the dose, not double it.

B. wrong: halving the energy would halve the dose.

C. wrong: raising the energy four times would quadruple the dose, not double it.

D. correct: the absorbed dose in gray is the energy absorbed per unit mass, so doubling the dose needs doubling the energy.

Question 45 In mass spectrometer detector or collector

In mass spectrometer, detector or collector measures the:

- A. Masses of isotopes
- B. Percentages of isotopes
- C. Relative abundances of isotopes ✓ **Correct answer**
- D. Mass numbers of isotopes

A. wrong: the detector measures the ion currents, i.e. the relative abundances, not the masses directly.

rcentages of isotopes are calculated from the abundances, not measured directly by the collector.

C. correct: the detector/collector measures the relative abundances of the isotopes (from the ion currents at each mass).

D. wrong: the mass numbers are what the analyser separates by; the collector measures how much of each arrives.

Question 46 How many Cl chlorine atoms are

How many 'Cl' (chlorine) atoms are in two moles of chlorine?

- A. 2 × 6.02 × 10¯23 atoms
- B. 35.5 × 6.02 × 10^23 atoms
- C. 2 × 10^23 atoms
- D. 2 × 6.02 × 10^23 atoms ✓ **Correct answer**

A. wrong: 10^−23 is a misprint in scale — two moles contain about 10^24 atoms, not 10^−23.

B. wrong: 35.5 is the atomic mass of chlorine, not the number of atoms in two moles.

C. wrong: 2 × 10^23 is only about a third of a mole of atoms.

D. correct: two moles of chlorine atoms contain 2 × Avogadro's number = 2 × 6.02 × 10^23 atoms. (Note: 'two moles of chlorine' is read as two moles of chlorine atoms; two moles of Cl2 molecules would contain four moles of Cl atoms, which is not among the options.)

Question 47 Melting point of water is higher

Melting point of water is higher than petrol, because intermolecular forces in water are:

- A. Weaker than petrol
- B. Stronger than petrol ✓ **Correct answer**
- C. Same as in petrol

A. wrong: water's intermolecular forces are stronger, not weaker, than petrol's.

B. correct: water has strong hydrogen bonding between its molecules, much stronger than the weak van der Waals forces in petrol, so its melting point is higher.

C. wrong: the forces differ greatly — hydrogen bonds in water against weak forces in petrol.

D. wrong: the forces in water are far from negligible.

Question 48 DNA molecule is double stranded in

DNA molecule is double stranded, in which two chains of DNA are twisted around each other by:

- A. Hydrogen bonds ✓ **Correct answer**
- B. Vander Waal's force
- C. Covalent bonds
- D. Dative bonds

A. correct: the two DNA strands are held together by hydrogen bonds between the complementary base pairs.

B. wrong: van der Waals forces are far too weak to hold the double helix together.

C. wrong: covalent bonds run along each strand (sugar–phosphate backbone), not between the two strands.

D. wrong: no dative bonds hold the two DNA strands together.

Question 49 The elements for which the value

The elements for which the value of ionization energy is low, can:

- A. Gain electrons readily

ns electron with difficulty

- C. Loss electrons less readily
- D. Lose electrons readily ✓ **Correct answer**

A. wrong: a low ionisation energy means the atom loses electrons easily, not gains them.

B. wrong: a low ionisation energy means electrons are lost readily, not with difficulty.

C. wrong: a low ionisation energy means electrons are lost readily, not less readily.

D. correct: the lower the ionisation energy, the more readily the atom loses an electron.

Question 50 The nature of cathode rays in

The nature of cathode rays in discharge tube:

- A. Depends on the nature of gas taken in the discharge tube
- B. Depends upon the nature of cathode in discharge tube
- C. Is independent of the nature of the gas in discharge tube ✓ **Correct answer**
- D. Depends upon the nature of anode in the discharge tube

A. wrong: cathode rays are the same whatever gas is in the tube.

B. wrong: cathode rays are the same whatever the cathode metal is.

C. correct: cathode rays (electrons) are independent of the nature of the gas in the discharge tube — they are the same for every gas.

D. wrong: cathode rays are independent of the anode material too.

Question 51 The ability of an atom in

The ability of an atom in a covalent bond to attract the bonding electrons is called:

- A. Ionization energy
- B. Ionic bond energy
- C. Electronegativity ✓ **Correct answer**

A. wrong: ionisation energy is the energy to remove an electron, not the attraction for bonding electrons.

B. wrong: 'ionic bond energy' is not the name for this property.

C. correct: electronegativity is the ability of an atom in a covalent bond to attract the shared electrons.

D. wrong: electron affinity is the energy change when an atom gains an electron, not the pull on bonding electrons.

Question 52 The paramagnetic character of a substance

The paramagnetic character of a substance is due to:

- A. Bond pairs of electrons
- B. Lone pairs of electrons
- C. Unpaired electrons in atom or molecule ✓ **Correct answer**
- D. Paired electrons in valence shells of electrons

A. wrong: bond pairs are shared and paired, so they do not cause paramagnetism.

B. wrong: lone pairs are paired electrons, so they do not cause paramagnetism.

C. correct: paramagnetism comes from unpaired electrons, which have a net magnetic moment.

D. wrong: paired electrons have cancelling magnetic moments and give diamagnetism.

Question 53 Lattice energy of an ionic crystal

Lattice energy of an ionic crystal is the enthalpy of:

- A. Combustion
- B. Dissociation

- D. Formation ✓ **Correct answer**

A. wrong: lattice energy is not an enthalpy of combustion.

B. wrong: lattice energy is not an enthalpy of dissociation.

C. wrong: lattice energy is not an enthalpy of dissolution.

D. correct: the lattice energy of an ionic crystal is the enthalpy change when the crystal is formed from its gaseous ions.

Question 54 In standard enthalpy of atomization heat

In standard enthalpy of atomization, heat of the surrounding:

- A. Remains unchanged
- B. Increases
- C. Increases than decreases
- D. Decreases ✓ **Correct answer**

A. wrong: atomisation absorbs heat, so the surroundings lose heat.

B. wrong: the heat of the surroundings decreases, because the process takes heat in.

C. wrong: the heat of the surroundings simply decreases; it does not rise first.

D. correct: the standard enthalpy of atomisation is endothermic (bonds are broken), so heat is taken from the surroundings and their temperature falls.

Question 55 Mole fraction of any compound is

Mole fraction of any compound is the ratio of moles of all components in a:

- A. Compound
- B. Solution ✓ **Correct answer**
- C. Molecule

A. wrong: mole fraction is defined for the components of a mixture, not a single compound.

B. correct: the mole fraction of a component is the ratio of its moles to the total moles of all components in the solution.

C. wrong: mole fraction is a property of a mixture, not of one molecule.

D. wrong: mole fraction is defined for solutions/mixtures, not for a solid alone.

Question 56 Molarity is defined as the number

Molarity is defined as the number of moles of any substance dissolved:

- A. Per dm3 of water ✓ **Correct answer**
- B. In one gram of water
- C. Per m3 of water
- D. In 100 ml of water

A. correct: molarity is the number of moles of solute dissolved per dm^3 of the solution (the paper says 'per dm^3 of water').

B. wrong: molarity is per volume, not per gram of water.

C. wrong: molarity is per dm^3, not per m^3 (1 m^3 = 1000 dm^3).

D. wrong: 100 ml is 0.1 dm^3, not 1 dm^3. (Note: strictly, molarity is moles per dm^3 of solution; the paper says 'per dm^3 of water'.)

Question 57 In electrolytic cell a salt bridge

In electrolytic cell, a salt bridge is used in order to:

- A. Pass the electric current
- B. Prevent the flow of ions

solution of two half cells

- D. Allow movement of ions b/w two half cells ✓ **Correct answer**

A. wrong: the salt bridge does not carry the main electric current — the external circuit does.

B. wrong: the salt bridge is there precisely to let ions move, completing the circuit.

C. wrong: the salt bridge keeps the two half-cell solutions apart while letting ions pass; it does not mix them.

D. correct: in an electrolytic (and galvanic) cell the salt bridge allows ions to move between the two half-cells, maintaining electrical neutrality.

Question 58 In all oxidation reactions atoms of

In all oxidation reactions, atoms of an element in a chemical species lose electrons and increase their:

- A. Oxidation states ✓ **Correct answer**
- B. Reductions
- C. Electrode
- D. Negative charges

A. correct: in oxidation an atom loses electrons and its oxidation state increases.

B. wrong: reduction is gain of electrons, the opposite of oxidation.

C. wrong: the electrode is not what increases in oxidation.

D. wrong: losing electrons increases the oxidation state; negative charge decreases.

Question 59 In AgCl solution Some salt of

In 'AgCl' solution. Some salt of NaCl is added, 'AgCl' will be precipitated due to:

- A. Solubility

trolyte

- C. Unsaturation effect
- D. Common ion effect ✓ **Correct answer**

A. wrong: solubility alone does not explain why added NaCl precipitates AgCl.

B. wrong: the added NaCl acts through the common ion, not as a general electrolyte effect.

C. wrong: unsaturation is not the cause — the solution is saturated with AgCl already.

D. correct: adding NaCl adds Cl^- ions (the common ion), pushing the $AgCl \rightleftharpoons Ag^+ + Cl^-$ equilibrium back so AgCl precipitates.

Question 60 Ka for an acid is higher

'Ka' for an acid is higher, the stronger is the acid; relate the strength an acid with 'pKa'

- A. Higher pKa, weaker the acid
- B. Lower pKa, stronger the acid
- C. pKa has no relation with acid strength
- D. Both A and B ✓ **Correct answer**

A. correct: a higher pKa means a weaker acid ($pKa = -\log Ka$).

B. correct: a lower pKa means a stronger acid.

C. wrong: pKa is directly related to acid strength — it is the negative log of Ka.

D. correct: both A and B are true statements about pKa and acid strength.

Question 61 It is experimentally found that a

It is experimentally found that a catalyst is used to:

- A. Lower the activation energy ✓ **Correct answer**
- B. Increase the activation energy

- D. Decrease the temp of the reaction

A. correct: a catalyst speeds a reaction by lowering its activation energy, providing an alternative path.

B. wrong: a catalyst lowers, not raises, the activation energy.

C. wrong: a catalyst does not act by lowering the pH.

D. wrong: a catalyst does not act by lowering the temperature.

Question 62 According to collision theory of bimolecular

According to collision theory of bimolecular reaction sin gas phase, the minimum amount of energy required for an effective collision is known as:

- A. Heat of reaction
- B. Rate of reaction
- C. Has no effect on the reaction
- D. Energy of activation ✓ **Correct answer**

A. wrong: the heat of reaction is the enthalpy change, not the minimum energy for an effective collision.

B. wrong: the rate of reaction is the outcome, not the energy barrier.

C. wrong: the minimum energy does affect the reaction — it is the activation barrier.

D. correct: by collision theory, the minimum energy needed for an effective collision is the energy of activation.

Question 63 Carbon exists as allotropes which are

Carbon exists as allotropes, which are different crystalline or molecular forms of the same substance. Graphite and diamond are allotropes of carbon. Diamond is a non-

whereas graphite is a good conductor because:

- A. Graphite has a layered structure
- B. In graphite, all valence electrons are tetrahedrally bound
- C. In graphite one of valence electron is free to move ✓ **Correct answer**
- D. Graphite is soft and greasy

A. wrong: the layered structure explains graphite's softness, not its conductivity.

B. wrong: in graphite the valence electrons are not all tetrahedrally bound — that is diamond's structure.

C. correct: in graphite each carbon uses three valence electrons in planar bonds, leaving one free to move through the layers — so graphite conducts electricity.

D. wrong: being soft and greasy does not explain electrical conductivity.

Question 64 The diagram below is a plot

The diagram below is a plot of melting points of elements of second period against their atomic numbers. Lithium and fluorine are placed at the extreme ends of the plot, on the basis of melting points where will you place Carbon among the empty slots on the plot? [Figure: a melting-point vs atomic-number curve for the second-period elements, with five numbered empty slots 1–5; slot 1 is low at the left end, slot 3 is at the peak of the curve, slot 5 is low at the right end.]

- A. 1
- B. 2
- C. 4
- D. 3 ✓ **Correct answer**

A. wrong: slot 1 is the low point at the left end (lithium), not carbon.

B. wrong: slot 2 is on the rising slope, not the peak.

C. wrong: slot 4 is on the falling slope, not the peak.

arbon has the highest melting point of the second-period elements (diamond, about 3550 °C), so it goes at the peak of the curve — slot 3.

Question 65 When elements of group II-A alkaline

When elements of group II-A (alkaline earth metals) are exposed to air, they quickly become coated with a layer of oxide. What is the purpose of this oxide layer?

- A. The oxide layer exposes the metal to Atmospheric attack
- B. The oxide layer increases the reactivity of metal
- C. The oxide layer protects the metal from further atmospheric attack ✓ **Correct answer**
- D. The oxide layer gives the metal a shiny silvery appearance

A. wrong: the oxide layer does not expose the metal to attack — it shields it.

B. wrong: the oxide layer does not increase reactivity; it lowers it.

C. correct: the oxide coating protects the metal from further atmospheric attack (passivation).

D. wrong: a shiny appearance is not the purpose of the coating.

Question 66 In silicon dioxide each silicon atom

In silicon dioxide each silicon atom is tetrahedrally bonded to four oxygen atoms and each oxygen atom is bonded to two silicon atoms. The ratio of silicon to oxygen atoms is:

- A. 2:2
- B. 1:2 ✓ **Correct answer**
- C. 2:1
- D. 1:4

A. wrong: the Si:O ratio in SiO_2 is 1:2, not 2:2.

B. correct: silicon dioxide is SiO_2 — one silicon to two oxygen atoms (each Si bonded to

O shared by two Si).

C. wrong: the ratio is 1:2, not 2:1.

D. wrong: the ratio is 1:2, not 1:4.

Question 67 Hydrogenation of unsaturated oils is done

Hydrogenation of unsaturated oils is done by using:

- A. Finally divided nickel ✓ **Correct answer**
- B. Finally divided iron
- C. Vanadium pentaoxide
- D. Copper

A. correct: hydrogenation of unsaturated oils is done with finely divided nickel as the catalyst.

B. wrong: iron is not the catalyst for oil hydrogenation.

C. wrong: vanadium pentoxide is the contact-process catalyst, not for oil hydrogenation.

D. wrong: copper is not the catalyst for oil hydrogenation.

Question 68 Pick the correct statement

Pick the correct statement:

- A. Chelates are usually more stable than ordinary complexes ✓ **Correct answer**
- B. Ordinary complexes are more stable than chelates
- C. Monodentate ligands form the chelates complexes
- D. Chelates have no ring structures

A. correct: chelates (multidentate complexes) are usually more stable than ordinary (monodentate) complexes — the chelate effect.

B. wrong: ordinary complexes are less stable than chelates, not more.

elates are formed by multidentate (polydentate) ligands, not monodentate ones.

D. wrong: chelates do have ring structures — that is what makes them stable.

Question 69 In contact process the catalyst used

In contact process, the catalyst used for the conversion of Sulphur dioxide to Sulphur trioxide is:

- A. Magnesium oxide
- B. Aluminum oxide
- C. Silicon dioxide
- D. Vanadium pentoxide ✓ **Correct answer**

A. wrong: magnesium oxide is not the contact-process catalyst.

B. wrong: aluminium oxide is not the contact-process catalyst.

C. wrong: silicon dioxide is not the contact-process catalyst.

D. correct: vanadium pentoxide (V_2O_5) is the catalyst for oxidising sulphur dioxide to sulphur trioxide in the contact process.

Question 70 The unpolluted natural rain water is

The unpolluted natural rain water is slightly acidic due to the reaction of rain water with:

- A. Sulphur dioxide
- B. Oxides of nitrogen
- C. Carbon dioxide ✓ **Correct answer**
- D. Hydrogen present in air

A. wrong: sulphur dioxide causes acid rain (polluted rain), not the slight acidity of natural unpolluted rain.

ides of nitrogen also cause acid rain; they are not the cause of natural rain acidity.

C. correct: unpolluted rain water is slightly acidic (pH about 5.6) because dissolved carbon dioxide forms weak carbonic acid.

D. wrong: hydrogen in air does not make rain water acidic. (PRINTED-KEY ERROR CORRECTED: the printed key records A (Sulphur dioxide), but natural rain acidity is due to dissolved carbon dioxide forming carbonic acid; sulphur dioxide is a pollutant that causes acid rain. The answer is corrected to C. Corrected by the assistant under the owner's 8 Nov 2026 delegation.)

Question 71 In the Habers process for the

In the Haber's process for the manufacturing of ammonia, nitrogen is taken from:

- A. Proteins occurring in living bodies
- B. Ammonium salts obtained industrially
- C. Air ✓ **Correct answer**
- D. Mineral containing nitrates

A. wrong: nitrogen for the Haber process is not taken from proteins.

B. wrong: nitrogen is not taken from ammonium salts.

C. correct: in the Haber process the nitrogen comes from the air (fractional distillation of liquid air).

D. wrong: nitrogen is not taken from nitrate minerals.

Question 72 In comparison with oxygen gas a

In comparison with oxygen gas, a strong triple bond is present between two nitrogen atoms in a molecule and therefore nitrogen gas is:

- A. Highly reactive gas

- C. Very less reactive gas ✓ **Correct answer**
- D. Moderately reactive gas

A. wrong: nitrogen's triple bond makes it very unreactive, not highly reactive.

B. wrong: nitrogen is not completely inert like the noble gases — it does react (e.g. with hydrogen in the Haber process, with oxygen at high temperature).

C. correct: the strong N≡N triple bond makes nitrogen a very less reactive (almost inert) gas.

D. wrong: nitrogen is far less reactive than 'moderately reactive' suggests. (PRINTED-KEY ERROR CORRECTED: the printed key records B ('Completely inert like noble gases'), but nitrogen does form compounds, so it is not completely inert; it is a very less reactive gas. The answer is corrected to C. Corrected by the assistant under the owner's 8 Nov 2026 delegation.)

Question 73 The compound with an atom which

The compound with an atom, which has unshared pair of electrons is called:

- A. Nucleophile ✓ **Correct answer**
- B. Electrophile
- C. Protophile
- D. None of the above

A. correct: a compound with an atom carrying an unshared (lone) pair of electrons can donate it — it is a nucleophile.

B. wrong: an electrophile is electron-deficient and accepts an electron pair.

C. wrong: 'protophile' is not the name for this.

D. wrong: the species does have a name — a nucleophile.

74 1-chloropropane and 2-chlorpropane are isomers of

1-chloropropane and 2-chlorpropane are isomers of each other, the type of isomerism in these two is called:

- A. Cis-trans isomerism
- B. Chain isomerism
- C. Position isomerism ✓ **Correct answer**
- D. Functional group isomerism

A. wrong: cis–trans isomerism needs restricted rotation (a double bond or ring), not a chlorine position change.

B. wrong: chain isomerism changes the carbon skeleton, not the position of the chlorine.

C. correct: 1-chloropropane and 2-chloropropane differ only in the position of the chlorine atom on the same chain — position isomerism.

D. wrong: both are chloroalkanes, so the functional group is the same.

Question 75 Benzene in the presence of AlCl3

Benzene in the presence of AlCl3 produces acetophenone when reacts with:

- A. Acetyl chloride ✓ **Correct answer**
- B. Acetic acid
- C. Ethyl benzene
- D. Ethanoic acid

A. correct: benzene with acetyl chloride and $AlCl_3$ undergoes Friedel–Crafts acetylation to give acetophenone.

B. wrong: acetic acid does not acetylate benzene under these conditions.

C. wrong: ethyl benzene would give an ethylated product, not acetophenone.

D. wrong: ethanoic acid is the same as acetic acid — it does not acetylate benzene here.

76 The substitution of a -H by

The substitution of a '-H' by '-NO2' group in benzene is called:

- A. Nitration ✓ **Correct answer**
- B. Ammunolusis
- C. Sulphonation
- D. Reduction of benzene

A. correct: replacing a hydrogen of benzene by $–NO_2$ is nitration.

B. wrong: 'ammunolusis' (ammonolysis) is cleavage by ammonia, not nitration.

C. wrong: sulphonation replaces –H by $–SO_3H$, not $–NO_2$.

D. wrong: reduction of benzene would add hydrogen, not substitute $–NO_2$.

Question 77 When purely alcoholic solution of sodiumpotassium

When purely alcoholic solution of sodium/potassium hydroxide and halogenoalkanes are reacted an alkene is formed, what is the mechanism of reaction?

- A. Elimination ✓ **Correct answer**
- B. Dehydration
- C. Debromination
- D. Reduction of benzene

A. correct: alcoholic KOH with a halogenoalkane gives dehydrohalogenation — an elimination reaction forming an alkene.

B. wrong: dehydration removes water (from alcohols), not hydrogen halide.

C. wrong: debromination removes bromine, not the reaction here.

D. wrong: reduction of benzene is not what happens with alcoholic KOH.

78 The organic compound carbon tetrachloride is

The organic compound carbon tetrachloride is used as:

- A. Lubricant
- B. Solvent ✓ **Correct answer**
- C. Oxidant
- D. Plastic

A. wrong: carbon tetrachloride is not used as a lubricant.

B. correct: carbon tetrachloride is used as a (non-polar) solvent.

C. wrong: carbon tetrachloride is not an oxidant.

D. wrong: carbon tetrachloride is not a plastic.

Question 79 An alcohol is converted to an

An alcohol is converted to an aldehyde with same number of carbon atoms as that of alcohol in the presence of K2Cr2O7/H2SO4 the alcohol is:

- A. CH3Cl(CH)2OH
- B. CH3CH2CH2OH ✓ **Correct answer**
- C. (CH3)3COH
- D. (CH3)3CHOH

A. wrong: this malformed formula is not the primary alcohol that oxidises to an aldehyde.

B. correct: propan-1-ol ($CH_3CH_2CH_2OH$) is a primary alcohol, which $K_2Cr_2O_7/H_2SO_4$ oxidises to propanal, an aldehyde with the same three carbons.

C. wrong: $(CH_3)_3COH$ is a tertiary alcohol, which resists oxidation.

D. wrong: this malformed formula is not the primary alcohol that gives the aldehyde.

(Note: options A and D are malformed as printed in the original paper.)

80 Which of the following is a

Which of the following is a secondary alcohol?

- A. CH3CH(OH)CH3 ✓ **Correct answer**
- B. CH3CH2CH2OH
- C. (CH3)2CHCH2OH
- D. (CH3)2CHCH2C(OH)(CH3)2

A. correct: $CH_3CH(OH)CH_3$ (propan-2-ol) has the –OH on a carbon joined to two other carbons — a secondary alcohol.

B. wrong: $CH_3CH_2CH_2OH$ is a primary alcohol (the –OH carbon is joined to one carbon).

C. wrong: $(CH_3)_2CHCH_2OH$ is a primary alcohol.

D. wrong: $(CH_3)_2CHCH_2C(OH)(CH_3)_2$ is a tertiary alcohol (the –OH carbon is joined to three carbons).

Question 81 Which enzyme is involved in the

Which enzyme is involved in the fermentation of glucose:

- A. Zymase ✓ **Correct answer**
- B. Invertase
- C. Urease
- D. Diastase

A. correct: zymase (the enzyme complex in yeast) carries out the fermentation of glucose to ethanol and carbon dioxide.

B. wrong: invertase hydrolyses sucrose, it does not ferment glucose.

C. wrong: urease hydrolyses urea, it does not ferment glucose.

D. wrong: diastase hydrolyses starch, it does not ferment glucose.

82 Relative acidic strength of alcohol phenol

Relative acidic strength of alcohol, phenol, water and carboxylic acid is:

- A. Carboxylic acid > Alcohol > Phenol > Water
- B. Carboxylic acid > Phenol > Water > Alcohol ✓ **Correct answer**
- C. Phenol > Carboxylic acid > Alcohol > Water
- D. Water > Alcohol > Phenol > Carboxylic acid

A. wrong: phenol is more acidic than alcohol and water, so it must come before them.

B. correct: the acidic strength order is carboxylic acid > phenol > water > alcohol.

C. wrong: phenol is not more acidic than a carboxylic acid.

D. wrong: water is not the least acidic — alcohol is weaker than water.

Question 83 Consider the following reaction RCHO 2AgNH32OH

Consider the following reaction: R—CHO + 2[Ag(NH3)2]OH → R—COONH4 + 2Ag + 2NH3 + H2O This reaction represents one of the following tests.

- A. Fehling test
- B. Benedict test
- C. Ninhydrin test
- D. Tollens test ✓ **Correct answer**

A. wrong: Fehling's test uses Cu^{2+} in alkaline solution, not ammoniacal silver nitrate.

B. wrong: Benedict's test also uses Cu^{2+}, not silver.

C. wrong: the ninhydrin test detects amino acids, not aldehydes.

D. correct: R–CHO with Tollens' reagent ($[Ag(NH_3)_2]OH$) gives the carboxylate and a silver mirror — the Tollens test for aldehydes.

84 In the below reaction the nucleophile

In the below reaction, the nucleophile is: HCHO + HCN → HOCH2CN

- A. CN— ✓ **Correct answer**
- B. HCl
- C. Cl
- D. OH

A. correct: in HCHO + HCN → $HOCH_2CN$, the cyanide ion CN^- attacks the carbonyl carbon — it is the nucleophile.

B. wrong: HCl is not present as a reactant and is not the nucleophile.

C. wrong: no chloride ion takes part in this reaction.

D. wrong: the OH group is in the product, not the attacking nucleophile.

Question 85 Which one of the following compound

Which one of the following compound belongs to the homologous series of aldehydes?

- A. HCOCl
- B. HCONH2
- C. HCHO ✓ **Correct answer**
- D. HCOOC2H5

A. wrong: HCOCl is an acid chloride (formyl chloride), not an aldehyde.

B. wrong: $HCONH_2$ is an amide (formamide), not an aldehyde.

C. correct: HCHO (methanal, formaldehyde) is the simplest aldehyde — it belongs to the aldehyde homologous series.

D. wrong: $HCOOC_2H_5$ is an ester (ethyl formate), not an aldehyde.

86 CH3COOH PCl5 The products of the

CH3COOH + PCl5 ? The products of the above reaction are:

- A. CH3COCl + POCl3 + HCl ✓ **Correct answer**
- B. CH3COCl + POCl2 + HCl
- C. CH3Cl + POCl3 + HCl
- D. CH3COCl + POCl3 + H2

A. correct: acetic acid with PCl_5 gives acetyl chloride, $POCl_3$ and HCl ($CH_3COOH + PCl_5 \rightarrow CH_3COCl + POCl_3 + HCl$).

B. wrong: the phosphorus product is $POCl_3$, not $POCl_2$.

C. wrong: the organic product is acetyl chloride (CH_3COCl), not methyl chloride (CH_3Cl).

D. wrong: no hydrogen gas is produced; HCl is the gas evolved.

Question 87 CH3CN HCl A B in the

CH3CN + HCl A + B (in the presence of water) In the above reaction, A and B are:

- A. Acetic acid and acid amide
- B. Acetic acid and ammonia
- C. Acetic acid and methyl chloride
- D. Acetic acid and ammonium chloride ✓ **Correct answer**

A. wrong: acid hydrolysis of a nitrile gives the carboxylic acid and ammonia, not an acid amide.

B. wrong: the ammonia formed reacts with the HCl present to give ammonium chloride, not free ammonia.

C. wrong: no methyl chloride is formed.

D. correct: CH_3CN is hydrolysed in aqueous acid to acetic acid, and the ammonia formed gives ammonium chloride with the HCl.

88 Consider the following reaction CH3COOH Mg

Consider the following reaction: CH3COOH + Mg (metal) ? What product will form?

- A. Magnesium formate
- B. Magnesium acetate ✓ **Correct answer**
- C. Magnesium ion
- D. Carboxylate ion

A. wrong: magnesium formate would come from formic acid, not acetic acid.

B. correct: acetic acid reacts with magnesium metal to give magnesium acetate (and hydrogen).

C. wrong: the magnesium ion alone is not the product named — the salt formed is magnesium acetate.

D. wrong: the carboxylate ion is part of the salt, but the product named is magnesium acetate.

Question 89 The NHCO is called

The —NH—CO is called:

- A. Amide group
- B. Amino group
- C. Protein linkage
- D. Peptide linkage ✓ **Correct answer**

A. correct in fact: the —NH—CO— unit is an amide group.

B. wrong: an amino group is $–NH_2$, not –NH–CO–.

C. wrong: a protein linkage is the same peptide linkage, but the group itself is named in D.

D. correct: in a protein the —NH—CO— bond joining two amino acids is the peptide linkage. (PICK-ONE: both A (amide group) and D (peptide linkage) describe the —NH—CO

ey records D, which is filed. Decided by the assistant under the owner's 8 Nov 2026 delegation.)

Question 90 Which one of the following is

Which one of the following is an alpha amino acid?

- A. CH3CH(NH2)COOH ✓ **Correct answer**
- B. CH3C(H)(CH2NH2)COOH
- C. CH3CH(NH2)CH2COOH
- D. CH3CH(COOH)CH(NH2)CH3

A. correct: $CH_3CH(NH_2)COOH$ (alanine) has the amino group on the carbon next to the carboxyl group — an alpha amino acid.

B. wrong: $CH_3C(H)(CH_2NH_2)COOH$ has the amino group on the beta carbon (the CH_2NH_2 side chain), not the alpha carbon.

C. wrong: $CH_3CH(NH_2)CH_2COOH$ has the amino group on the beta carbon, so it is a beta amino acid.

D. wrong: $CH_3CH(COOH)CH(NH_2)CH_3$ has the amino group on the beta carbon, so it is a beta amino acid.

Question 91 Which of the following has an

Which of the following has an amino R-group?

- A. Lysine ✓ **Correct answer**
- B. Proline
- C. Valine
- D. Alanine

A. correct: lysine's side chain (R-group) ends in an amino group ($–(CH_2)_4NH_2$).

B. wrong: proline's R-group is a ring joined back to the nitrogen, not an amino group.

line's R-group is an isopropyl group, not an amino group.

D. wrong: alanine's R-group is a methyl group, not an amino group.

Question 92 At intermediate value of pH amino

At intermediate value of pH, amino acids form Zwitter ions containing:

- A. —N+H3 and COO— ✓ **Correct answer**
- B. —NH3 and COO—
- C. —N+H3 and COOH
- D. —NH3 and COOH

A. correct: at intermediate pH an amino acid exists as a zwitterion with a protonated amino group ($–N^+H_3$) and a deprotonated carboxylate ($–COO^-$).

B. wrong: the amino group in the zwitterion is protonated ($–N^+H_3$), not neutral $–NH_3$.

C. wrong: the carboxyl group in the zwitterion is deprotonated ($–COO^-$), not –COOH.

D. wrong: the zwitterion has $–N^+H_3$ and $–COO^-$, not the neutral forms.

Question 93 When hexane dioic acid is heated

When hexane dioic acid is heated with hexamethylene diamine, the compound formed is:

- A. Polypeptide
- B. Addition polymer
- C. Ester
- D. Nylon 6,6 ✓ **Correct answer**

A. wrong: a polypeptide is a chain of amino acids, not the product of a diacid and a diamine.

B. wrong: nylon 6,6 is formed by condensation (with loss of water), not addition

C. wrong: an ester is formed from an acid and an alcohol, not from a diacid and a diamine.

D. correct: hexanedioic (adipic) acid + hexamethylenediamine condense to the polyamide nylon 6,6.

Question 94 A polymer in which the number

A polymer in which the number of amino acid residue is greater than 100 or molecular mass is greater than 1000, is known as:

- A. Protein ✓ **Correct answer**
- B. Polypeptide
- C. Dipeptide
- D. Tripeptide

A. correct: a polymer with more than 100 amino acid residues (molecular mass over 1000) is a protein.

B. wrong: a polypeptide is a shorter chain of amino acids (fewer than 100 residues).

C. wrong: a dipeptide has only two amino acid residues.

D. wrong: a tripeptide has only three amino acid residues.

Question 95 Aspartic acid is an acidic amino

Aspartic acid is an acidic amino acid, which has chemical formula:

- A. CH3CH(NH2)COOH
- B. HOOCCH(NH2)CH2COOH ✓ **Correct answer**
- C. CH3CH(NH2)CH2COOH
- D. CH3CH2CH(NH2)COOH

A. wrong: $CH_3CH(NH_2)COOH$ is alanine, not aspartic acid.

spartic acid is $HOOC–CH(NH_2)–CH_2–COOH$ — an amino acid with an extra carboxyl group in its side chain, making it acidic.

C. wrong: $CH_3CH(NH_2)CH_2COOH$ is 3-aminobutanoic acid, not aspartic acid.

D. wrong: $CH_3CH_2CH(NH_2)COOH$ is 2-aminobutanoic acid, not aspartic acid.

Question 96 Glucose and fructose are common examples

Glucose and fructose are common examples of:

- A. Pentoses
- B. Hexoses ✓ **Correct answer**
- C. Heptoses
- D. Butoses

A. wrong: pentoses have five carbons; glucose and fructose have six.

B. correct: glucose and fructose are both six-carbon sugars — hexoses.

C. wrong: heptoses have seven carbons.

D. wrong: 'butoses' is not the name for these sugars; glucose and fructose are hexoses.

Question 97 The reaction between fats and caustic

The reaction between fats and caustic soda is called:

- A. Hydrogenolysis
- B. Fermentation
- C. Carboxylation
- D. Saponification ✓ **Correct answer**

A. wrong: hydrogenolysis is cleavage by hydrogen, not the reaction of fats with alkali.

B. wrong: fermentation is the enzymatic breakdown of sugars, not fats with alkali.

rboxylation adds carbon dioxide; it is not the fat–alkali reaction.

D. correct: fats (triglycerides) with caustic soda (NaOH) undergo saponification, giving soap (sodium salts of fatty acids) and glycerol.

Question 98 Macromolecules are described as large molecules

Macromolecules are described as large molecules built up from small repeating units known as:

- A. Monomers ✓ **Correct answer**
- B. Isomers
- C. Metameres
- D. Tautomer

A. correct: macromolecules are built from small repeating units called monomers.

B. wrong: isomers have the same formula with different structures; they are not the building units.

C. wrong: metameres are isomers differing in the distribution of groups around a functional group.

D. wrong: tautomers are isomers that interconvert; they are not the building units.

Question 99 Polyvinyl chloride is an example of

Polyvinyl chloride is an example of:

- A. Addition polymer ✓ **Correct answer**
- B. Condensation polymer
- C. Biopolymer
- D. Thermosetting polymer

A. correct: polyvinyl chloride is made by the addition polymerisation of vinyl chloride (no small molecule is lost).

PVC is not a condensation polymer — nothing is eliminated when it forms.

C. wrong: PVC is a synthetic polymer, not a biopolymer.

D. wrong: PVC is a thermoplastic, not a thermosetting polymer.

Question 100 Terylene a polyester is an example

Terylene, a polyester is an example of:

- A. Biopolymer
- B. Lipids
- C. Condensation polymer ✓ **Correct answer**
- D. Addition polymer

A. wrong: terylene is a synthetic polyester, not a biopolymer.

B. wrong: lipids are fats and oils, not the polyester terylene.

C. correct: terylene is formed by condensation polymerisation (with loss of water) — it is a condensation polymer.

D. wrong: terylene is not an addition polymer.

Question 101 The suspected liver carcinogen which also

The suspected liver carcinogen which also has negative reproduction and developmental effect on humans is:

- A. Iodoform
- B. Bromoform
- C. Tropoform
- D. Chloroform ✓ **Correct answer**

A. wrong: iodoform is an antiseptic, not the liver carcinogen described.

B. wrong: bromoform is not the liver carcinogen described.

oporform is not the liver carcinogen described.

D. correct: chloroform is the suspected liver carcinogen with negative reproductive and developmental effects.

Question 102 Peroxyacetyl nitrate is an irritant to

Peroxyacetyl nitrate is an irritant to human beings and it effects:

- A. Nose
- B. Stomach
- C. Ears
- D. Eyes ✓ **Correct answer**

A. wrong: peroxyacetyl nitrate irritates the eyes, not the nose.

B. wrong: peroxyacetyl nitrate irritates the eyes, not the stomach.

C. wrong: peroxyacetyl nitrate irritates the eyes, not the ears.

D. correct: peroxyacetyl nitrate (PAN, a photochemical smog component) is an eye irritant.

Question 103 She managed to a ticket for

She managed to _____ a ticket for the cricket match.

- A. Procure ✓ **Correct answer**
- B. Obscure
- C. Improvise
- D. Preclude

A. correct: 'procure' means to obtain — she managed to procure (obtain) a ticket.

B. wrong: 'obscure' means to hide or make unclear.

C. wrong: 'improvise' means to make up on the spot, not to obtain a ticket.

-ecude means to prevent, the opposite of obtaining.

Question 104 Things have got out of hand

Things have got out of hand; we must take steps to _____ the situation

- A. Rectify ✓ **Correct answer**
- B. Pacify
- C. Purify
- D. Testify

A. correct: to 'rectify' a situation is to put it right — the steps needed when things have got out of hand.

B. wrong: 'pacify' means to calm a person, not to fix a situation.

C. wrong: 'purify' means to clean, not to put a situation right.

D. wrong: 'testify' means to give evidence, not to fix a situation.

Question 105 George Orwells animal farm is a

George Orwell’s animal farm is a stinging _____ on the Russian revolution

- A. Myth
- B. Satire ✓ **Correct answer**
- C. Fallacy
- D. Legend

A. wrong: Animal Farm is not a myth — it is a deliberate satirical allegory.

B. correct: Orwell's Animal Farm is a stinging satire on the Russian Revolution.

C. wrong: a fallacy is a false belief or error in reasoning, not a satire.

D. wrong: a legend is a traditional story, not a satire.

106 All the and ceremony of the

All the _____ and ceremony of the royal wedding was telecast on the national television circuit.

- A. Festival
- B. Romp
- C. Pomp ✓ **Correct answer**
- D. Happiness

A. wrong: 'festival' does not fit the fixed phrase for royal ceremony.

B. wrong: 'romp' means a frolic, not ceremony.

C. correct: 'pomp and ceremony' is the fixed phrase — the grandeur of the royal wedding.

D. wrong: 'happiness' does not fit the fixed phrase.

Question 107 The patients blood analysis shows that

The patient's blood analysis shows that there is a big number of amorphous cells which are quiet unidentifiable. [Choose the incorrect underlined part.]

- A. patient's
- B. of
- C. which
- D. quiet ✓ **Correct answer**

A. wrong: 'patient's' (possessive) is correct in 'the patient's blood analysis'.

B. wrong: 'of' is correct after 'a big number'.

C. wrong: 'which' correctly introduces the relative clause about the cells.

D. correct: the error is 'quiet' — it should be 'quite' ('quite unidentifiable' = very difficult to identify); 'quiet' means silent.

108 The police in their investigation used

The police, in their investigation, used coercive measure to get favorable statement from the accused. [Choose the incorrect underlined part.]

- A. measure ✓ **Correct answer**
- B. to
- C. from
- D. the accused

A. correct: the error is 'measure' — it should be the plural 'measures' ('used coercive measures to get…').

B. wrong: 'to' is correct before 'get'.

C. wrong: 'from' is correct after 'statement'.

D. wrong: 'the accused' is correct.

Question 109 Your argument is simply abstruse as

Your argument is simply abstruse as there is no clarity of thought and coherence in ideas and it also lack vision. [Choose the incorrect underlined part.]

- A. is
- B. of
- C. in
- D. lack ✓ **Correct answer**

A. wrong: 'is' is correct ('your argument is…').

B. wrong: 'of' is correct in 'clarity of thought'.

C. wrong: 'in' is correct in 'coherence in ideas'.

D. correct: the error is 'lack' — the subject 'it' is singular, so the verb must be 'lacks' ('it also lacks vision').

110 The workers were raising much hue

The workers were raising much hue and cry when their demands were turned away. [Choose the incorrect underlined part.]

- A. raising
- B. much
- C. demands
- D. away ✓ **Correct answer**

A. wrong: 'raising' is correct in 'raising hue and cry'.

B. wrong: 'much' is correct with 'hue and cry'.

C. wrong: 'demands' is correct ('their demands were turned...').

D. correct: the error is 'away' — the idiom is 'turned down' (rejected), not 'turned away'.

Question 111 The disease is uncurable without the

The disease is uncurable without the judicious use of antibiotics. [Choose the incorrect underlined part.]

- A. uncurable ✓ **Correct answer**
- B. without
- C. judicious
- D. use

A. correct: the error is 'uncurable' — the correct word is 'incurable' (there is no word 'uncurable').

B. wrong: 'without' is correct here.

C. wrong: 'judicious' (wise, careful) is correct.

D. wrong: 'use' is correct ('the judicious use of antibiotics').

112 The younger sister hopes to emulate

The younger sister hopes to emulate her elder sister's sporting achievement as she is putting up hectic effort. [Choose the incorrect underlined part.]

- A. to
- B. sister's
- C. achievement
- D. up ✓ **Correct answer**

A. wrong: 'to' is correct ('hopes to emulate').

B. wrong: 'sister's' (possessive) is correct.

C. wrong: 'achievement' is correct.

D. correct: the error is 'up' — the idiom is 'putting in effort' (making an effort), not 'putting up effort'.

Question 113 Choose the correct option

Choose the correct option:

- A. The government should accrue taxes for strengthen the economy of the country
- B. The government should accrue taxes in strengthen the economy of the country
- C. The government should accrue taxes to strengthen the economy of the country ✓ **Correct answer**
- D. The government should accrue taxes by strengthen the economy of the country

A. wrong: 'for strengthen' is ungrammatical — the infinitive 'to strengthen' is needed.

B. wrong: 'in strengthen' is ungrammatical.

C. correct: 'to strengthen' is the correct infinitive of purpose after 'taxes'.

D. wrong: 'by strengthen' is ungrammatical — 'by strengthening' would be needed.

114 Choose the correct option

Choose the correct option:

- A. Foreign trade have assumed greater importance in recent years
- B. Foreign trade is assumed greater importance in recent years
- C. Foreign trade has assumed greater importance in recent years ✓ **Correct answer**
- D. Foreign trade shall assumed greater importance in recent years

A. wrong: 'trade' is singular, so the verb must be 'has', not 'have'.

B. wrong: 'is assumed' is the wrong voice and tense for this sentence.

C. correct: 'Foreign trade has assumed greater importance' — singular subject with 'has' and the present perfect.

D. wrong: 'shall assumed' is ungrammatical — 'shall assume' or 'has assumed' would be needed.

Question 115 Choose the correct option

Choose the correct option:

- A. The space programme has been battered in bureaucratic wrangling
- B. The space programme has been battered into bureaucratic wrangling
- C. The space programme has been battered by bureaucratic wrangling ✓ **Correct answer**
- D. The space programme has been battered to bureaucratic wrangling

A. wrong: 'battered in' is not the idiom.

B. wrong: 'battered into' is not the idiom.

C. correct: 'battered by bureaucratic wrangling' — the correct preposition for the agent of the battering.

D. wrong: 'battered to' is not the idiom.

116 Choose the correct option

Choose the correct option:

- A. He will has to deal with the problem by showing adroitness
- B. He will have to deal with the problem by showing adroitness ✓ **Correct answer**
- C. He will had to deal with the problem by showing adroitness
- D. He will having to deal with the problem by showing adroitness

A. wrong: 'will has' is ungrammatical — after 'will' the bare form 'have' is needed.

B. correct: 'He will have to deal with the problem' — 'will' + 'have to'.

C. wrong: 'will had' is ungrammatical.

D. wrong: 'will having' is ungrammatical.

Question 117 Choose the correct option

Choose the correct option:

- A. He does possesses altruistic behavior
- B. He does possess altruistic behavior ✓ **Correct answer**
- C. He does possessing altruistic behavior
- D. He does possessed altruistic behavior

A. wrong: after 'does' the bare verb 'possess' is needed, not 'possesses'.

B. correct: 'He does possess altruistic behavior' — 'does' + bare infinitive.

C. wrong: 'does possessing' is ungrammatical.

D. wrong: 'does possessed' is ungrammatical.

Question 118 Choose the correct option

Choose the correct option:

has great affinity in nature

- B. He has great affinity with nature ✓ **Correct answer**
- C. He has great affinity by nature
- D. He has great affinity at nature

A. wrong: 'affinity in nature' is not the idiom.

B. correct: 'affinity with nature' — the correct preposition for affinity.

C. wrong: 'affinity by nature' is not the idiom here.

D. wrong: 'affinity at nature' is not the idiom.

Question 119 Choose the correct option

Choose the correct option:

- A. He stands on arms akimbo
- B. He stands to arms akimbo
- C. He stands with arms akimbo ✓ **Correct answer**
- D. He stands through arms akimbo

A. wrong: 'on arms akimbo' is not the idiom.

B. wrong: 'to arms akimbo' is not the idiom.

C. correct: 'He stands with arms akimbo' — the idiom for standing with hands on hips and elbows out.

D. wrong: 'through arms akimbo' is not the idiom.

Question 120 Choose the correct option

Choose the correct option:

- A. An amorphous mass of cells are difficult to understand
- B. An amorphous mass of cells were difficult to understand

- D. An amorphous mass of cells is difficult to understand ✓ **Correct answer**

A. wrong: 'mass' is singular, so the verb must be 'is', not 'are'.

B. wrong: 'were' is the wrong tense and number.

C. wrong: 'had difficult' is ungrammatical — 'had difficulty' would be needed.

D. correct: 'An amorphous mass of cells is difficult to understand' — singular subject with 'is'.

Question 121 Choose the correct option

Choose the correct option:

- A. He is suffering to anaphylactic shock
- B. He is suffering in anaphylactic shock
- C. He is suffering from anaphylactic shock ✓ **Correct answer**
- D. He is suffering into anaphylactic shock

A. wrong: 'suffering to' is not the idiom.

B. wrong: 'suffering in' is not the idiom.

C. correct: 'suffering from anaphylactic shock' — the correct preposition.

D. wrong: 'suffering into' is not the idiom.

Question 122 Choose the correct option

Choose the correct option:

- A. If you had asked him, he would had accepted the offer with alacrity
- B. If you had asked him, he would have being accepted the offer with alacrity
- C. If you had asked him, he would have accepted the offer with alacrity ✓ **Correct answer**

ou had asked him, he would been accepted the offer with alacrity

A. wrong: 'would had accepted' is ungrammatical — the third conditional needs 'would have accepted'.

B. wrong: 'would have being accepted' is ungrammatical.

C. correct: 'If you had asked him, he would have accepted the offer with alacrity' — the correct third-conditional form.

D. wrong: 'would been accepted' is ungrammatical.

Question 123 MUSE

MUSE

- A. Wander
- B. Fonder
- C. Robust
- D. Ponder ✓ **Correct answer**

A. wrong: 'wander' means to roam, not to think deeply.

B. wrong: 'fonder' means more affectionate.

C. wrong: 'robust' means strong and healthy.

D. correct: 'muse' means to think deeply — to ponder.

Question 124 FECKLESS

FECKLESS

- A. Useless ✓ **Correct answer**
- B. Careless
- C. Dauntless
- D. Fearless

eckless' means ineffective and useless.

B. wrong: 'careless' is close but the nearest meaning of feckless is useless/ineffective.

C. wrong: 'dauntless' means fearless — the opposite of feckless.

D. wrong: 'fearless' is the opposite of what feckless means.

Question 125 MOSAIC

MOSAIC

- A. Pattern ✓ **Correct answer**
- B. Mortal
- C. Ordinary
- D. Musical

A. correct: a mosaic is a pattern made of small pieces.

B. wrong: 'mortal' means subject to death.

C. wrong: 'ordinary' does not capture a mosaic.

D. wrong: 'musical' is unrelated to a mosaic.

Question 126 INSCRUTABLE

INSCRUTABLE

- A. Immoral
- B. Unethical
- C. Enigmatic ✓ **Correct answer**
- D. Unaccountable

A. wrong: 'immoral' means against moral principles.

B. wrong: 'unethical' means against ethics.

'Inscrutable' means mysterious and impossible to understand — enigmatic.

D. wrong: 'unaccountable' means not answerable for one's actions.

Question 127 JUXTAPOSE

JUXTAPOSE

- A. Justify
- B. Compare ✓ **Correct answer**
- C. Expose
- D. Jettison

A. wrong: 'justify' means to show something to be right.

B. correct: 'juxtapose' means to place side by side in order to compare.

C. wrong: 'expose' means to reveal.

D. wrong: 'jettison' means to throw away.

Question 128 LACERATING

LACERATING

- A. Landing
- B. Tearing ✓ **Correct answer**
- C. Flagging
- D. Lactating

A. wrong: 'landing' is unrelated to lacerating.

B. correct: 'lacerating' means tearing (flesh) — causing deep cuts.

C. wrong: 'flagging' means weakening or drooping.

D. wrong: 'lactating' means producing milk.

129 EMPATHY

EMPATHY

- A. Fictitious
- B. Facility
- C. Ability ✓ **Correct answer**
- D. Felicity

A. wrong: 'fictitious' means imaginary.

B. wrong: 'facility' means ease or a building.

C. correct: empathy is the ability to understand and share another person's feelings.

D. wrong: 'felicity' means happiness or aptness.

Question 130 EVANESCENT

EVANESCENT

- A. Evident
- B. Permanent
- C. Event
- D. transitory ✓ **Correct answer**

A. wrong: 'evident' means obvious — the opposite of evanescent.

B. wrong: 'permanent' is the opposite of evanescent.

C. wrong: 'event' is an occurrence, not the meaning of evanescent.

D. correct: 'evanescent' means fading quickly — transitory.

Question 131 SIDLE

SIDLE

ak ✓ Correct answer

- B. Sift
- C. Sledge
- D. Sieve

A. correct: to 'sidle' is to move sideways in a sly, stealthy way — to sneak.

B. wrong: 'sift' means to sieve or sort.

C. wrong: 'sledge' is a sled or a hammer.

D. wrong: 'sieve' is a straining device.

Question 132 DISSONANCE

DISSONANCE

- A. Inconsistency ✓ **Correct answer**
- B. Expansion
- C. Perceptible
- D. WrapPart

A. correct: 'dissonance' is a lack of harmony or agreement — inconsistency.

B. wrong: 'expansion' means growth in size.

C. wrong: 'perceptible' means noticeable.

D. wrong: 'WrapPart' is a nonsense distractor as printed.

Question 133 When chromosomes uncoil the nucleoli are

When chromosomes uncoil, the nucleoli are reformed and two nuclei are the two poles of the cell; stage is known as

- A. Prophase
- B. Metaphase

ophase ✓ **Correct answer**

- D. Anaphase

A. wrong: in prophase the chromosomes condense and the nucleoli disappear — the opposite of this stage.

B. wrong: in metaphase the chromosomes line up at the equator; the nuclei have not reformed.

C. correct: in telophase the chromosomes uncoil, the nucleoli re-form and two nuclei appear at the two poles.

D. wrong: in anaphase the chromatids separate towards the poles; the nuclei have not reformed.

Question 134 Mental retardation short stature broad face

Mental retardation, short stature, broad face and squint eyes are the symptoms of

- A. Down’s syndrome ✓ **Correct answer**
- B. Klinefelter’s syndrome
- C. Turner’s syndrome
- D. XYZ syndrome

A. correct: mental retardation, short stature, broad face and squint eyes are the features of Down's syndrome (trisomy 21).

B. wrong: Klinefelter's syndrome (XXY) gives tall stature and male underdevelopment, not this picture.

C. wrong: Turner's syndrome (XO) gives short stature in females, but not this combination.

D. wrong: there is no recognised 'XYZ syndrome' with these features.

135 Chiasmata formation takes place during the

Chiasmata formation takes place during the process which is known as

- A. Crossing Over ✓ **Correct answer**
- B. Attachment
- C. Pairing
- D. Leptotene

A. correct: chiasmata (the visible crossing points of homologous chromosomes) form during crossing over in prophase I of meiosis.

B. wrong: 'attachment' is not the process that forms chiasmata.

C. wrong: pairing (synapsis) brings homologues together, but the chiasmata themselves form during crossing over.

D. wrong: leptotene is the early stage of prophase I, before chiasmata appear.

Question 136 Healing of a wound and repair

Healing of a wound and repair is the phenomenon which takes place by the process of

- A. Mitosis ✓ **Correct answer**
- B. Meiosis
- C. Cell Growth
- D. Mitosis & Meiosis

A. correct: wound healing and repair take place by mitosis, which produces new identical somatic cells.

B. wrong: meiosis produces gametes, not the cells for wound repair.

C. wrong: cell growth alone does not produce the new cells needed for repair.

D. wrong: meiosis plays no part in wound healing.

137 Which one of the following is

Which one of the following is the main cause of cancer?

- A. Mutation ✓ **Correct answer**
- B. Controlled Cell Division
- C. Regulated Mitosis
- D. Haploid Division

A. correct: the main cause of cancer is mutation — changes in the DNA that disturb the control of cell division.

B. wrong: controlled cell division is normal, not a cause of cancer.

C. wrong: regulated mitosis is normal division, not a cause of cancer.

D. wrong: haploid division (meiosis) does not cause cancer.

Question 138 The covalent bond formed between two

The covalent bond formed between two monosaccharides is called

- A. Glycosidic Bond ✓ **Correct answer**
- B. Hydrogen Bond
- C. Peptide Bond
- D. Disulphide

A. correct: the covalent bond joining two monosaccharides is a glycosidic bond.

B. wrong: hydrogen bonds hold the DNA strands together, not monosaccharides.

C. wrong: a peptide bond joins two amino acids, not two monosaccharides.

D. wrong: a disulphide bond is a sulphur–sulphur link between cysteine residues.

139 The bond formed between glucose and

The bond formed between glucose and fructose form sucrose is

- A. 1,4 Glycosidic Linkage
- B. 1,2 Glycosidic Linkage ✓ **Correct answer**
- C. 1,6 Glycosidic Linkage
- D. 1,3 Glycosidic Linkage

A. wrong: sucrose is not a 1,4 linkage (that is maltose).

B. correct: sucrose is glucose and fructose joined by a 1,2 glycosidic linkage (C1 of glucose to C2 of fructose).

C. wrong: sucrose is not a 1,6 linkage.

D. wrong: sucrose is not a 1,3 linkage.

Question 140 In an amino acid in which

In an amino acid in which the R-group is H, its name will be

- A. Alanine
- B. Glycine ✓ **Correct answer**
- C. Leucine
- D. Valine

A. wrong: alanine's R-group is a methyl group ($–CH_3$), not H.

B. correct: glycine is the amino acid whose R-group is a single hydrogen atom.

C. wrong: leucine's R-group is an isobutyl group, not H.

D. wrong: valine's R-group is an isopropyl group, not H.

141 Fatty acid are the organic compounds

Fatty acid are the organic compounds containing hydrogen, oxygen and one of the following are

- A. –COOH ✓ **Correct answer**
- B. –NH2
- C. Acyl
- D. Sucrose

A. correct: a fatty acid is a carboxylic acid — it contains hydrogen, oxygen and a –COOH (carboxyl) group.

B. wrong: $–NH_2$ is the amino group of amino acids, not of fatty acids.

C. wrong: 'acyl' is a group derived from a carboxylic acid, not the defining group of a fatty acid.

D. wrong: sucrose is a sugar, not a part of a fatty acid.

Question 142 Posomes are used in gene therapy

Posomes are used in gene therapy against

- A. Hypercholesterolemia
- B. Coronary Artery Angioplasty
- C. Cystic Fibrosis ✓ **Correct answer**
- D. Severe Combined Immunodeficiency Syndrome (SCID)

A. wrong: liposomes are not used in gene therapy against hypercholesterolemia in this textbook example.

B. wrong: coronary artery angioplasty is a surgical procedure, not a gene-therapy target of liposomes.

C. correct: liposomes (printed 'Posomes') are used as vectors in gene therapy against

D. wrong: SCID is treated with genetically engineered bone-marrow cells, not liposomes. (Note: the paper prints 'Posomes', its rendering of 'liposomes'.)

Question 143 Genetically engineered cells are introduced into

Genetically engineered cells are introduced into bone marrow cells in the treatment of

- A. Hypercholesterolemia
- B. Severe Combined Immunodeficiency Syndrome ✓ **Correct answer**
- C. Cystic Fibrosis
- D. Coronary Artery Angioplasty

A. wrong: hypercholesterolemia is not treated by introducing engineered cells into bone marrow.

B. correct: in severe combined immunodeficiency syndrome (SCID), genetically engineered cells are introduced into the patient's bone marrow cells.

C. wrong: cystic fibrosis is treated by liposome gene therapy, not by bone-marrow cell transfer.

D. wrong: coronary artery angioplasty is a surgical procedure, not a bone-marrow treatment.

Question 144 Which one of the following is

Which one of the following is depleting and causing thinning of ozone?

- A. Chlorine
- B. Bromine
- C. Chlorofluorocarbon ✓ **Correct answer**
- D. Carbon

A. wrong: chlorine alone is not the named depleting agent — it is released from

carbons.

B. wrong: bromine is not the named agent in this question.

C. correct: chlorofluorocarbons (CFCs) release chlorine that depletes and thins the ozone layer.

D. wrong: carbon does not deplete the ozone layer.

Question 145 The typical environment of a particular

The typical environment of a particular organism population community is called

- A. Niche
- B. Ecosystem
- C. Habitat ✓ **Correct answer**
- D. Biosphere

A. wrong: the niche is the organism's role/position in the community, not the place itself.

B. wrong: the ecosystem is the whole community plus its environment, not one organism's typical environment.

C. correct: the habitat is the typical environment (place) of a particular organism, population or community.

D. wrong: the biosphere is the whole zone of life on earth.

Question 146 Excessive enrichment of water with nutrients

Excessive enrichment of water with nutrients by human activity by which large amount of living organic matter grows is called

- A. Archeotrophication
- B. Eutrophication ✓ **Correct answer**
- C. Enrichment

/ Trophication

A. wrong: 'archeotrophication' is not the name for nutrient enrichment of water.

B. correct: eutrophication is the excessive enrichment of water with nutrients by human activity, causing large growth of living organic matter.

C. wrong: 'enrichment' alone is not the technical term.

D. wrong: 'low trophication' is not the term for this process.

Question 147 In an ecosystem mycorrhizae is an

In an ecosystem, mycorrhizae is an example of

- A. Symbiosis ✓ **Correct answer**
- B. Predation
- C. Commensalism
- D. Parasitism

A. correct: mycorrhizae (fungus + plant root) is an association benefiting both partners — symbiosis (mutualism).

B. wrong: predation is one organism eating another, not mycorrhizae.

C. wrong: commensalism benefits one partner without affecting the other; mycorrhizae benefit both.

D. wrong: parasitism harms one partner; mycorrhizae harm neither.

Question 148 Successive stages of eating and being

Successive stages of eating and being eaten by which recycling of materials and flow of energy takes place is called

- A. Food Chain ✓ **Correct answer**
- B. Food Web

ophic Level

- D. Food Link

A. correct: the successive stages of eating and being eaten, through which materials are recycled and energy flows, form a food chain.

B. wrong: a food web is the interlinked network of many food chains, not the single sequence described.

C. wrong: a trophic level is one step in the chain, not the whole sequence.

D. wrong: 'food link' is not the name for this sequence.

Question 149 The sex of individuals of next

The sex of individuals of next generation always depends on one of the parents who is

- A. Heterogametic ✓ **Correct answer**
- B. Homogametic
- C. Isogametic
- D. Isomorphic

A. correct: the sex of the next generation depends on the heterogametic parent — the one producing two kinds of gametes (e.g. the human male, XY).

B. wrong: the homogametic parent produces only one kind of gamete, so it cannot decide the sex.

C. wrong: 'isogametic' is not the term for this.

D. wrong: 'isomorphic' means having the same form, not deciding sex.

Question 150 Which of the following will be

Which of the following will be hemophilic?

- A. XHXh

- C. XhY ✓ **Correct answer**
- D. XHY

A. wrong: XHXh is a carrier female, not a hemophilic (affected) person.

B. wrong: XHXH is a normal female.

C. correct: XhY is a male with the recessive haemophilia allele on his only X chromosome — he is hemophilic.

D. wrong: XHY is a normal male.

Question 151 Which of the following is an

Which of the following is an example of X-linked recessive trait in humans?

- A. Hypophospatemic Rickets
- B. Colour Blindness ✓ **Correct answer**
- C. Baldness
- D. Beard Growth

A. wrong: hypophosphatemic rickets is an X-linked dominant trait, not recessive.

B. correct: colour blindness is the classic example of an X-linked recessive trait in humans.

C. wrong: baldness is not the textbook example of X-linked recessive inheritance.

D. wrong: beard growth is a sex-influenced trait, not an X-linked recessive one.

Question 152 Which trait in human in an

Which trait in human in an example of multiple alleles?

- A. Eye Colour
- B. Skin Colour
- C. ABO-Blood Group ✓ **Correct answer**

A. wrong: eye colour is polygenic, not the multiple-alleles example.

B. wrong: skin colour is polygenic, not the multiple-alleles example.

C. correct: the ABO blood group is controlled by three alleles (IA, IB, i) of one gene — the classic example of multiple alleles.

D. wrong: the Rh blood group is not the multiple-alleles example.

Question 153 When a gene pair at one

When a gene pair at one locus interacts with another gene at another locus, the interaction is called

- A. Dominance
- B. Multiple Alleles
- C. Pleiotropy
- D. Epistasis ✓ **Correct answer**

A. wrong: dominance is the interaction of two alleles at the same locus, not at different loci.

B. wrong: multiple alleles are several alleles of one gene, not interaction between loci.

C. wrong: pleiotropy is one gene affecting several traits, not interaction between loci.

D. correct: when a gene pair at one locus interacts with a gene at another locus, the interaction is epistasis.

Question 154 The combination of a pentose sugar

The combination of a pentose sugar with a base result in a compound is known as

- A. Nucleotide
- B. Nucleoside ✓ **Correct answer**

leic Acid

- D. Polynucleotide

A. wrong: a nucleotide is a nucleoside plus a phosphate group.

B. correct: a pentose sugar joined to a base is a nucleoside.

C. wrong: a nucleic acid is a long chain of nucleotides.

D. wrong: a polynucleotide is a chain of many nucleotides.

Question 155 An enzyme and substrate reacts through

An enzyme and substrate reacts through a special feature or site present in enzyme:

- A. Building Site
- B. Active Site ✓ **Correct answer**
- C. Catalyst Site
- D. Inhibition Site

A. wrong: there is no 'building site' on an enzyme.

B. correct: the enzyme and its substrate react at the enzyme's active site.

C. wrong: 'catalyst site' is not the name for the substrate-binding region.

D. wrong: the inhibition site is where an inhibitor binds, not where the substrate reacts.

Question 156 The non-protein part of enzyme which

The non-protein part of enzyme which is covalently and permanently bonded is called

- A. Prosthetic Group ✓ **Correct answer**
- B. Co-Factor
- C. Co-Enzyme
- D. Activator

…e non-protein part of an enzyme that is covalently and permanently bonded is the prosthetic group.

B. wrong: a co-factor is a loosely attached helper (often a metal ion), not covalently and permanently bonded.

C. wrong: a co-enzyme is a loosely attached organic helper, not covalently and permanently bonded.

D. wrong: an activator switches an enzyme on; it is not the covalently bonded non-protein part.

Question 157 One of the pyrimidine bases is

One of the pyrimidine bases is absent in DNA

- A. Uracil ✓ **Correct answer**
- B. Thymine
- C. Cytosine
- D. Adenine

A. correct: uracil is a pyrimidine base found in RNA, not in DNA (DNA has thymine instead).

B. wrong: thymine is present in DNA.

C. wrong: cytosine is present in DNA.

D. wrong: adenine is a purine present in DNA (and it is not a pyrimidine at all).

Question 158 Enzymes increase the rate of reaction

Enzymes increase the rate of reaction by

- A. Increasing Temperature
- B. Decreasing pH
- C. Decreasing Activation Energy ✓ **Correct answer**

-easing Activation Energy

A. wrong: enzymes do not act by increasing the temperature.

B. wrong: enzymes do not act by decreasing the pH.

C. correct: enzymes speed a reaction by lowering its activation energy.

D. wrong: raising the activation energy would slow the reaction.

Question 159 Which one of the following diseases

Which one of the following diseases caused by enveloped RNA virus and spread in epidemic form?

- A. Influenza ✓ **Correct answer**
- B. Herpes Simplex
- C. Polio
- D. Small Pox

A. correct: influenza is caused by an enveloped RNA virus (orthomyxovirus) and spreads in epidemics.

B. wrong: herpes simplex is a DNA virus, not an enveloped RNA virus of epidemic spread.

C. wrong: polio is caused by a non-enveloped RNA virus.

D. wrong: smallpox is caused by a DNA virus (variola).

Question 160 The structure which contains the gene

The structure which contains the gene for drug resistance bacteria are

- A. Nucleoids
- B. Mesosomes
- C. Chromatin Bodies
- D. Plasmids ✓ **Correct answer**

cleoids are the bacterial chromosome region, not drug-resistance genes.

B. wrong: mesosomes are membrane folds, not drug-resistance genes.

C. wrong: chromatin bodies are not the drug-resistance structures in bacteria.

D. correct: plasmids are the small circular DNA molecules in bacteria that carry genes for drug resistance.

Question 161 Antibiotics that kill microbes immediately are

Antibiotics that kill microbes immediately are called

- A. Microbistatic
- B. Microbicidal ✓ **Correct answer**
- C. Biostatic
- D. Chemotherapeutic

A. wrong: 'microbistatic' is not the term — the static agents only stop growth.

B. correct: antibiotics that kill microbes immediately are microbicidal (bactericidal).

C. wrong: 'biostatic' is not the term for killing agents.

D. wrong: chemotherapeutic is the general term for drug treatment, not specifically for killing microbes at once.

Question 162 Which one of the following fungi

Which one of the following fungi causes vaginal thrush?

- A. Candida ✓ **Correct answer**
- B. Aspergillus
- C. Tortula
- D. Penicillium

A. correct: vaginal thrush (candidiasis) is caused by the fungus Candida (Candida albicans).

pergillus causes aspergillosis, not vaginal thrush.

C. wrong: Tortula is a moss, not the thrush fungus.

D. wrong: Penicillium produces penicillin; it does not cause vaginal thrush.

Question 163 Body cavity of round worms is

Body cavity of round worms is called

- A. Pseudocoelom ✓ **Correct answer**
- B. Coelom
- C. Acoelom
- D. Enteron

A. correct: roundworms (nematodes) have a pseudocoelom — a body cavity not fully lined with mesoderm.

B. wrong: a true coelom is found in annelids and higher animals, not roundworms.

C. wrong: acoelomates (e.g. flatworms) have no body cavity at all.

D. wrong: the enteron is the gut, not the body cavity.

Question 164 Fasciola is endoparasite of

Fasciola is endoparasite of

- A. Colon
- B. Liver
- C. Small Intestine
- D. Bile Duct ✓ **Correct answer**

A. wrong: Fasciola does not live in the colon.

B. wrong: Fasciola lives in the bile duct of the liver — the bile duct (D) is the precise site.

sciola does not live in the small intestine.

D. correct: Fasciola hepatica (the liver fluke) is an endoparasite of the bile duct.

Question 165 Trypanosoma is transmitted in human beings

Trypanosoma is transmitted in human beings by

- A. Plasmodium
- B. Anopheles
- C. House Fly
- D. Tsetse Fly ✓ **Correct answer**

A. wrong: Plasmodium is the malarial parasite, not the carrier of Trypanosoma.

B. wrong: Anopheles transmits malaria, not sleeping sickness.

C. wrong: the house fly does not transmit Trypanosoma.

D. correct: Trypanosoma (sleeping sickness) is transmitted by the tsetse fly.

Question 166 The nervous system develops from which

The nervous system develops from which of the following layer during embryonic development of animals

- A. Mesoderm
- B. Ectoderm ✓ **Correct answer**
- C. Endoderm
- D. Mesoderm and Endoderm

A. wrong: the mesoderm gives rise to muscle, bone and blood, not the nervous system.

B. correct: the nervous system develops from the ectoderm.

C. wrong: the endoderm gives rise to the gut lining and associated glands, not the nervous system.

e nervous system comes from the ectoderm alone.

Question 167 Endosperm is formed as a result

Endosperm is formed as a result of

- A. Pollination
- B. Self-Pollination
- C. Double Fertilization ✓ **Correct answer**
- D. Cross Pollination

A. wrong: pollination is the transfer of pollen, not the formation of endosperm.

B. wrong: self-pollination is a kind of pollination, not the formation of endosperm.

C. correct: the endosperm is formed by double fertilisation (one male gamete fusing with the two polar nuclei).

D. wrong: cross pollination is a kind of pollination, not the formation of endosperm.

Question 168 Which of the following enzyme is

Which of the following enzyme is released in an inactive form

- A. Amylase
- B. Lipase
- C. Enterokinase
- D. Pepsin ✓ **Correct answer**

A. wrong: amylase is secreted in its active form.

B. wrong: lipase is secreted in its active form.

C. wrong: enterokinase is the enzyme that activates trypsinogen; it is not itself released inactive in this sense.

D. correct: pepsin is released in its inactive form, pepsinogen, and is activated to pepsin by

omach.

Question 169 Which of the following hormones stimulate

Which of the following hormones stimulate the secretion of pancreatic juice from pancreas in liver?

- A. Secretin ✓ **Correct answer**
- B. Pepsinogen
- C. Gastrin
- D. Both Gastrin and Secretin

A. correct: secretin stimulates the secretion of pancreatic juice from the pancreas.

B. wrong: pepsinogen is the inactive precursor of pepsin in the stomach, not the hormone for pancreatic juice.

C. wrong: gastrin stimulates gastric juice, not pancreatic juice.

D. wrong: gastrin acts on the stomach; secretin alone is the pancreatic-juice hormone here. (Note: the stem's tail 'from pancreas in liver' is garbled; the intended question is the hormone stimulating pancreatic-juice secretion.)

Question 170 In large intestine vitamin k is

In large intestine, vitamin k is formed by the activity of

- A. Symbiotic Bacteria ✓ **Correct answer**
- B. Obligate Bacteria
- C. Parasitic Bacteria
- D. Facultative Bacteria

A. correct: vitamin K in the large intestine is formed by the activity of symbiotic (gut) bacteria.

B. wrong: the vitamin-K-forming bacteria are symbionts, not obligate parasites.

rasitic bacteria do not form vitamin K for the host.

D. wrong: the bacteria are symbiotic, not merely facultative.

Question 171 During swallowing of food which structure

During swallowing of food which structure close nasal opening?

- A. Hard Palate
- B. Soft Palate ✓ **Correct answer**
- C. Epiglottis
- D. Larynx

A. wrong: the hard palate does not close the nasal opening during swallowing.

B. correct: the soft palate rises to close the nasal opening (nasopharynx) during swallowing.

C. wrong: the epiglottis closes the windpipe (glottis), not the nasal opening.

D. wrong: the larynx is the voice box, not the structure closing the nasal opening.

Question 172 The right atrium of the heart

The right atrium of the heart usually receives the

- A. Deoxygenated Blood ✓ **Correct answer**
- B. Oxygenated Blood
- C. Filtered Blood
- D. Non-Filtered Blood

A. correct: the right atrium receives deoxygenated blood from the body (via the venae cavae).

B. wrong: oxygenated blood goes to the left atrium.

C. wrong: 'filtered blood' is not what the right atrium receives.

on-filtered blood" is not the description of what the right atrium receives.

Question 173 The largest lymph duct called thoracic

The largest lymph duct called thoracic lymph duct drains into

- A. Subclavian Vein ✓ **Correct answer**
- B. Renal Vein
- C. Pulmonary Vein
- D. Hepatic Portal Vein

A. correct: the thoracic lymph duct drains into the left subclavian vein.

B. wrong: it does not drain into the renal vein.

C. wrong: it does not drain into the pulmonary vein.

D. wrong: it does not drain into the hepatic portal vein.

Question 174 Which protein plays a major role

Which protein plays a major role in maintaining osmotic balance?

- A. Albumin ✓ **Correct answer**
- B. Globulin
- C. Fibrinogen
- D. Prothrombin

A. correct: albumin is the main plasma protein maintaining the osmotic (colloid osmotic) balance of the blood.

B. wrong: globulins are mainly transport and immune proteins, not the main osmotic protein.

C. wrong: fibrinogen is for blood clotting, not osmotic balance.

D. wrong: prothrombin is for clotting, not osmotic balance.

175 The type of agranulocytes which stays

The type of agranulocytes which stays in blood for a few hours and then enters tissues and become macrophages are

- A. Lymphocytes
- B. Monocyte ✓ **Correct answer**
- C. Eosinophils
- D. Basophils

A. wrong: lymphocytes stay in blood and lymph as immune cells; they do not become macrophages.

B. correct: monocytes (agranulocytes) stay in the blood for a few hours, then enter the tissues and become macrophages.

C. wrong: eosinophils are granulocytes, not agranulocytes, and do not become macrophages.

D. wrong: basophils are granulocytes and do not become macrophages.

Question 176 Reabsorption of water by counter current

Reabsorption of water by counter current multiplier mechanism takes place at

- A. Proximal Tubule
- B. Distal Tubule
- C. Collecting Duct
- D. Loop of Henle ✓ **Correct answer**

A. wrong: most water reabsorption is in the proximal tubule, not by the counter-current multiplier.

B. wrong: the distal tubule is not the site of the counter-current multiplier.

C. wrong: the collecting duct reabsorbs water under ADH control, not by the counter-

iplier.

D. correct: the counter-current multiplier mechanism of the loop of Henle reabsorbs water (and sets up the medullary gradient).

Question 177 Antiduretic hormone helps in reabsorption of

Antiduretic hormone helps in reabsorption of water by changing permeability of

- A. Proximal Tubule
- B. Distal Tubule
- C. Collecting Duct ✓ **Correct answer**
- D. Loop of Henle

A. wrong: ADH does not act mainly on the proximal tubule.

B. wrong: ADH acts on the collecting duct (and distal tubule), not mainly the distal tubule alone.

C. correct: antidiuretic hormone increases the water permeability of the collecting duct, so water is reabsorbed.

D. wrong: ADH does not change the permeability of the loop of Henle.

Question 178 During peritoneal dialysis dialysis fluid is

During peritoneal dialysis, dialysis fluid is introduced into which part of human body?

- A. Liver
- B. Abdomen ✓ **Correct answer**
- C. Kidney
- D. Pancreas

A. wrong: the dialysis fluid is not introduced into the liver.

B. correct: in peritoneal dialysis the fluid is introduced into the abdomen (the peritoneal

C. wrong: the fluid is not introduced into the kidney itself.

D. wrong: the fluid is not introduced into the pancreas.

Question 179 Aldosterone helps in conservation or active

Aldosterone helps in conservation or active absorption of

- A. Sodium ✓ **Correct answer**
- B. Calcium
- C. Potassium
- D. Bicarbonate Ions

A. correct: aldosterone promotes the conservation (active reabsorption) of sodium in the kidney.

B. wrong: aldosterone acts on sodium, not calcium.

C. wrong: aldosterone increases sodium reabsorption and potassium excretion — it does not conserve potassium.

D. wrong: aldosterone acts on sodium, not bicarbonate ions.

Question 180 Maximum reabsorption takes place in which

Maximum reabsorption takes place in which part of the nephron?

- A. Distal Tubule
- B. Villi
- C. Cortical Tissue
- D. Proximal Tubule ✓ **Correct answer**

A. wrong: the distal tubule reabsorbs less than the proximal tubule.

B. wrong: villi are in the intestine, not the nephron.

rtical tissue is not a part of the nephron.

D. correct: maximum reabsorption (of water, salts, glucose and amino acids) takes place in the proximal tubule.

Question 181 Over-activity of sympathetic nervous system causes

Over-activity of sympathetic nervous system causes

- A. Disturbance of Vision
- B. Constipation
- C. Decrease in Blood Pressure
- D. Increase in Heart Rate ✓ **Correct answer**

A. wrong: over-activity of the sympathetic system does not disturb vision in this way.

B. wrong: sympathetic over-activity speeds gut slowing (it inhibits digestion), it does not cause constipation as the listed effect.

C. wrong: sympathetic over-activity raises blood pressure, it does not decrease it.

D. correct: sympathetic over-activity increases the heart rate (and the force of contraction).

Question 182 Which structures respond when they are

Which structures respond when they are stimulated by impulse coming through motor neuron?

- A. Receptors
- B. Responses
- C. Effectors ✓ **Correct answer**
- D. Transduction

A. wrong: receptors detect the stimulus; they do not respond to motor impulses.

B. wrong: 'responses' are the actions produced, not the structures that respond.

effectors (muscles and glands) respond when stimulated by impulses from motor neurons.

D. wrong: transduction is the conversion of a stimulus into an impulse, not the responding structure.

Question 183 Respiratory center is located in

Respiratory center is located in

- A. Cerebrum
- B. Cerebellum
- C. Medulla ✓ **Correct answer**
- D. Hypothalamus

A. wrong: the cerebrum is for thought and voluntary action, not the respiratory centre.

B. wrong: the cerebellum coordinates movement, not breathing.

C. correct: the respiratory centre is in the medulla (oblongata) of the hindbrain.

D. wrong: the hypothalamus controls temperature and hormones, not the respiratory rhythm.

Question 184 A neurological condition characterized by involuntary

A neurological condition characterized by involuntary tremors, diminished motor activity and rigidity is called

- A. Epilepsy
- B. Parkinson’s Disease ✓ **Correct answer**
- C. Alzheimer’s Disease
- D. Cerebullar Tumours

ilepsy is characterised by seizures, not by tremor, rigidity and diminished movement.

B. correct: involuntary tremors, diminished motor activity (bradykinesia) and rigidity are the features of Parkinson's disease.

C. wrong: Alzheimer's disease is a dementia of memory and cognition, not a tremor-rigidity disorder.

D. wrong: cerebellar tumours cause ataxia and coordination problems, not this triad.

Question 185 A type of cell in human

A type of cell in human testes which produces testosterone is called

- A. Interstitial Cells ✓ **Correct answer**
- B. Germ Cells
- C. Sertoli Cells
- D. Spermatocytes

A. correct: the interstitial (Leydig) cells of the testes produce testosterone.

B. wrong: germ cells produce sperm, not testosterone.

C. wrong: Sertoli cells nourish the developing sperm, they do not produce testosterone.

D. wrong: spermatocytes are the cells that divide to form sperm, not testosterone producers.

Question 186 Breakdown of endometrium during menstruation is

Breakdown of endometrium during menstruation is due to

- A. Increase in Level of LH
- B. Decrease in Level of Progesterone ✓ **Correct answer**
- C. Increase in Level of Progesterone

-ease in Level of Oestrogen

A. wrong: a rise in LH triggers ovulation, not the breakdown of the endometrium.

B. correct: the breakdown of the endometrium (menstruation) follows the fall in progesterone level.

C. wrong: a rise in progesterone maintains the endometrium; its fall causes breakdown.

D. wrong: a rise in oestrogen rebuilds the endometrium, it does not break it down.

Question 187 Oogonia are produced in the germ

Oogonia are produced in the germ cells

- A. Both Uterus and Cervix
- B. Cervix
- C. Uterus
- D. Ovary ✓ **Correct answer**

A. wrong: oogonia are not produced in the uterus and cervix.

B. wrong: oogonia are not produced in the cervix.

C. wrong: oogonia are not produced in the uterus.

D. correct: oogonia are produced in the germ cells of the ovary.

Question 188 Which of the following diseases can

Which of the following diseases can be prevented through vaccination?

- A. AIDS and Cancer
- B. Malaria and AIDS
- C. Typhoid and Cancer
- D. Measles and Mumps ✓ **Correct answer**

either AIDS nor cancer can be prevented by vaccination.

B. wrong: neither malaria nor AIDS can be prevented by vaccination.

C. wrong: neither typhoid nor cancer is prevented by vaccination in this list.

D. correct: measles and mumps are both prevented by vaccination (the MMR vaccine).

Question 189 Newly produced cellsindividuals which are identical

Newly produced cells/individuals which are identical in each other are known as

- A. Genetically Modified
- B. Transgenic Animals
- C. Transgenic Bacteria
- D. Clones ✓ **Correct answer**

A. wrong: genetically modified means the genes have been altered — it does not mean identical copies.

B. wrong: transgenic animals carry foreign genes; they are not defined as identical copies.

C. wrong: transgenic bacteria carry foreign genes; they are not defined as identical copies.

D. correct: newly produced cells or individuals identical to each other are clones. (PRINTED-KEY ERROR CORRECTED: the printed key records A (Genetically Modified), but identical copies are clones; genetic modification means altering genes, not copying them identically. The answer is corrected to D. Corrected by the assistant under the owner's 8 Nov 2026 delegation.)

Question 190 Which of the following is a

Which of the following is a blood borne disease?

- A. Hepatitis ✓ **Correct answer**
- B. Cholera

- D. Candidiasis

A. correct: hepatitis (e.g. hepatitis B) is a blood-borne disease (transmitted through blood).

B. wrong: cholera is water-borne, not blood-borne.

C. wrong: influenza is air-borne, not blood-borne.

D. wrong: candidiasis is a fungal infection, not a blood-borne disease.

Question 191 The control of pest has traditionally

The control of pest has traditionally meant regulation by natural enemies, predators, parasites and pathogens. This type of control is known as

- A. Cultural Control
- B. Biological Control ✓ **Correct answer**
- C. Pesticides Control
- D. Insecticides Control

A. wrong: cultural control is changing farming practices, not using natural enemies.

B. correct: controlling pests by their natural enemies, predators, parasites and pathogens is biological control.

C. wrong: pesticides control is chemical, not by natural enemies.

D. wrong: insecticides control is chemical, not by natural enemies.

Question 192 Which of the following organelles is

Which of the following organelles is concerned with the cell secretion

- A. Ribosomes
- B. Golgi Apparatus ✓ **Correct answer**
- C. Lysosomes

A. wrong: ribosomes make proteins; they are not concerned with secretion.

B. correct: the Golgi apparatus packages and secretes cell products.

C. wrong: lysosomes digest material inside the cell; they do not secrete.

D. wrong: mitochondria release energy; they are not concerned with secretion.

Question 193 Which of the following contains peptidoglycan

Which of the following contains peptidoglycan cell wall?

- A. Penicillium
- B. Bacterium ✓ **Correct answer**
- C. Adiantum
- D. Polytrichum

A. wrong: Penicillium is a fungus — its wall is chitin, not peptidoglycan.

B. correct: bacteria have a peptidoglycan cell wall.

C. wrong: Adiantum is a fern, not a peptidoglycan-walled organism.

D. wrong: Polytrichum is a moss, not a peptidoglycan-walled organism.

Question 194 The inner membrane of mitochondria is

The inner membrane of mitochondria is folded to form finger like structure called

- A. Cristae ✓ **Correct answer**
- B. Vesicle
- C. Matrix
- D. Cisternae

A. correct: the inner membrane of the mitochondrion is folded into finger-like cristae.

sicles are small sacs, not the mitochondrial folds.

C. wrong: the matrix is the inner fluid of the mitochondrion, not the folds.

D. wrong: cisternae are the flattened sacs of the endoplasmic reticulum and Golgi, not the mitochondrial folds.

Question 195 Interior of chloroplast is divided into

Interior of chloroplast is divided into heterogeneous structure, embedded in the matrix known as

- A. Grana ✓ **Correct answer**
- B. Stroma
- C. Thylakoids
- D. Cisternae

A. correct: the interior of the chloroplast contains grana — stacks of thylakoids embedded in the stroma (matrix).

B. wrong: the stroma is the matrix itself, not the structures embedded in it.

C. wrong: thylakoids are the individual discs that make up the grana.

D. wrong: cisternae belong to the endoplasmic reticulum and Golgi, not the chloroplast.

Question 196 In which phase of the cell

In which phase of the cell division the metabolic activity of the nucleus is high?

- A. Mitosis
- B. Interphase ✓ **Correct answer**
- C. Meiosis
- D. Cell Cycle

A. wrong: mitosis is the division phase, not the phase of high nuclear metabolic activity.

During interphase the nucleus is metabolically very active (DNA replication, RNA and protein synthesis).

C. wrong: meiosis is a division phase, not the phase of high nuclear metabolic activity.

D. wrong: the cell cycle as a whole includes the division phases; interphase is the specific phase of high activity.

Question 197 Luteinizing hormone triggers

Luteinizing hormone triggers

- A. Cessation of Oogenesis
- B. Breakdown of Oocyte
- C. Ovulation ✓ **Correct answer**
- D. Development of Zygote

A. wrong: luteinizing hormone does not stop oogenesis.

B. wrong: luteinizing hormone does not break down the oocyte.

C. correct: the luteinizing hormone (LH) surge triggers ovulation — the release of the ovum.

D. wrong: luteinizing hormone does not trigger development of the zygote.

Question 198 Syphilis is a sexually transmitted disease

Syphilis is a sexually transmitted disease which is caused by

- A. HIV / AIDS
- B. Pseudomonas Pyogenes
- C. Treponema Pallidum ✓ **Correct answer**
- D. Neisseria

A. wrong: HIV/AIDS is caused by the human immunodeficiency virus, not by Treponema.

euddomonas pyogenes does not cause syphilis.

C. correct: syphilis is caused by the bacterium Treponema pallidum.

D. wrong: Neisseria causes gonorrhoea, not syphilis.

Question 199 Muscle is made up of many

Muscle is made up of many cells which are referred to as

- A. Myofilaments
- B. Myofibrils
- C. Sarcolemma
- D. Muscles Fiber ✓ **Correct answer**

A. wrong: myofilaments are the protein threads inside muscle fibres, not the cells themselves.

B. wrong: myofibrils are bundles of myofilaments inside a muscle fibre, not the cells themselves.

C. wrong: the sarcolemma is the membrane around a muscle fibre, not the cell.

D. correct: a muscle is made of many cells called muscle fibres.

Question 200 The length of myofibril from one

The length of myofibril from one Z-band to the next is known as

- A. Sarcomere ✓ **Correct answer**
- B. Sarcolemma
- C. Sarcoplasm
- D. Muscle Fiber

A. correct: a sarcomere is the length of a myofibril from one Z-band (Z-line) to the next.

B. wrong: the sarcolemma is the muscle fibre's membrane.

e sarcoplasm is the cytoplasm of a muscle fibre.

D. wrong: the muscle fibre is the whole cell, not the Z-band to Z-band unit.

Question 201 Calcium ions released during a muscle

Calcium ions released during a muscle fiber contraction attach with

- A. Myosin
- B. Actin
- C. Tropomyosin
- D. Troponin ✓ **Correct answer**

A. wrong: calcium ions do not attach to myosin in this step.

B. wrong: calcium ions do not attach to actin in this step.

C. wrong: calcium ions do not attach to tropomyosin in this step.

D. correct: during muscle contraction the released calcium ions attach to troponin, moving tropomyosin aside so myosin can bind actin.

Question 202 A muscle condition resulting from the

A muscle condition resulting from the accumulation of lactic acid and ionic imbalance is:

- A. Tetany
- B. Muscle Fatigue ✓ **Correct answer**
- C. Cramp
- D. Tetanus

A. wrong: tetany is sustained contraction from low calcium, not the lactic-acid condition.

B. correct: the accumulation of lactic acid (and ionic imbalance) causes muscle fatigue.

C. wrong: a cramp is a painful involuntary contraction, not the lactic-acid condition described.

tanus is a sustained contraction (or the disease), not the lactic-acid condition described.

Question 203 The pigment which stores oxygen in

The pigment which stores oxygen in muscles is

- A. Hemoglobin
- B. Myoglobin ✓ **Correct answer**
- C. Myosin
- D. Actinomyosin

A. wrong: haemoglobin stores oxygen in the blood, not in muscle.

B. correct: myoglobin is the pigment that stores oxygen in muscle tissue.

C. wrong: myosin is a contractile protein, not an oxygen store.

D. wrong: actinomyosin is the actin–myosin complex of contraction, not an oxygen store.

Question 204 Neurosecretory cells are present in which

Neurosecretory cells are present in which part of brain

- A. Hypothalamus ✓ **Correct answer**
- B. Midbrain
- C. Pons
- D. Cerebellum

A. correct: neurosecretory cells are present in the hypothalamus (they release hormones into the blood).

B. wrong: the midbrain does not contain the neurosecretory cells.

C. wrong: the pons does not contain the neurosecretory cells.

D. wrong: the cerebellum does not contain the neurosecretory cells.

205 Which of the following is the

Which of the following is the function of glucagon hormone?

- A. Glycogen to Glucose ✓ **Correct answer**
- B. Glucose to Glycogen
- C. Glucose to Lipids
- D. Glucose to Proteins

A. correct: glucagon converts glycogen to glucose (glycogenolysis), raising blood sugar.

B. wrong: glucose to glycogen is the action of insulin, not glucagon.

C. wrong: glucagon does not convert glucose to lipids.

D. wrong: glucagon does not convert glucose to proteins.

Question 206 Addisons disease is caused due to

Addison’s disease is caused due to destruction of

- A. Adrenal Cortex ✓ **Correct answer**
- B. Pituitary Adrenal Axis
- C. Adrenal Medulla
- D. Hypothalamus

A. correct: Addison's disease is caused by destruction of the adrenal cortex (failure of corticosteroid production).

B. wrong: the pituitary–adrenal axis is the control pathway, not the destroyed tissue.

C. wrong: the adrenal medulla produces adrenaline; its destruction does not cause Addison's disease.

D. wrong: the hypothalamus is not the tissue destroyed in Addison's disease.

207 Which group of hormones is made

Which group of hormones is made up of amino acids and their derivatives?

- A. Vasopressin and ADH
- B. Epinephrine and Non-Epinephrine ✓ **Correct answer**
- C. Osterogen and Testosterone
- D. Insulin and Glucagon

A. wrong: vasopressin and ADH are the same hormone, not a group of amino-acid hormones.

B. correct: epinephrine and norepinephrine are made from the amino acid tyrosine — amino acids and their derivatives.

C. wrong: oestrogen and testosterone are steroid hormones, not amino-acid derivatives.

D. wrong: insulin and glucagon are peptide hormones, not amino acids and their derivatives. (Note: the paper prints 'Non-Epinephrine' for norepinephrine.)

Question 208 Thymus gland is involved in maturation

Thymus gland is involved in maturation of

- A. Platelets
- B. B-Lymphocytes
- C. Eosinophils
- D. T-Lymphocytes ✓ **Correct answer**

A. wrong: the thymus matures T-lymphocytes, not platelets.

B. wrong: B-lymphocytes mature in the bone marrow, not the thymus.

C. wrong: eosinophils are white blood cells, not matured by the thymus.

D. correct: the thymus gland is involved in the maturation of T-lymphocytes.

209 In passive immunity which of the

In passive immunity which of the following component are injected into blood

- A. Antigens
- B. Immunogens
- C. Serum
- D. Immunoglobulins ✓ **Correct answer**

A. wrong: antigens are not injected in passive immunity — antibodies are.

B. wrong: immunogens provoke an immune response (active immunity), they are not the injected component here.

C. wrong: serum is not the component named — the protective component is the immunoglobulin (antibody) in it.

D. correct: in passive immunity, ready-made antibodies (immunoglobulins) are injected into the blood.

Question 210 Mucous membranes are part of body

Mucous membranes are part of body defense system and they offer

- A. Physical Barriers ✓ **Correct answer**
- B. Mechanical Barriers
- C. Chemical Barriers
- D. Biological Barriers

A. correct: mucous membranes are part of the body's first line of defence and offer physical barriers (trapping and expelling microbes).

B. wrong: mechanical barriers are the skin and hairs; mucous membranes are classified here as physical barriers.

C. wrong: chemical barriers are secretions like lysozyme and stomach acid, not the

themselves.

D. wrong: biological barriers are the body's flora and immune cells, not the mucous membranes.

Question 211 Immediate protection is obtained from

Immediate protection is obtained from

- A. Passive Immunity ✓ **Correct answer**
- B. Active Immunity
- C. Vaccination
- D. Natural Activity Immunity

A. correct: immediate protection is obtained from passive immunity (ready-made antibodies, e.g. from mother or injection).

B. wrong: active immunity takes time to develop, so it is not immediate.

C. wrong: vaccination gives active immunity, which is not immediate.

D. wrong: 'natural activity immunity' is not the source of immediate protection.

Question 212 The immunity in which T-cells recognize

The immunity in which T-cells recognize the antigens or micro-organisms is known as

- A. Tissue Grafting
- B. Phagocytosis
- C. Cell Mediated Immunity / Response ✓ **Correct answer**
- D. Hormonal Immunity / Response

A. wrong: tissue grafting is a transplant, not the immunity described.

B. wrong: phagocytosis is the engulfing of microbes, not T-cell recognition.

C. correct: the immunity in which T-cells recognise antigens or micro-organisms is cell-

munity (cell-mediated response).

D. wrong: 'hormonal immunity' is not the name for T-cell immunity.

Question 213 Oxidative phosphorylation synthesis of ATP in

Oxidative phosphorylation, synthesis of ATP in the presence of oxygen occurs in:

- A. All Types of Cells
- B. All Anaerobic Cells
- C. All Primitive Cells
- D. All Aerobic Cells ✓ **Correct answer**

A. wrong: oxidative phosphorylation does not occur in all types of cells — anaerobic cells do not carry it out.

B. wrong: anaerobic cells do not carry out oxidative phosphorylation (it needs oxygen).

C. wrong: 'primitive cells' is not the group — many primitive (anaerobic) cells do not carry it out.

D. correct: oxidative phosphorylation, the synthesis of ATP in the presence of oxygen, occurs in aerobic cells (in their mitochondria). (PRINTED-KEY ERROR CORRECTED: the printed key records C ('All Primitive Cells'), but oxidative phosphorylation requires oxygen and takes place in aerobic cells. The answer is corrected to D. Corrected by the assistant under the owner's 8 Nov 2026 delegation.)

Question 214 Glycolysis is the breakdown of glucose

Glycolysis is the breakdown of glucose into two molecules of

- A. Glycerate
- B. Lactic Acid
- C. Pyruvate ✓ **Correct answer**
- D. Succinic Acid

/cerate is not the product of glycolysis.

B. wrong: lactic acid is the product of anaerobic glycolysis in muscle, not the direct product of glycolysis itself.

C. correct: glycolysis breaks glucose down into two molecules of pyruvate (pyruvic acid).

D. wrong: succinic acid is a Krebs-cycle intermediate, not the product of glycolysis.

Question 215 Before entering Krebss cycle the pyruvate

Before entering Krebs's cycle, the pyruvate is first decarboxylated and oxidized into

- A. Alpha Ketoglutaric Acid
- B. Citric Acid
- C. Glyceric Acid
- D. Acetic Acid ✓ **Correct answer**

A. wrong: alpha-ketoglutaric acid is a later Krebs-cycle intermediate, not the first product of pyruvate.

B. wrong: citric acid is formed when acetyl-CoA joins oxaloacetate — it is not the direct product of pyruvate decarboxylation.

C. wrong: glyceric acid is not the product here.

D. correct: pyruvate is first decarboxylated and oxidised to acetyl coenzyme A (active acetate, filed as acetic acid) before entering the Krebs cycle.

Question 216 Some electron from the second primary

Some electron from the second primary acceptor may pass back to chlorophyll molecules by electron carrier system, yielding ATP. This process is called

- A. Phosphorylation
- B. Photophosphorylation

- D. Cyclic Phosphorylation ✓ **Correct answer**

A. wrong: phosphorylation alone is not the name for electrons returning to chlorophyll.

B. wrong: photophosphorylation is the general term; the cyclic return of electrons is cyclic photophosphorylation.

C. wrong: in non-cyclic photophosphorylation the electrons do not return to chlorophyll — they go to $NADP^+$.

D. correct: when electrons from the second primary acceptor pass back to the chlorophyll molecules through carriers, yielding ATP, the process is cyclic photophosphorylation.

Question 217 Z-scheme is used for

Z-scheme is used for

- A. Non-Cyclic Photophosphorylation ✓ **Correct answer**
- B. Cyclic Photophosphorylation
- C. Both Cyclic and Non-Cyclic Photophosphorylation
- D. Oxidative Phosphorylation

A. correct: the Z-scheme (the zig-zag electron path through photosystems II and I) is used for non-cyclic photophosphorylation.

B. wrong: cyclic photophosphorylation uses only photosystem I, not the Z-scheme.

C. wrong: the Z-scheme is the non-cyclic path, not both.

D. wrong: oxidative phosphorylation is the mitochondrial process, not the Z-scheme.

Question 218 The common vectors used in recombinant

The common vectors used in recombinant DNA technology are

- A. Probes

ndromes

- C. Plasmids ✓ **Correct answer**
- D. Prions

A. wrong: probes are used to detect genes, not as vectors.

B. wrong: palindromes are the recognition sequences, not vectors.

C. correct: plasmids are the common vectors used in recombinant DNA technology.

D. wrong: prions are infectious proteins, not vectors.

Question 219 The enzyme used to isolate gene

The enzyme used to isolate gene from DNA is

- A. Helicase
- B. Reverse Transcriptase
- C. Restriction Enzyme ✓ **Correct answer**
- D. DNA Polymerase

A. wrong: helicase unwinds DNA; it does not cut out a gene.

B. wrong: reverse transcriptase makes DNA from RNA; it does not isolate a gene.

C. correct: restriction enzymes cut DNA at specific sites and are used to isolate a gene from DNA.

D. wrong: DNA polymerase copies DNA; it does not isolate a gene.

Question 220 Which one of the following enzymes

Which one of the following enzymes is temperature insensitive?

- A. DNA Polymerase I
- B. Taq Polymerase ✓ **Correct answer**
- C. DNA Polymerase III

A. wrong: DNA polymerase I is heat-sensitive and is inactivated at high temperature.

B. correct: Taq polymerase (from Thermus aquaticus) is heat-stable — temperature insensitive — and survives the high temperatures of the polymerase chain reaction.

C. wrong: DNA polymerase III is the main bacterial replicative enzyme and is heat-sensitive.

D. wrong: RNA polymerase is heat-sensitive and is not the temperature-insensitive enzyme.

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