MDCAT (UHS entry test) — 2008 · Solved Past Paper

Body: University of Health Sciences, Lahore (UHS) · **Post:** MDCAT (UHS entry test) · **Year:** 2008 · **Questions:** 220 in the original paper — **212 solved and verified**, 8 excluded as defective (Q95, Q116, Q127, Q130, Q133, Q134, Q171, Q195) · **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 2008 sitting.

Source note: mdcatguide.com compilation 'UHS MDCAT 2008' (24 pages, scanned, no text layer), Paper Code D (Green), 220 MCQs, 150 minutes, 1100 marks (5 per correct, -1 per wrong), held Sunday 14 September 2008. Sections in the paper's order: Physics 60 (Q1-60), Chemistry 60 (Q61-120), English 30 (Q121-150), Biology 70 (Q151-220). The official UHS answer key is printed at the back of this compilation (PDF p. 18, 'ANSWER KEY — Entrance Test 2008'); verification: official UHS key as reproduced in the ARK book 'MDCAT Past Papers 2008-2016' (mcats-2008-2016.pdf, 180 pp), key table for Entrance Test 2008, Paper Code D, 220 rows, layout-parsed with the ID row skipped (cross-checked against the printed key in this compilation and the scanned official key uhs2008-key.pdf); textbook fact and worked derivations for every answer; no Learnospot/PLS quiz exists for 2008. 24 answers correct the official key (Q2, Q8, Q13, Q15, Q24, Q29, Q39, Q40, Q41, Q49, Q61, Q71, Q82, Q83, Q91, Q104, Q117, Q126, Q155, Q168, Q183, Q189, Q196, Q200); 8 questions DEFECTIVE-excluded (Q95 both Mg and Be defensible, Q116 Al2F2SiO4 is topaz not listed, Q127 no clear error, Q130 no clear error, Q133 identical options C/D, Q134 three valid collocations, Q171 three external factors, Q195 no option names enveloped DNA virus). Q58 prints wavelength '500 mm' (misprint for 500 nm); Q78 option C prints 'N2O2(g)' (misprint for 2NO(g)); Q83 option D prints 'Both HCl and 2COOH' (garbled); Q97

ze slag', Q133 options C/D identical; Q162 option B prints 'Dieogametic.'; Q197 option B prints 'Gemnospermae.'; Q184 and Q220 print the identical question (filed twice as printed). All 220 stems and options visually verified against the rendered pages of the source scan. Dedup 15 Nov 2026: 220 stems parsed, 1525 built 37*.md files scanned; EXACT-stem duplicates 9 (max 1 per file, all single generic questions); first-8-words matches 4 (all Q207 in unrelated PPSC papers); fuzzy vs MDCAT siblings max 2 pairs >=0.90 (37blc 2009), all other siblings 0-1 — no file approaches a full-paper match, CLEAR to build. Decisions by the assistant under the owner's 8 Nov 2026 delegation.

Question 1 Physics

When a helium atom loses an electron, it becomes:

- A. An alpha particle
- B. Proton
- C. A positive helium ion ✓ **Correct answer**
- D. A negative helium ion

A. An alpha particle is a bare helium nucleus with no electrons at all, not a helium atom missing one electron.

B. A proton is a single hydrogen nucleus, not a helium atom missing an electron.

C. Losing one (negative) electron leaves the atom with one more proton than electrons, so it becomes He^{+}, a positive ion.

D. Losing an electron makes the atom positive, not negative; gaining an electron would make it negative.

Question 2 Physics

Beta ray emitted by a radioactive substance is:

- A. An electron which was existing outside the nucleus
- B. An electron which was existing inside the nucleus

electron emitted by the nucleus as a result of the decay of neutron inside the nucleus ✓ **Correct answer**

- D. A pulse of electromagnetic wave

A. Beta particles do not come from the extra-nuclear electrons; they are created in the nucleus.

B. The official key gives B, which is wrong: no electrons exist inside the nucleus; the beta electron is created when a neutron decays.

C. A neutron in the nucleus decays into a proton plus an electron, and that electron is ejected as the beta ray.

D. That describes a gamma ray, not a beta ray.

Question 3 Physics

An electric charge in uniform motion produces:

- A. An electric field
- B. A magnetic field
- C. Both magnetic and electric fields ✓ **Correct answer**
- D. Neither magnetic nor electric fields

A. A charge at rest produces only an electric field, but a moving charge produces a magnetic field as well.

B. A moving charge produces a magnetic field, but it still carries its electric field with it.

C. A charge in uniform motion carries its electric field with it and also generates a magnetic field around its path.

D. A moving charge certainly produces both fields.

4 Physics

What is emitted by a hot metal filament in a cathode ray tube?

- A. X-ray
- B. Proton
- C. Electron ✓ **Correct answer**
- D. Photon

A. X-rays are produced when fast electrons strike a target, not emitted by the hot filament itself.

B. The filament emits electrons, not protons.

C. A hot metal filament emits electrons by thermionic emission; these electrons are the cathode rays.

D. Photons are emitted when the electrons strike the screen, not by the filament.

Question 5 Physics

If the mass of the bob of a pendulum is doubled its time period is:

- A. Halved
- B. Doubled
- C. Unchanged ✓ **Correct answer**
- D. Increases four times

A. The period of a simple pendulum does not depend on the mass of the bob.

B. The period is independent of the bob's mass.

C. $T = 2\pi\sqrt{(l/g)}$ contains no mass term, so doubling the mass leaves the period unchanged.

D. The period has no mass dependence at all.

6 Physics

The centre of Newton rings is dark due to:

- A. Polarization
- B. Destructive interference ✓ **Correct answer**
- C. Constructive interference
- D. Reflection

A. Polarization is not involved in the dark centre of Newton's rings.

B. At the centre the air film has zero thickness, so the ray reflected from the glass plate suffers a phase change of π and the two reflected rays interfere destructively.

C. Constructive interference would give a bright centre, not a dark one.

D. Reflection alone does not explain the dark centre; the interference of the two reflected rays does.

Question 7 Physics

Which one is most stable element on the basis of binding energy?

- A. Sn
- B. Ba
- C. Kr
- D. Fe ✓ **Correct answer**

A. Tin's binding energy per nucleon is lower than iron's.

B. Barium's binding energy per nucleon is lower than iron's.

C. Krypton's binding energy per nucleon is lower than iron's.

D. Iron-56 has the highest binding energy per nucleon (about 8.8 MeV), so it is the most stable nucleus.

8 Physics

Resistance in RC circuit of time constant 2 seconds is 1000 Ohms. What is value of C in the circuit?

- A. 2 μ farad
- B. 20 μ farad
- C. 200 μ farad
- D. 2000 μ farad ✓ **Correct answer**

A. τ = RC gives C = τ/R = 2/1000 = 0.002 F, not 2 μF.

B. C = 2/1000 F = 2000 μF, not 20 μF.

C. The official key gives C, which is wrong: C = τ/R = 2/1000 F = 2000 μF, not 200 μF.

D. The time constant τ = RC, so C = τ/R = 2 s / 1000 Ω = 0.002 F = 2000 μF.

Question 9 Physics

The Lenz's law refers to induced _____

- A. emf
- B. Resistance
- C. Shear
- D. Currents ✓ **Correct answer**

A. The magnitude of the induced emf is Faraday's law; Lenz's law states the direction of the induced current.

B. Resistance is not what Lenz's law refers to.

C. Shear has nothing to do with Lenz's law.

D. Lenz's law states that the induced current flows in a direction that opposes the change in magnetic flux that produces it, so it refers to induced currents.

10 Physics

In which of the following, output is similar to NAND gate if input A=0 and input B=1.

- A. NOR
- B. XNOR
- C. XOR ✓ **Correct answer**
- D. Both B and C

A. With A=0 and B=1, NOR gives 0, while NAND gives 1.

B. With A=0 and B=1, XNOR gives 0, while NAND gives 1.

C. NAND of 0 and 1 is 1, and XOR of 0 and 1 is also 1, so the outputs match.

D. XNOR does not match, so "both" is wrong.

Question 11 Physics

For atomic hydrogen spectrum, which of the following series lies in visible region of electromagnetic spectrum?

- A. Lyman series
- B. Paschen series
- C. Balmer series ✓ **Correct answer**
- D. Bohr series

A. The Lyman series lies in the ultraviolet region.

B. The Paschen series lies in the infrared region.

C. The Balmer series (transitions ending at n=2) falls in the visible region.

D. There is no "Bohr series" in the hydrogen spectrum.

12 Physics

_____ are the particles that experience strong nuclear force.

- A. Electrons
- B. Muons
- C. Neutrinos
- D. Neutrons ✓ **Correct answer**

A. Electrons are leptons and do not feel the strong nuclear force.

B. Muons are leptons and do not feel the strong nuclear force.

C. Neutrinos are leptons and do not feel the strong nuclear force.

D. Neutrons are hadrons (made of quarks) and experience the strong nuclear force.

Question 13 Physics

The vertical velocity of ball thrown upward _____ with time.

- A. Decreases linearly ✓ **Correct answer**
- B. Remains constant
- C. Doubles
- D. Decreases parabolically

A. The vertical velocity $v = u - gt$ decreases uniformly (linearly) with time under gravity.

B. Gravity continuously reduces the upward velocity.

C. The official key gives C, which is wrong: the velocity decreases, it does not double.

D. The velocity decreases linearly with time; it is the height that varies parabolically.

Question 14 Physics

The force required to bend the normally straight path of a particle into a circular path is

force.

- A. Traveling
- B. Bending
- C. Centrifugal
- D. Centripetal ✓ **Correct answer**

A. "Traveling force" is not the name for the force that bends a path into a circle.

B. "Bending force" is not the standard name.

C. Centrifugal force is the outward pseudo-force felt in a rotating frame, not the inward force that bends the path.

D. The force that bends a straight path into a circular one acts towards the centre and is called the centripetal force.

Question 15 Physics

A disc at rest without slipping, rolls down a hill of height (3 x 9.8) m. What is its speed in m/sec when it reaches at the bottom?

- A. 11.4
- B. 19.6 ✓ **Correct answer**
- C. 22.8
- D. 9.8

A. The official key gives A, which is wrong: energy conservation for the rolling disc gives 19.6 m/s.

B. For a disc, $mgh = \frac{1}{2}mv^2 + \frac{1}{2}I\omega^2$ with $I = \frac{1}{2}mr^2$ and $\omega = v/r$, so $v^2 = 4gh/3 = 4 \times 9.8 \times 29.4 / 3 = 384.16$, giving $v = 19.6$ m/s.

C. This does not follow from the rolling-disc energy balance.

D. This is the value of g, not the speed at the bottom.

16 Physics

Tuning of the radio is the best example of electrical _____

- A. Resonance ✓ **Correct answer**
- B. Resistance
- C. Current
- D. None of these

A. Tuning a radio selects the station whose frequency matches the circuit's natural frequency — electrical resonance.

B. Resistance does not select a frequency.

C. Current alone does not explain tuning.

D. Resonance is the correct phenomenon.

Question 17 Physics

A standing wave pattern is formed when the length of string is an integral multiple of _____ wavelength.

- A. Triple
- B. Full
- C. Half ✓ **Correct answer**
- D. Double

A. A standing wave forms when the string length is an integral multiple of half the wavelength, not triple.

B. The length must be a multiple of half a wavelength, not only of a full wavelength.

C. Standing waves form when $L = n\lambda/2$, i.e. the length is an integral multiple of half the wavelength.

D. The multiple is of half the wavelength, not double.

18 Physics

Which of the following lights travels the fastest in optical fibres?

- A. Visible light
- B. Invisible infra-red ✓ **Correct answer**
- C. Ultra-violet
- D. Ordinary light

A. Visible light travels slower in optical fibres than infra-red.

B. Infra-red travels fastest in optical fibres; it is the light used in fibre communication, suffering the least dispersion and absorption.

C. Ultra-violet is strongly absorbed in glass fibres and travels slower.

D. Ordinary (white/visible) light travels slower than infra-red in the fibre.

Question 19 Physics

The algebraic sum of potential changes in a closed circuit is zero is Kirchhoff's _____ rule.

- A. First
- B. Second ✓ **Correct answer**
- C. Third
- D. None of these

A. Kirchhoff's first rule is the current (junction) rule.

B. The algebraic sum of potential changes in a closed circuit is zero — Kirchhoff's second (voltage/loop) rule.

C. There is no third Kirchhoff rule.

D. The second rule is the correct one.

20 Physics

In LED when an electron combines with a _____ during forward bias conduction, a photon of visible light is emitted.

- A. High voltage
- B. Photon
- C. Hole ✓ **Correct answer**
- D. Positron

A. An electron combines with a hole, not with a high voltage.

B. The photon is emitted as a result of the recombination, not what the electron combines with.

C. In forward bias, an electron from the n-side combines with a hole from the p-side, and the released energy appears as a photon of visible light.

D. A positron is the antiparticle of the electron and plays no part in an LED.

Question 21 Physics

For photons of energy greater than 1.02 MeV the probability of pair production occurrence _____ as the energy increases.

- A. Increase ✓ **Correct answer**
- B. Completely diminishes
- C. Reduces to half
- D. Remains unchanged

A. Above the 1.02 MeV threshold, the probability of pair production increases as the photon energy increases.

B. The probability increases with energy, it does not diminish.

C. The probability increases with energy, it does not halve.

ability increases with energy, it does not stay constant.

Question 22 Physics

The neutron is assumed to be made of

- A. One up quark and two down quarks ✓ **Correct answer**
- B. Two up quarks and two down quarks
- C. Two up quarks and one down quark
- D. One up quark and one down quark

A. A neutron is made of one up quark and two down quarks (udd).

B. That would be four quarks, not the three-quark neutron.

C. That is the proton (uud), not the neutron.

D. That is only two quarks; a neutron has three.

Question 23 Physics

An _____ missile is called a ballistic missile.

- A. Un-powered and guided
- B. Un-guided and powered
- C. Powered and guided
- D. Un-powered and un-guided ✓ **Correct answer**

A. A ballistic missile is un-guided after launch; it follows a ballistic trajectory under gravity.

B. A ballistic missile is un-powered after its boost phase; it coasts to its target.

C. That describes a guided (cruise) missile, not a ballistic missile.

D. A ballistic missile is un-powered and un-guided after launch, following a ballistic path under gravity alone.

24 Physics

Two cylinders of equal mass are made from same material. The one with the larger diameter accelerates _____ the other under the action of same torque.

- A. Faster than
- B. Slower than ✓ **Correct answer**
- C. Equal to
- D. None of these

A. The official key gives A, which is wrong: the larger cylinder has the larger moment of inertia, so it accelerates slower.

B. For a cylinder $I = \frac{1}{2}MR^2$, so the larger-diameter cylinder has the larger moment of inertia; under the same torque, angular acceleration $\alpha = \tau/I$ is smaller, so it accelerates slower than the smaller one.

C. The moments of inertia differ, so the accelerations differ.

D. "Slower than" is the correct description.

Question 25 Physics

The angular frequency of simple pendulum is directly proportional to _____

- A. l
- B. 1/l
- C. √l
- D. √1/l ✓ **Correct answer**

A. $\omega = \sqrt{(g/l)}$, so ω is proportional to $1/\sqrt{l}$, not to l.

B. ω is proportional to $\sqrt{(1/l)}$, not to 1/l.

C. ω decreases as l increases, so it is proportional to $\sqrt{(1/l)}$, not to √l.

D. The angular frequency $\omega = \sqrt{(g/l)} = \sqrt{g} \times \sqrt{(1/l)}$, so it is directly proportional to $\sqrt{(1/l)}$.

26 Physics

Two waves of slightly different frequencies and traveling in same direction produce _____

- A. Interference
- B. Polarization
- C. Stationary waves
- D. Beats ✓ **Correct answer**

A. Interference is the superposition of waves of the same frequency; waves of slightly different frequencies produce beats.

B. Polarization is the orientation of the vibration direction, not the effect of two slightly different frequencies.

C. Stationary waves form from two waves of the same frequency travelling in opposite directions.

D. Two waves of slightly different frequencies travelling in the same direction superpose to give a waxing and waning loudness — beats.

Question 27 Physics

A single mode step index fibre has core of about _____ μm diameter

- A. 50 to 1000
- B. 50
- C. 30
- D. 5 ✓ **Correct answer**

A. That is the core range of a multi-mode step-index fibre, not a single-mode one.

B. A 50 μm core is a multi-mode fibre core, not single-mode.

C. A single-mode step-index fibre has a core of about 5 μm, not 30 μm.

node step-index fibre has a very narrow core, about 5 μm in diameter.

Question 28 Physics

A 5 Ohm resistor is indicated by a single _____ color band around its body.

- A. Red
- B. Green ✓ **Correct answer**
- C. Blue
- D. Brown

A. In the resistor colour code red stands for 2, not 5.

B. In the resistor colour code green stands for 5, so a single green band indicates 5 Ω.

C. In the resistor colour code blue stands for 6, not 5.

D. In the resistor colour code brown stands for 1, not 5.

Question 29 Physics

Practically _____ current flows in a reverse biased p-n junction.

- A. No ✓ **Correct answer**
- B. Very large
- C. Few milliamperes
- D. Both A and C

A. A reverse-biased p-n junction passes practically no current (only the reverse saturation current, which is microamperes), so "no current" is the textbook answer.

B. The reverse current is tiny, not very large.

C. The reverse current is microamperes, not milliamperes; milliamperes would be a forward current.

D. The official key gives D, which is wrong: "few milliamperes" is wrong, so the combined

Question 30 Physics

Cesium coated oxidized silver emits electrons for _____ light.

- A. Infrared ✓ **Correct answer**
- B. Ultraviolet
- C. Visible
- D. Green

A. A caesium-coated oxidised silver surface is a photoemissive cathode that emits electrons for infrared light.

B. This photocathode is sensitive to infrared, not ultraviolet.

C. This photocathode is sensitive to infrared, not visible light.

D. Green is a visible colour; this photocathode is sensitive to infrared.

Question 31 Physics

The cobalt is absorbed by

- A. Bones
- B. Skin
- C. Liver ✓ **Correct answer**
- D. Thyroid gland

A. Cobalt is not absorbed and stored by the bones.

B. Cobalt is not absorbed by the skin.

C. Cobalt is absorbed and stored by the liver (it is a constituent of vitamin B_{12}, which the liver stores).

D. The thyroid gland absorbs iodine, not cobalt.

32 Physics

In a step-down transformer the output current _____

- A. Is reduced
- B. Is increased ✓ **Correct answer**
- C. Remains same
- D. None of these

A. In a step-down transformer the voltage is reduced, so the current increases (power is conserved).

B. A step-down transformer lowers the voltage and raises the current, since input power equals output power.

C. The current changes: it increases as the voltage falls.

D. The output current is increased.

Question 33 Physics

Force in terms of base units is expressed as

- A. kg ms^{-2} ✓ **Correct answer**
- B. kg m^2s^{-2}
- C. kg m^2s^{-3}
- D. None of these

A. Force = mass × acceleration, so its base units are kg × m/s^2 = kg ms^{-2}.

B. That is the unit of energy (joule), not force.

C. That is the unit of power (watt), not force.

D. kg ms^{-2} is the correct expression.

34 Physics

100 joules work has been done by an agency in 10 seconds. What is power of agency?

- A. 1000 watt
- B. 100
- C. 10 watt ✓ **Correct answer**
- D. 0.10 watt

A. Power = work/time = 100/10 = 10 W, not 1000 W.

B. Power = 100 J / 10 s = 10 W, not 100.

C. Power = work/time = 100 J / 10 s = 10 W.

D. Power = 100/10 = 10 W, not 0.10 W.

Question 35 Physics

The acceleration is proportional to the displacement and is directed towards mean position in _____ motion.

- A. Gravity
- B. Simple harmonic ✓ **Correct answer**
- C. Uniform
- D. Projectile

A. Gravity is a force, not the motion in which acceleration is proportional to displacement towards the mean position.

B. In simple harmonic motion, acceleration $a = -\omega^2 x$, proportional to the displacement and directed towards the mean position.

C. In uniform motion the acceleration is zero, not proportional to displacement.

D. In projectile motion the acceleration is constant (g), not proportional to displacement.

36 Physics

In gases, the speed of sound is inversely proportional to _____ of the density when other factors are same.

- A. Square root ✓ **Correct answer**
- B. Square
- C. Third power
- D. Third root

A. The speed of sound in a gas $v = \sqrt{(\gamma P/\rho)}$, so it is inversely proportional to the square root of the density.

B. The speed is inversely proportional to the square root of the density, not to its square.

C. The speed is inversely proportional to the square root of the density, not to its third power.

D. The speed is inversely proportional to the square root of the density, not to its third root.

Question 37 Physics

A watch maker uses _____ to repair the watches.

- A. Telescope
- B. Convex mirror
- C. Convex lens ✓ **Correct answer**
- D. Concave lens

A. A telescope is for viewing distant objects, not for repairing watches.

B. A convex mirror gives a diminished image; a watchmaker needs a magnified image.

C. A watchmaker uses a convex lens as a magnifying glass to see the tiny parts of a watch.

D. A concave lens gives a diminished image; a watchmaker needs a convex lens for

Question 38 Physics

A 2m long pipe is open at both ends. What is its harmonic frequency?

- A. 42.5 Hz
- B. 85 Hz ✓ **Correct answer**
- C. 220 Hz
- D. None of these

A. For an open pipe the fundamental frequency is v/2L = 340/(2 × 2) = 85 Hz, not 42.5 Hz.

B. For a pipe open at both ends, the fundamental (first harmonic) frequency is f = v/2L = 340/(2 × 2) = 85 Hz.

C. The fundamental frequency is 85 Hz, not 220 Hz.

D. 85 Hz is the correct fundamental frequency.

Question 39 Physics

A wire has resistance 100 Ohm at 0 °C and 200 Ohm at 100 °C. What is its temperature coefficient in K^{-1}?

- A. -0.01
- B. -1/273
- C. 0.01 ✓ **Correct answer**
- D. 1/273

A. The resistance increases with temperature, so the coefficient is positive, not negative.

B. The coefficient is positive and equal to 0.01 K^{-1}, not −1/273.

C. The temperature coefficient $\alpha = (R_{100} - R_0)/(R_0 \times 100) = (200 - 100)/(100 \times 100) = 0.01\ K^{-1}$.

D. The official key gives D, which is wrong; the calculation gives $\alpha = 0.01\ K^{-1}$, not 1/273.

40 Physics

The net magnetic field created by the electrons within an atom is due to the field created by their _____ motion.

- A. Orbital
- B. Spin
- C. Orbital & spin ✓ **Correct answer**
- D. Orbital x spin

A. Incomplete: the spin motion also contributes to the atom's magnetic field.

B. Incomplete: the orbital motion also contributes to the atom's magnetic field.

C. The net magnetic field of an atom arises from the orbital motion of the electrons and their spin; both contribute.

D. The official key gives D, which is wrong: "Orbital x spin" is not a physical quantity; the field is due to the orbital AND spin motions.

Question 41 Physics

At high temperature, the proportion of _____ wavelength radiation increase.

- A. AM radio
- B. Long radio
- C. Shorter ✓ **Correct answer**
- D. Both A and C

A. AM radio is long-wave radiation; at high temperature its proportion decreases, not increases.

B. At high temperature the proportion of long-wavelength radiation decreases.

C. By Wien's displacement law, at high temperature the peak of the radiation shifts to shorter wavelengths, so the proportion of shorter-wavelength radiation increases.

al key gives D, which is wrong. AM radio is long-wave, so its proportion falls at high temperature; only the shorter-wavelength proportion increases.

Question 42 Physics

In photoelectric effect removal of photons is observed at _____ energies.

- A. Low
- B. High
- C. Intermediate
- D. Both A and C ✓ **Correct answer**

A. Photons are removed by the photoelectric effect at low energies, but that is only part of the picture.

B. At high energies photons are removed by pair production, not by the photoelectric effect or Compton scattering.

C. Photons are removed by Compton scattering at intermediate energies, but that is only part of the picture.

D. Photon removal occurs by the photoelectric effect at low energies and by Compton scattering at intermediate energies, so both A and C apply.

Question 43 Physics

Which device is the most efficient?

- A. Nuclear reactor ✓ **Correct answer**
- B. Storage battery
- C. Silicon solar cell
- D. Dry battery cell

A. A nuclear reactor is the most efficient of the four devices (energy released per unit of fuel is far greater than in chemical devices).

battery is less efficient than a nuclear reactor.

C. A silicon solar cell has a low efficiency (about 10–15%), far below a nuclear reactor.

D. A dry battery cell is less efficient than a nuclear reactor.

Question 44 Physics

The units of E in $E=mc^2$ are

- A. kg m s^{-2}
- B. N m s^{-2}
- C. kg m^2 s^{-2} ✓ **Correct answer**
- D. Both B and C

A. That is the unit of force (newton), not of energy.

B. That is not a unit of energy; energy is N·m = kg m^2 s^{-2}.

C. E is energy, whose units are kg m^2 s^{-2} (joule).

D. B is not a unit of energy, so "both" is wrong.

Question 45 Physics

Work done on a body equals change in its _____ energy.

- A. Total
- B. Potential
- C. Kinetic
- D. All of these ✓ **Correct answer**

A. Work done on a body can change its total energy, but that is only one of the forms.

B. Work done against a conservative force changes the potential energy, but that is only one of the forms.

e by a net force changes the kinetic energy, but that is only one of the forms.

D. The work done on a body appears as a change in its energy — kinetic, potential and hence total — so all of these apply.

Question 46 Physics

A pipe varies uniformly in diameter from 2 m to 4 m. An incompressible fluid enters the pipe with velocity 16m/sec. What is velocity of fluid when it leaves the pipe?

- A. 64 m/sec
- B. 32 m/sec
- C. 8 m/sec
- D. 4 m/sec ✓ **Correct answer**

A. By the equation of continuity the velocity falls as the area rises, it does not increase.

B. The velocity falls to 4 m/sec, not 32 m/sec.

C. The velocity falls by the ratio of the areas $(2/4)^2 = 1/4$, giving 4 m/sec, not 8 m/sec.

D. By the equation of continuity $A_1v_1 = A_2v_2$, so $v_2 = v_1(d_1/d_2)^2 = 16 \times (2/4)^2 = 16/4 = 4$ m/sec.

Question 47 Physics

Transverse waves cannot be setup in _____

- A. Metals
- B. Solids
- C. Fluids ✓ **Correct answer**
- D. Soil

A. Transverse waves can be set up in metals, which are solids with shear elasticity.

B. Transverse waves can be set up in solids.

C. Fluids have no shear elasticity, so transverse waves cannot be set up in them.

olid medium in which transverse (shear) waves can travel.

Question 48 Physics

The ratio of the _____ is called magnification.

- A. Image size to object size ✓ **Correct answer**
- B. Object size to image size
- C. Eyepiece size to object size
- D. None of these

A. Magnification is the ratio of the image size to the object size.

B. That is the reciprocal of the magnification.

C. Magnification is not defined by the eyepiece size.

D. The image-to-object size ratio is the magnification.

Question 49 Physics

Which of the following has the highest resistivity?

- A. Germanium ✓ **Correct answer**
- B. Silver
- C. Copper
- D. Platinum

A. Germanium is a semiconductor with a resistivity of about 0.46 Ω·m, by far the highest of the four.

B. The official key gives B, which is wrong: silver has the LOWEST resistivity of all metals (about 1.6×10^{-8} Ω·m).

C. Copper is a good conductor with a very low resistivity (about 1.7×10^{-8} Ω·m).

D. Platinum has a low resistivity (about 1.1×10^{-7} Ω·m), far below germanium's.

50 Physics

An n-type semi-conductor is made by doping silicon crystal with _____

- A. Indium
- B. Aluminium
- C. Arsenic ✓ **Correct answer**
- D. Both B and C

A. Indium is trivalent, so it makes a p-type semiconductor, not n-type.

B. Aluminium is trivalent, so it makes a p-type semiconductor, not n-type.

C. Arsenic is pentavalent, so doping silicon with it adds free electrons and makes an n-type semiconductor.

D. Aluminium makes p-type, so "both" is wrong.

Question 51 Physics

Objects cannot be accelerated to the speed of light in free space is consequence of

- A. Mass variation
- B. Energy-mass relationship
- C. Inertia forces
- D. All of these ✓ **Correct answer**

A. The relativistic increase of mass with speed is one reason an object cannot reach the speed of light, but it is not the only one.

B. The energy required grows without limit as the speed approaches c, but that is not the only reason.

C. The inertia of a body grows with its speed, but that is not the only reason.

D. The impossibility of reaching the speed of light follows from the relativistic mass variation, the energy-mass relationship and the growth of inertia together.

52 Physics

A certain radioactive mass decays from 64 gm to 2 gm in 20 days. What is its half-life?

- A. 5 days
- B. 4 days ✓ **Correct answer**
- C. 10 days
- D. 6 days

A. 64 g to 2 g is five half-lives, so the half-life is 20/5 = 4 days, not 5.

B. 64 → 32 → 16 → 8 → 4 → 2 g is five half-lives in 20 days, so one half-life is 20/5 = 4 days.

C. Five half-lives in 20 days gives 4 days each, not 10.

D. Five half-lives in 20 days gives 4 days each, not 6.

Question 53 Physics

If inductance is denoted by L and resistance by R, which of the following is true for a choke?

- A. R is large, L is very small
- B. R is very small, L is large ✓ **Correct answer**
- C. Both R and L are large
- D. Both R and L are very small

A. A choke has a large inductance and a small resistance, the opposite of this.

B. A choke coil has a large inductance and a very small resistance, so it blocks AC with little power loss.

C. The resistance of a choke is very small, not large.

D. The inductance of a choke is large, not very small.

54 Physics

A force 2i + j has moved its point of application from (2,3) to (6,5). What is work done?

- A. -10
- B. +10 ✓ **Correct answer**
- C. -18
- D. +18

A. The work is +10, not −10.

B. Displacement = (6−2)i + (5−3)j = 4i + 2j, so work = F·d = 2×4 + 1×2 = 10.

C. The work is +10, not −18.

D. The work is 2×4 + 1×2 = 10, not 18.

Question 55 Physics

The escape velocity corresponds to _____ energy gained by body, which carries it to an infinite distance from the surface of earth.

- A. Total
- B. Potential
- C. Initial kinetic ✓ **Correct answer**
- D. None of these

A. The escape velocity corresponds to the initial kinetic energy, not the total energy.

B. The escape velocity corresponds to the initial kinetic energy, not the potential energy.

C. A body escapes when its initial kinetic energy equals the work needed against gravity to reach infinity, so the escape velocity corresponds to the initial kinetic energy.

D. The initial kinetic energy is the correct answer.

56 Physics

The drag force decreases as the speed of an object moving through fluid _____

- A. Increases
- B. Decreases ✓ **Correct answer**
- C. Remains constant
- D. Both B and C

A. Drag increases with speed, so it decreases when the speed decreases.

B. The drag force is proportional to the speed (or its square), so it decreases as the speed decreases.

C. Drag depends on speed, so it does not remain constant.

D. The drag decreases with speed; it does not remain constant.

Question 57 Physics

Light year is a measure of

- A. Distance ✓ **Correct answer**
- B. Time
- C. Intensity of light
- D. Velocity

A. A light year is the distance light travels in one year.

B. A light year is a distance, not a time.

C. A light year is a distance, not a measure of intensity.

D. A light year is a distance, not a velocity.

58 Physics

A yellow light of wavelength 500 mm emitted by a single source passes through two narrow slits 1 mm apart. How far apart are two adjacent bright fringes when interference is observed on a screen 10 m away?

- A. 5 mm ✓ **Correct answer**
- B. 1.33 mm
- C. 0.5 mm
- D. 50 mm

A. The paper misprints the wavelength as "500 mm"; it is 500 nm. Fringe spacing $\beta = \lambda L/d = 500 \times 10^{-9} \times 10 / 10^{-3} = 5 \times 10^{-3}$ m = 5 mm.

B. With λ = 500 nm the fringe spacing is 5 mm, not 1.33 mm.

C. With λ = 500 nm the fringe spacing is 5 mm, not 0.5 mm.

D. With λ = 500 nm the fringe spacing is 5 mm, not 50 mm.

Question 59 Physics

The heat produced by a current I in the wire of resistance R during time interval t is

- A. I^2/Rt
- B. I^2Rt ✓ **Correct answer**
- C. $I^2/R/t$
- D. IR^2t

A. Joule's law gives heat = I^2Rt, not I^2/Rt.

B. The heat produced is $H = I^2Rt$ (Joule's law of heating).

C. Joule's law gives heat = I^2Rt, not $I^2/R/t$.

D. Joule's law gives heat = I^2Rt, not IR^2t.

60 Physics

Which of the following is the most ductile?

- A. Glass
- B. Copper ✓ **Correct answer**
- C. Cast iron
- D. High carbon steel

A. Glass is brittle, not ductile.

B. Copper is the most ductile of the four; it can be drawn into fine wires.

C. Cast iron is brittle, not ductile.

D. High carbon steel is hard and less ductile than copper.

Question 61 Chemistry

Which type of bonding is present in NH_4Cl?

- A. Ionic
- B. Covalent
- C. Coordinate covalent
- D. All of these ✓ **Correct answer**

A. NH_4Cl has ionic bonding between NH_4^+ and Cl^-, but that is not the whole story.

B. NH_4Cl has covalent N–H bonds, but that is not the whole story.

C. NH_4Cl has a coordinate covalent (dative) N→H bond, but that is not the whole story.

D. NH_4Cl contains all three: ionic bonding between NH_4^+ and Cl^-, covalent N–H bonds, and a coordinate covalent bond in the ammonium ion. The official key gives C, which is wrong: only "All of these" covers every bond present.

62 Chemistry

When $CuSO_4$ is electrolyzed in aqueous solution using copper electrodes, then the substance which deposits at the cathode is:

- A. Copper metal ✓ **Correct answer**
- B. Copper ions
- C. Hydrogen
- D. Oxygen

A. At the cathode Cu^{2+} ions are reduced to copper metal, which deposits on the electrode.

B. Copper ions are reduced to copper metal at the cathode; ions themselves do not deposit.

C. Hydrogen is not discharged at the cathode here; Cu^{2+} is discharged preferentially.

D. Oxygen is evolved at the anode, not deposited at the cathode.

Question 63 Chemistry

Aldehydes can be synthesized by the oxidation of

- A. Primary alcohols ✓ **Correct answer**
- B. Secondary alcohols
- C. Organic acids
- D. Inorganic acids

A. Controlled oxidation of a primary alcohol gives an aldehyde.

B. Oxidation of a secondary alcohol gives a ketone, not an aldehyde.

C. Oxidation of an organic acid does not give an aldehyde.

D. Inorganic acids do not oxidise to aldehydes.

64 Chemistry

The products of the fermentation of a sugar are ethanol and

- A. Water
- B. Oxygen
- C. Carbon dioxide ✓ **Correct answer**
- D. Sulfur dioxide

A. Fermentation of sugar gives ethanol and carbon dioxide, not water.

B. Fermentation is anaerobic and gives ethanol and carbon dioxide, not oxygen.

C. Fermentation of sugar (e.g. glucose) by yeast gives ethanol and carbon dioxide.

D. Fermentation of sugar gives ethanol and carbon dioxide, not sulfur dioxide.

Question 65 Chemistry

_____ serve as carriers of heredity from one generation to the other.

- A. Lipids
- B. Caseins
- C. Formaldehydes
- D. Nucleoproteins ✓ **Correct answer**

A. Lipids store energy and form membranes; they do not carry heredity.

B. Caseins are milk proteins; they do not carry heredity.

C. Formaldehyde is a simple aldehyde; it does not carry heredity.

D. Nucleoproteins (nucleic acids combined with proteins, i.e. chromosomes) carry hereditary information from one generation to the next.

66 Chemistry

_____ extraction is controlled by partition law.

- A. Iodine
- B. Benzoic acid
- C. Solvent ✓ **Correct answer**
- D. Stationery

A. Iodine is a substance that can be extracted, not the extraction controlled by the partition law.

B. Benzoic acid is a substance that can be extracted, not the extraction controlled by the partition law.

C. Solvent extraction is controlled by the partition (distribution) law.

D. "Stationery" is not a chemical extraction term.

Question 67 Chemistry

The process of effusion is best understood by _____ law.

- A. Graham's ✓ **Correct answer**
- B. Charles's
- C. Boyle's
- D. None of these

A. Effusion (escape of gas through a small hole) is described by Graham's law of diffusion/effusion.

B. Charles's law relates volume and temperature at constant pressure, not effusion.

C. Boyle's law relates pressure and volume at constant temperature, not effusion.

D. Graham's law is the correct law.

68 Chemistry

_____ has dipole moment.

- A. CO ✓ **Correct answer**
- B. CO_2
- C. Benzene
- D. All of these

A. Carbon monoxide is a polar molecule with a dipole moment.

B. Carbon dioxide is linear and symmetrical, so its dipole moment is zero.

C. Benzene is symmetrical, so its dipole moment is zero.

D. Only CO has a dipole moment; CO_2 and benzene do not.

Question 69 Chemistry

_____ is used as catalyst in Haber's process for NH_3 gas manufacture.

- A. Iron ✓ **Correct answer**
- B. Carbon
- C. Copper
- D. Silver

A. Finely divided iron (with promoters) is the catalyst in Haber's process for ammonia.

B. Carbon is not the Haber process catalyst.

C. Copper is not the Haber process catalyst.

D. Silver is not the Haber process catalyst.

Question 70 Chemistry

In many of its properties _____ is quite different from the other alkali metals.

Correct answer

- B. Be
- C. Na
- D. K

A. Lithium is anomalous among the alkali metals (small size, high charge density, diagonal relationship with magnesium).

B. Beryllium is an alkaline earth metal, not an alkali metal.

C. Sodium behaves like the other alkali metals; lithium is the anomalous one.

D. Potassium behaves like the other alkali metals; lithium is the anomalous one.

Question 71 Chemistry

Which element forms long chains alternating with oxygen?

- A. Carbon
- B. Silicon ✓ **Correct answer**
- C. Nitrogen
- D. All of these

A. Carbon forms long chains with itself (catenation), not chains alternating with oxygen.

B. Silicon forms long chains alternating with oxygen (–Si–O–Si–O–), as in silicates and silicones.

C. Nitrogen does not form long chains alternating with oxygen.

D. The official key gives D, which is wrong: only silicon forms long chains alternating with oxygen.

Question 72 Chemistry

The percentage of carbon in medium carbon steel is

1.5

- B. 0.1-0.2
- C. 0.2-0.7 ✓ **Correct answer**
- D. 1.6-2.00

A. That is the carbon range of high carbon steel, not medium carbon steel.

B. That is the carbon range of low (mild) carbon steel, not medium carbon steel.

C. Medium carbon steel contains 0.2–0.7% carbon.

D. That is above the carbon range of steel altogether.

Question 73 Chemistry

Name the rare halogen among the following.

- A. F
- B. Cl
- C. I
- D. At ✓ **Correct answer**

A. Fluorine is a common halogen, not the rare one.

B. Chlorine is a common halogen, not the rare one.

C. Iodine is a common halogen, not the rare one.

D. Astatine is the rarest naturally occurring halogen.

Question 74 Chemistry

Which bond will break when electrophile attacks an alcohol?

- A. O – H ✓ **Correct answer**
- B. C – O
- C. Both A and B

A. An electrophile attacks the lone pair on oxygen, and the O–H bond breaks (the proton is lost).

B. The C–O bond breaks when a nucleophile attacks the carbon, not when an electrophile attacks.

C. Only the O–H bond breaks on electrophilic attack.

D. The O–H bond breaks.

Question 75 Chemistry

The extent of un-saturation in a fat is expressed as its

- A. Acid number
- B. Iodine number ✓ **Correct answer**
- C. Saponification number
- D. None of these

A. The acid number measures free fatty acids, not unsaturation.

B. The iodine number (grams of iodine absorbed per 100 g of fat) measures the extent of unsaturation.

C. The saponification number measures the average molecular weight of the fat, not unsaturation.

D. The iodine number is the correct measure.

Question 76 Chemistry

The process of filtration is used to separate _____ particles from liquids.

- A. Radial
- B. Angular

- oluble ✓ **Correct answer**
- D. Soluble

A. Filtration separates insoluble particles, not "radial" particles.

B. Filtration separates insoluble particles, not "angular" particles.

C. Filtration separates insoluble solid particles from a liquid.

D. Soluble substances pass through the filter with the liquid; they are not separated by filtration.

Question 77 Chemistry

London forces are very significant in _____

- A. Sulphur
- B. Phosphorous
- C. Argon ✓ **Correct answer**
- D. Sugar

A. Sulphur has covalent bonding within S_8 molecules; London forces are not its defining interaction.

B. Phosphorus has covalent bonding within P_4 molecules; London forces are not its defining interaction.

C. Argon is a noble gas with no other intermolecular forces, so London (dispersion) forces are its only and very significant interaction.

D. Sugar molecules are held together mainly by hydrogen bonding, not London forces.

Question 78 Chemistry

Which of the following formation is endothermic reaction?

- A. $2H_2(g) + O_2(g) \rightarrow 2H_2O(l)$

- C. $N_2(g) + O_2(g) \rightarrow N_2O_2(g)$ ✓ **Correct answer**
- D. None of these

A. The formation of water is strongly exothermic.

B. The formation of carbon dioxide is strongly exothermic.

C. The formation of nitrogen oxide from N_2 and O_2 is endothermic (it absorbs heat). Note the paper prints the product as "$N_2O_2(g)$", a misprint for 2NO(g).

D. The nitrogen oxide formation is endothermic.

Question 79 Chemistry

Name the partially miscible liquids from the following?

- A. Alcohol-ether
- B. Nicotine-water ✓ **Correct answer**
- C. Benzene-water
- D. Both A and B

A. Alcohol and ether are completely miscible, not partially miscible.

B. Nicotine and water are partially miscible liquids.

C. Benzene and water are almost completely immiscible, not partially miscible.

D. Alcohol-ether is completely miscible, so "both" is wrong.

Question 80 Chemistry

AlI_3 (Aluminium Iodide) is electrically a _____

- A. Conductor
- B. Non-conductor ✓ **Correct answer**
- C. Semiconductor

A. Aluminium iodide is covalent, so it does not conduct electricity.

B. AlI_3 is a covalent compound with no free ions or electrons, so it is a non-conductor.

C. Aluminium iodide is a non-conductor, not a semiconductor.

D. Non-conductor is the correct description.

Question 81 Chemistry

The elements of IIIA to VIIIA subgroups except He are known as _____ block elements.

- A. q
- B. s
- C. p ✓ **Correct answer**
- D. None of these

A. There is no "q block" in the periodic table.

B. The s-block is groups IA and IIA, not IIIA to VIIIA.

C. The elements of groups IIIA to VIIIA (except helium) fill the p orbitals, so they are p-block elements.

D. The p-block is the correct answer.

Question 82 Chemistry

Concentrated nitric acid gives _____ when it reacts with tin.

- A. Nitric oxide
- B. Meta stannic acid ✓ **Correct answer**
- C. Ammonium nitrite
- D. None of these

ıted nitric acid oxidises tin to metastannic acid; nitric oxide is not the product here.

B. Concentrated HNO_3 oxidises tin to metastannic acid (H_2SnO_3).

C. The official key gives C, which is wrong: ammonium nitrite is not formed in this reaction.

D. Meta stannic acid is formed.

Question 83 Chemistry

Sulphuric acid is used to manufacture

- A. HCl and HNO_3
- B. H_3PO_4
- C. Both A and B ✓ **Correct answer**
- D. Both HCl and 2COOH

A. Sulphuric acid is used to manufacture HCl and HNO_3, but that is not the whole answer.

B. Sulphuric acid is used to manufacture phosphoric acid, but that is not the whole answer.

C. Sulphuric acid is used to manufacture HCl, HNO_3 and H_3PO_4, so "Both A and B" is correct.

D. The official key gives D, which is wrong: the option is garbled as printed and does not name the products.

Question 84 Chemistry

Alkanes containing _____ carbon atoms are waxy solids.

- A. up to 4
- B. 5 to 17
- C. 18 or more ✓ **Correct answer**

A. Alkanes with up to 4 carbons are gases, not waxy solids.

B. Alkanes with 5 to 17 carbons are liquids, not waxy solids.

C. Alkanes with 18 or more carbon atoms are waxy solids.

D. Alkanes with 18 or more carbons are waxy solids.

Question 85 Chemistry

Which of the following is used to make chloral hydrate?

- A. Acetaldehyde ✓ **Correct answer**
- B. Formaldehyde
- C. None of these
- D. Both A and B

A. Chloral hydrate is made from chloral (trichloroacetaldehyde), obtained from acetaldehyde.

B. Formaldehyde is not used to make chloral hydrate.

C. Acetaldehyde is used.

D. Formaldehyde is not used, so "both" is wrong.

Question 86 Chemistry

Ten moles of hydrogen are allowed to react with 6 moles of oxygen. How much water will be obtained from reaction on complete consumption of one gas?

- A. 10 moles ✓ **Correct answer**
- B. 8 moles
- C. 6 moles
- D. 4 moles

→ $2H_2O$. 10 mol H_2 needs 5 mol O_2 and gives 10 mol H_2O; hydrogen is the limiting reagent.

B. The stoichiometry gives 10 mol of water, not 8.

C. The stoichiometry gives 10 mol of water, not 6.

D. The stoichiometry gives 10 mol of water, not 4.

Question 87 Chemistry

The highest temperature a substance can exist as _____ is called its critical temperature.

- A. Solid
- B. Liquid ✓ **Correct answer**
- C. Gas
- D. Isotope

A. The critical temperature is about the liquid state, not the solid state.

B. The critical temperature is the highest temperature at which a substance can exist as a liquid.

C. Above the critical temperature the substance is a gas and cannot be liquefied; the critical temperature is defined by the liquid.

D. An isotope is a variant of an element, not a state of matter.

Question 88 Chemistry

_____ hybridization leads to a regular tetrahedral structure.

- A. sp^3 ✓ **Correct answer**
- B. sp^2
- C. sp
- D. All of these

ization gives a regular tetrahedral geometry.

B. sp^2 hybridization gives a trigonal planar geometry, not tetrahedral.

C. sp hybridization gives a linear geometry, not tetrahedral.

D. Only sp^3 gives a tetrahedral structure.

Question 89 Chemistry

Osmotic pressure of a solution is _____ property.

- A. Obligative
- B. Fractional
- C. Colligative ✓ **Correct answer**
- D. Automated

A. "Obligative" is not a property of solutions.

B. Osmotic pressure is a colligative property, not a "fractional" one.

C. Osmotic pressure depends on the number of solute particles, so it is a colligative property.

D. "Automated" is not a property of solutions.

Question 90 Chemistry

Magnesium reacts with hydrogen at high pressure in the presence of catalyst _____ forming magnesium hydride.

- A. Dolomite
- B. MgI_2 ✓ **Correct answer**
- C. Mg_3N_2
- D. Epsom salt

A. Dolomite is not the catalyst for magnesium hydride formation.

m reacts with hydrogen at high pressure in the presence of MgI_2 catalyst to form magnesium hydride.

C. Magnesium nitride is not the catalyst here.

D. Epsom salt ($MgSO_4 \cdot 7H_2O$) is not the catalyst here.

Question 91 Chemistry

Which element has the largest number of allotropic forms?

- A. Phosphorous
- B. Sulphur ✓ **Correct answer**
- C. Oxygen
- D. Both A & C

A. The official key gives A, which is wrong: phosphorus has only a few allotropic forms (white, red, black).

B. Sulphur has the largest number of allotropic forms (rhombic, monoclinic, plastic, colloidal and others).

C. Oxygen has only two allotropic forms (O_2 and O_3).

D. Neither phosphorus nor oxygen has the largest number of allotropic forms.

Question 92 Chemistry

With increase in number of unpaired electrons, paramagnetism:

- A. Increases ✓ **Correct answer**
- B. Decreases
- C. Remains constant
- D. Decreases then increases

A. Paramagnetism increases with the number of unpaired electrons.

aired electrons means stronger paramagnetism, not weaker.

C. Paramagnetism changes with the number of unpaired electrons.

D. Paramagnetism increases steadily with the number of unpaired electrons.

Question 93 Chemistry

Which metal is commonly used to remove air bubbles from molten metals?

- A. Aluminium ✓ **Correct answer**
- B. Copper
- C. Sodium
- D. Calcium

A. Aluminium is commonly added to molten metals to remove dissolved air (oxygen) bubbles.

B. Copper is not used to remove air bubbles from molten metals.

C. Sodium is not used to remove air bubbles from molten metals.

D. Calcium is not the metal commonly used for this purpose.

Question 94 Chemistry

Which of the following bonds has minimum bond energy?

- A. C – F
- B. C – Cl
- C. C – I ✓ **Correct answer**
- D. C – Br

A. The C–F bond is the strongest of the four, with the highest bond energy.

B. The C–Cl bond is stronger than C–Br and C–I.

ond is the weakest of the four (largest halogen, longest bond), so it has the minimum bond energy.

D. The C–Br bond is stronger than the C–I bond.

Question 95 Chemistry

Which of the following does not react with water?

- A. Li
- B. Na
- C. Mg
- D. Be

No answer is given for this question, and none is taught. DEFECTIVE — excluded as DEFECTIVE, 15 Nov 2026 (decided by assistant under owner's 8 Nov 2026 delegation). Both Mg and Be are defensible as not reacting with cold water (magnesium reacts only with hot water/steam, and beryllium does not react with water at all), so there is no unique answer; the official key marks this question X.

Question 96 Chemistry

$Al_2O_3(SiO_2).2H_2O$ is called

- A. Clay ✓ **Correct answer**
- B. Talc
- C. Asbestos
- D. None of these

A. $Al_2O_3{\cdot}(SiO_2){\cdot}2H_2O$ is the composition of clay (kaolinite).

B. Talc is a magnesium silicate, not this composition.

C. Asbestos is a fibrous silicate mineral, not this composition.

D. The composition is that of clay.

97 Chemistry

CaO forms fertilize slag by reacting with

- A. P_2O_5
- B. Fe_2O_3
- C. Silica ✓ **Correct answer**
- D. FO

A. CaO does not form the fertilizer slag with P_2O_5.

B. CaO does not form the fertilizer slag with Fe_2O_3.

C. CaO reacts with silica (SiO_2) to form calcium silicate slag, used as a fertilizer slag.

D. "FO" is not a substance that forms slag with CaO.

Question 98 Chemistry

_____ is colorless volatile liquid at room temperature.

- A. HCl
- B. HF ✓ **Correct answer**
- C. HI
- D. HBr

A. Hydrogen chloride is a gas at room temperature, not a liquid.

B. Hydrogen fluoride is a colourless volatile liquid at room temperature (boiling point 19.5 °C).

C. Hydrogen iodide is a gas at room temperature, not a liquid.

D. Hydrogen bromide is a gas at room temperature, not a liquid.

99 Chemistry

Hydrogen passed through phenol at 150 °C in the presence of _____ catalyst gives cyclohexanol.

- A. Tin
- B. Nickel ✓ **Correct answer**
- C. Iron
- D. Sodium

A. Tin is not the catalyst for the hydrogenation of phenol to cyclohexanol.

B. Nickel catalyses the hydrogenation of phenol to cyclohexanol at 150 °C.

C. Iron is not the catalyst for this hydrogenation.

D. Sodium is not the catalyst for this hydrogenation.

Question 100 Chemistry

Ethanol-water is _____ mixture.

- A. Azeotropic ✓ **Correct answer**
- B. Ideal
- C. Benedict's
- D. Aliphatic

A. Ethanol and water form an azeotropic mixture (a constant-boiling mixture, 95.6% ethanol).

B. Ethanol-water is a non-ideal mixture (it shows positive deviation from Raoult's law).

C. Benedict's is a reagent, not a type of mixture.

D. "Aliphatic" describes a class of organic compounds, not a mixture type.

101 Chemistry

The mobile phase in paper chromatography is usually

- A. An organic liquid ✓ **Correct answer**
- B. Sulphuric acid
- C. Water
- D. Silver nitrate

A. In paper chromatography the mobile phase is usually an organic liquid (solvent) that moves up the paper.

B. Sulphuric acid is not the mobile phase in paper chromatography.

C. Water is the stationary phase (held in the paper fibres), not the mobile phase.

D. Silver nitrate is not the mobile phase in paper chromatography.

Question 102 Chemistry

The amount of heat absorbed by one mole of solid at 1 atm when it melts into liquid form is denoted by _____

- A. ΔHv
- B. ΔHf ✓ **Correct answer**
- C. ΔHl
- D. ΔHs

A. ΔHv is the enthalpy of vaporisation, not of fusion.

B. The heat absorbed on melting (fusion) is the molar enthalpy of fusion, ΔHf.

C. ΔHl is not the symbol for the heat of fusion.

D. ΔHs is the enthalpy of sublimation, not of fusion.

103 Chemistry

In synthetic fibres _____ bonding is responsible for tensile strength.

- A. Nitrogen
- B. Hydrogen
- C. Oxygen
- D. None of these ✓ **Correct answer**

A. Tensile strength comes from hydrogen bonding between polymer chains, not from nitrogen as such.

B. Tensile strength comes from hydrogen bonding between chains, not from hydrogen as an element.

C. Tensile strength comes from hydrogen bonding between chains, not from oxygen as such.

D. None of the listed elements is the bonding; it is hydrogen bonding between the polymer chains that gives synthetic fibres their tensile strength.

Question 104 Chemistry

Boiling point of HF is _____ H_2O.

- A. Lower than ✓ **Correct answer**
- B. Higher than
- C. Equal to
- D. Almost same as

A. HF boils at 19.5 °C, which is lower than water's boiling point of 100 °C.

B. The official key gives B, which is wrong: 19.5 °C is lower than 100 °C.

C. The boiling points are not equal.

D. 19.5 °C and 100 °C are very different.

105 Chemistry

_____ is necessary for development of leaves and it tends to accumulate in leaves and bark.

- A. NO_2
- B. Calcium ✓ **Correct answer**
- C. Gypsum
- D. Nitrogen

A. Nitrogen dioxide is not the element needed for leaf development.

B. Calcium is necessary for the development of leaves and tends to accumulate in leaves and bark.

C. Gypsum (calcium sulphate) is a source of calcium, but the element itself is calcium.

D. Nitrogen is needed for growth generally, but calcium is the element that accumulates in leaves and bark.

Question 106 Chemistry

Which of the following is pale yellow to reddish yellow in color?

- A. Pb_2O
- B. PbO_2
- C. PbO ✓ **Correct answer**
- D. $2PbCO_3.Pb(OH)_2$

A. Pb_2O is not the pale yellow to reddish yellow oxide.

B. Lead dioxide is dark brown, not pale yellow to reddish yellow.

C. Lead(II) oxide (litharge/massicot) is pale yellow to reddish yellow.

D. White lead is white, not pale yellow to reddish yellow.

107 Chemistry

In which of the following carbon is double bonded with itself?

- A. Alkane
- B. Ether
- C. Alkene ✓ **Correct answer**
- D. Alkyne

A. Alkanes have only single C–C bonds.

B. Ethers have C–O single bonds, not C=C.

C. Alkenes contain a carbon–carbon double bond (C=C).

D. Alkynes contain a carbon–carbon triple bond (C≡C), not a double bond.

Question 108 Chemistry

In this process, higher hydrocarbons can be cracked at lower temperature and lower pressure.

- A. Thermal cracking
- B. Catalytic cracking ✓ **Correct answer**
- C. Steam cracking
- D. Reforming

A. Thermal cracking needs high temperature and high pressure.

B. A catalyst allows higher hydrocarbons to be cracked at lower temperature and lower pressure.

C. Steam cracking uses high temperatures.

D. Reforming rearranges hydrocarbons; it is not the low-temperature cracking process.

109 Chemistry

Acetic acid is called _____ acid.

- A. Methanoic
- B. Propanoic
- C. Ethanoic ✓ **Correct answer**
- D. Butanoic

A. Methanoic acid is formic acid, not acetic acid.

B. Propanoic acid has three carbons; acetic acid has two.

C. Acetic acid (CH_3COOH) is ethanoic acid.

D. Butanoic acid has four carbons; acetic acid has two.

Question 110 Chemistry

Na may be denoted by _____ electron configuration notation

- A. $1s^2\ 2s^1$
- B. [Ar] $4s^1$
- C. [Ne] $3s^1$ ✓ **Correct answer**
- D. None of these

A. That is the configuration of lithium, not sodium.

B. That is the configuration of potassium, not sodium.

C. Sodium (atomic number 11) has the configuration [Ne] $3s^1$.

D. [Ne] $3s^1$ is the correct notation.

Question 111 Chemistry

Which is the best drying agent in desiccators?

- B. Gypsum
- C. $CaCl_2$ ✓ **Correct answer**
- D. Silica sand

A. Potassium hydroxide is a drying agent but is caustic and not the best for desiccators.

B. Gypsum is not the best drying agent.

C. Anhydrous calcium chloride is the best drying agent in desiccators.

D. Silica sand is not the best drying agent.

Question 112 Chemistry

100 m^3 of a gas at 3 atm pressure and 27 °C is transferred to a chamber of 300 m^3 volume maintained at a temperature of 327 °C. What will be the pressure in chamber?

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

A. By the combined gas law the pressure is 2 atm, not 6.

B. By the combined gas law the pressure is 2 atm, not 4.

C. By $P_1V_1/T_1 = P_2V_2/T_2$: $3 \times 100/300 = P_2 \times 300/600$, so $P_2 = 2$ atm.

D. By the combined gas law the pressure is 2 atm, not 1.

Question 113 Chemistry

The crystals of _____ are ionic solids.

- A. Sugar
- B. Iron

- D. NaCl ✓ **Correct answer**

A. Sugar crystals are molecular solids, not ionic.

B. Iron is a metallic solid, not ionic.

C. Diamond is a covalent network solid, not ionic.

D. Sodium chloride crystals are ionic solids.

Question 114 Chemistry

Which material possesses the highest pH?

- A. Soft drinks
- B. Bananas
- C. Milk of magnesia ✓ **Correct answer**
- D. Sea water

A. Soft drinks are acidic (pH about 2–4).

B. Bananas are slightly acidic (pH about 5).

C. Milk of magnesia is basic with a pH of about 10.5, the highest of the four.

D. Sea water is slightly basic (pH about 8), lower than milk of magnesia.

Question 115 Chemistry

The electron present in a particular orbit _____ energy.

- A. Releases
- B. Does not radiate ✓ **Correct answer**
- C. Absorbs
- D. None of these

n in a fixed orbit does not release energy; it releases energy only when jumping to a lower orbit.

B. By Bohr's postulate, an electron in a particular orbit does not radiate energy.

C. An electron absorbs energy only when jumping to a higher orbit, not while staying in one orbit.

D. The electron does not radiate energy in its orbit.

Question 116 Chemistry

$Al_2F_2SiO_4$ is named as

- A. Gibbsite
- B. Emerald
- C. Bauxite
- D. Cryolite

No answer is given for this question, and none is taught. DEFECTIVE — excluded as DEFECTIVE, 15 Nov 2026 (decided by assistant under owner's 8 Nov 2026 delegation). $Al_2F_2SiO_4$ is topaz, which is not among the options; the official key's B (Emerald) is wrong — emerald is $Be_3Al_2(SiO_3)_6$.

Question 117 Chemistry

Name the oxide in which N has the highest oxidation number.

- A. Nitrous oxide
- B. Nitric oxide
- C. Nitrogen peroxide ✓ **Correct answer**
- D. Nitrous anhydride

A. In N_2O the oxidation number of N is +1, not the highest.

B. In NO the oxidation number of N is +2, not the highest.

trogen peroxide) the oxidation number of N is +4, the highest of the four.

D. The official key gives D, which is wrong: in N_2O_3 (nitrous anhydride) the oxidation number of N is +3, lower than +4 in NO_2.

Question 118 Chemistry

Sulphur has oxidation state of _____

- A. ± 2
- B. + 4 and +6
- C. None of these
- D. Both A and B ✓ **Correct answer**

A. Sulphur shows −2 (in sulphides) and +2, but that is not the whole range.

B. Sulphur shows +4 (in SO_2) and +6 (in SO_3), but that is not the whole range.

C. Sulphur does show these oxidation states.

D. Sulphur shows −2, +2, +4 and +6, so both A and B apply.

Question 119 Chemistry

CH_3-O-CH_3 is example of _____ isomerism.

- A. Metamerism
- B. Functional group ✓ **Correct answer**
- C. Chain
- D. Position

A. Metamerism is isomerism within the ether family from different alkyl groups; dimethyl ether is the functional group isomer of ethanol.

B. Dimethyl ether (CH_3OCH_3) and ethanol (C_2H_5OH) have the same formula C_2H_6O but different functional groups, so this is functional group isomerism.

merism involves different carbon skeletons, not different functional groups.

D. Position isomerism involves the same functional group at different positions, not different functional groups.

Question 120 Chemistry

_____ are product of reaction of an alcohol and aromatic bi-functional acids.

- A. Acrylic resins
- B. Polyester resins ✓ **Correct answer**
- C. PVCs
- D. Polyamide resins

A. Acrylic resins are not the product of an alcohol and an aromatic bi-functional acid.

B. Alcohols react with aromatic bi-functional (dicarboxylic) acids to give polyester resins.

C. PVC is made from vinyl chloride, not from an alcohol and an acid.

D. Polyamides come from amines and acids, not from alcohols and acids.

Question 121 English

He was _____ of all valuable possessions.

- A. Robbed ✓ **Correct answer**
- B. Stolen
- C. Pinched
- D. Established

A. A person is "robbed of" his possessions, so "robbed" is correct.

B. Things are stolen, but a person is robbed; "stolen" does not fit "He was _____ of".

C. "Pinched" is slang for stolen and does not fit the formal construction.

ed of possessions" makes no sense.

Question 122 English

The presence of armed guards _____ us from doing anything disruptive.

- A. Defeated
- B. Excited
- C. Irritated
- D. Prevented ✓ **Correct answer**

A. The guards prevented disruption; they did not "defeat us from" doing anything.

B. The guards did not excite us from doing anything.

C. The guards did not irritate us from doing anything.

D. "Prevented us from doing" is the correct construction: the guards stopped any disruptive action.

Question 123 English

Our flight was _____ from Lahore to Islamabad airport.

- A. Diverted ✓ **Correct answer**
- B. Reflected
- C. Deflected
- D. Shifted

A. A flight sent to a different airport is "diverted".

B. "Reflected" is used for light or thought, not for rerouting a flight.

C. "Deflected" is used for a blow or a moving object turned aside, not for rerouting a flight.

D. "Shifted" does not describe a flight rerouted to another airport.

124 English

I am _____ forward to our picnic scheduled in next month.

- A. Looking ✓ **Correct answer**
- B. Planning
- C. Seeing
- D. Going

A. "Looking forward to" is the correct idiom.

B. "Planning forward to" is not an English idiom.

C. "Seeing forward to" is not an English idiom.

D. "Going forward to" is not an English idiom.

Question 125 English

SPOT THE ERROR: They _did not_ guess _how closely_ he _had kept in_ touch _with across_ the road.

- A. did not
- B. how closely
- C. had kept in
- D. with across ✓ **Correct answer**

A. "Did not guess" is grammatical.

B. "How closely" is grammatical.

C. "Had kept in touch" is grammatical.

D. "With across" is ungrammatical; the phrase should be "from across the road" (or simply "across the road").

126 English

SPOT THE ERROR: He proved _that if_ only _germs were_ excluded _of wounds_, _inflammation was_ averted.

- A. that if
- B. germs were
- C. of wounds ✓ **Correct answer**
- D. inflammation was

A. "That if" is grammatical in this construction.

B. "Germs were excluded" is grammatical.

C. The error is "excluded of wounds": the verb "exclude" takes "from", so it should be "excluded from wounds".

D. "Inflammation was averted" is grammatical. The official key gives A, which is wrong: "that if" is grammatical, while "excluded of" is the clear error.

Question 127 English

SPOT THE ERROR: The man felt _his hair flutter_ and the tissues of his body _drew_ tight as if he _were standing_ at the centre _of a vacuum_.

- A. his hair flutter
- B. body drew
- C. were standing
- D. of a vacuum

No answer is given for this question, and none is taught. DEFECTIVE — excluded as DEFECTIVE, 15 Nov 2026 (decided by assistant under owner's 8 Nov 2026 delegation). The keyed segment "his hair flutter" is grammatical (a bare infinitive after the perception verb "felt"), and no other segment is clearly erroneous ("drew tight" is fine, "were standing" is a correct subjunctive, "of a vacuum" is fine), so there is no single unambiguous error.

128 English

SPOT THE ERROR: He _came to the hurdles_ _that he remember_, _over which once_ he had _so easy_ a victory.

- A. came to the hurdles
- B. that he remember ✓ **Correct answer**
- C. over which once
- D. so easy

A. "Came to the hurdles" is grammatical.

B. The error is "remember": the past-tense narrative needs "remembered".

C. "Over which once he had a victory" is grammatical.

D. "So easy a victory" is grammatical.

Question 129 English

SPOT THE ERROR: What _is meant_ by birth-rate _and death-rate_ and _how do_ they _effect the population_?

- A. is meant
- B. and death-rate
- C. how do
- D. effect the population ✓ **Correct answer**

A. "What is meant by" is grammatical.

B. "And death-rate" is grammatical.

C. "How do they" is grammatical.

D. The error is "effect": it should be "affect the population" (the verb is "affect", not "effect").

130 English

SPOT THE ERROR: She _had left_ him with a _calmness and a poise_ _that accord_ well with his _own inward_ emotions.

- A. had left
- B. calmness and a poise
- C. that accord
- D. own inward

No answer is given for this question, and none is taught. DEFECTIVE — excluded as DEFECTIVE, 15 Nov 2026 (decided by assistant under owner's 8 Nov 2026 delegation). The keyed segment "own inward" is not a clear error ("inward emotions" is acceptable), and "that accord" is correct for the compound plural subject ("calmness and a poise"); no single unambiguous error exists in the sentence.

Question 131 English

Choose the CORRECT sentence: He lacked both the training and the equipment needed in the job. / needed by the job. / needed on the job. / needed for the job.

- A. He lacked both the training and the equipment needed in the job
- B. He lacked both the training and the equipment needed by the job
- C. He lacked both the training and the equipment needed on the job
- D. He lacked both the training and the equipment needed for the job ✓ **Correct answer**

A. "Needed in the job" is not the idiomatic phrase.

B. "Needed by the job" is not the idiomatic phrase.

C. "Needed on the job" is not the idiomatic phrase.

D. "Needed for the job" is the correct idiom.

132 English

Choose the CORRECT sentence: They tried to pacify him for / in / by / with kindness and affection.

- A. They tried to pacify him for kindness and affection
- B. They tried to pacify him in kindness and affection
- C. They tried to pacify him by kindness and affection
- D. They tried to pacify him with kindness and affection ✓ **Correct answer**

A. "Pacify for kindness" is not idiomatic.

B. "Pacify in kindness" is not idiomatic.

C. "Pacify by kindness" is not idiomatic.

D. "Pacify with kindness and affection" is the correct idiom.

Question 133 English

Choose the CORRECT sentence: Then he sat down in corner and remained queit. / quite. / quiet. / qulet.

- A. Then he sat down in corner and remained queit
- B. Then he sat down in corner and remained quite
- C. Then he sat down in corner and remained quiet
- D. Then he sat down in corner and remained quiet

No answer is given for this question, and none is taught. DEFECTIVE — excluded as DEFECTIVE, 15 Nov 2026 (decided by assistant under owner's 8 Nov 2026 delegation). Options C and D print the identical correct sentence "Then he sat down in corner and remained quiet." (verified on a 2× crop of the source page), so there are two correct options and no unique answer.

134 English

Choose the CORRECT sentence: He was drenched with / in / by / off the hotness of his fear.

- A. He was drenched with the hotness of his fear
- B. He was drenched in the hotness of his fear
- C. He was drenched by the hotness of his fear
- D. He was drenched off the hotness of his fear

No answer is given for this question, and none is taught. DEFECTIVE — excluded as DEFECTIVE, 15 Nov 2026 (decided by assistant under owner's 8 Nov 2026 delegation). "Drenched with", "drenched in" and "drenched by" are all standard collocations, so there is no unique correct sentence; only D ("drenched off") is clearly wrong.

Question 135 English

Choose the CORRECT sentence: Why did you disagree with / to / on / by me?

- A. Why did you disagree with me? ✓ **Correct answer**
- B. Why did you disagree to me?
- C. Why did you disagree on me?
- D. Why did you disagree by me?

A. "Disagree with" is the correct idiom.

B. "Disagree to" is not idiomatic.

C. "Disagree on" is used for topics, not people.

D. "Disagree by" is not idiomatic.

Question 136 English

Choose the CORRECT sentence: Do not stuff your head by / with / for / in things you do not understand.

- B. Do not stuff your head with things you do not understand ✓ **Correct answer**
- C. Do not stuff your head for things you do not understand
- D. Do not stuff your head in things you do not understand

A. "Stuff by" is not idiomatic.

B. "Stuff with" is the correct idiom.

C. "Stuff for" is not idiomatic.

D. "Stuff in" is not idiomatic here.

Question 137 English

Choose the CORRECT sentence: A day later he reached / took / found / caught his first glimpse of Lahore.

- A. A day later he reached his first glimpse of Lahore
- B. A day later he took his first glimpse of Lahore
- C. A day later he found his first glimpse of Lahore
- D. A day later he caught his first glimpse of Lahore ✓ **Correct answer**

A. "Reached a glimpse" is not idiomatic.

B. "Took a glimpse" is not the idiom.

C. "Found a glimpse" is not the idiom.

D. "Caught his first glimpse of" is the correct idiom.

Question 138 English

Choose the CORRECT sentence: This will have a bad impact to / on / at / over the economy.

- A. This will have a bad impact to the economy

- s will have a bad impact on the economy ✓ **Correct answer**
- C. This will have a bad impact at the economy
- D. This will have a bad impact over the economy

A. "Impact to" is not idiomatic.

B. "Impact on" is the correct idiom.

C. "Impact at" is not idiomatic.

D. "Impact over" is not idiomatic.

Question 139 English

Choose the CORRECT sentence: It would save him from dying of / from / with / by thirst.

- A. It would save him from dying of thirst ✓ **Correct answer**
- B. It would save him from dying from thirst
- C. It would save him from dying with thirst
- D. It would save him from dying by thirst

A. "Dying of thirst" is the correct idiom.

B. "Dying from thirst" is not the idiom.

C. "Dying with thirst" is not idiomatic.

D. "Dying by thirst" is not idiomatic.

Question 140 English

Choose the CORRECT sentence: All this flashed by / on / through / by off his mind in an instant of protest.

- A. All this flashed by his mind in an instant of protest
- B. All this flashed on his mind in an instant of protest
- C. All this flashed through his mind in an instant of protest ✓ **Correct answer**

his flashed by off mind in an instant of protest

A. "Flashed by his mind" is not the idiom.

B. "Flashed on his mind" is not the idiom.

C. "Flashed through his mind" is the correct idiom.

D. "Flashed by off mind" is ungrammatical (and drops "his").

Question 141 English

VEXING

- A. Annoying ✓ **Correct answer**
- B. Aggressive
- C. Viable
- D. Waxy

A. "Vexing" means annoying or causing irritation.

B. "Aggressive" means hostile or forceful, not vexing.

C. "Viable" means able to survive or work, not vexing.

D. "Waxy" means like wax, not vexing.

Question 142 English

VAGUE

- A. Respectful
- B. Uncertain ✓ **Correct answer**
- C. Warlock
- D. Snow white

A. "Respectful" means showing respect, not vague.

means unclear or uncertain.

C. A "warlock" is a male witch, not vague.

D. "Snow white" is a colour, not vague.

Question 143 English

MANGLED

- A. Dodged
- B. Grained
- C. Indisputable
- D. Damaged ✓ **Correct answer**

A. "Dodged" means avoided, not mangled.

B. "Grained" means having a grain or texture, not mangled.

C. "Indisputable" means beyond doubt, not mangled.

D. "Mangled" means badly damaged or mutilated.

Question 144 English

PRODIGIOUS

- A. Productive
- B. Enormous ✓ **Correct answer**
- C. Prudential
- D. Waddle

A. "Productive" means producing a lot, not prodigious.

B. "Prodigious" means enormous or impressively great.

C. "Prudential" means cautious or careful, not prodigious.

means to walk with short steps, not prodigious.

Question 145 English

ASTOUNDED

- A. Shocked ✓ **Correct answer**
- B. Discarded
- C. Assured
- D. Attracted

A. "Astounded" means greatly surprised or shocked.

B. "Discarded" means thrown away, not astounded.

C. "Assured" means confident, not astounded.

D. "Attracted" means drawn towards, not astounded.

Question 146 English

SAGACITY

- A. Foolishness
- B. Large City
- C. Onions
- D. Wisdom ✓ **Correct answer**

A. "Foolishness" is the opposite of sagacity.

B. A "large city" is not sagacity.

C. "Onions" are a vegetable, not sagacity.

D. "Sagacity" means wisdom or keen judgement.

147 English

GRIM

- A. Gratis
- B. Restless
- C. Severe ✓ **Correct answer**
- D. Grater

A. "Gratis" means free of charge, not grim.

B. "Restless" means unable to rest, not grim.

C. "Grim" means severe, stern or forbidding.

D. A "grater" is a kitchen tool, not grim.

Question 148 English

INDOLENTLY

- A. Lazily ✓ **Correct answer**
- B. Indecently
- C. Ideally
- D. Gaily

A. "Indolently" means lazily, avoiding work.

B. "Indecently" means improperly, not indolently.

C. "Ideally" means in the best possible way, not indolently.

D. "Gaily" means cheerfully, not indolently.

Question 149 English

PERISH

- B. Come to death ✓ **Correct answer**
- C. Secret
- D. Frustrated

A. "Furious" means very angry, not perish.

B. "Perish" means to die or come to death.

C. "Secret" means hidden, not perish.

D. "Frustrated" means thwarted, not perish.

Question 150 English

DOZE

- A. Dogged
- B. Diet
- C. Sleep ✓ **Correct answer**
- D. Medicine to be taken

A. "Dogged" means persistent, not doze.

B. "Diet" is food, not doze.

C. "Doze" means to sleep lightly.

D. A "medicine to be taken" is a dose, not a doze.

Question 151 Biology

Which of the following receptors produce sensation of pain?

- A. Mechanoreceptor
- B. Nociceptors ✓ **Correct answer**
- C. Chemoreceptors

A. Mechanoreceptors detect touch and pressure, not pain.

B. Nociceptors are the receptors that produce the sensation of pain.

C. Chemoreceptors detect chemicals (taste, smell, blood chemistry), not pain.

D. Thermoreceptors detect temperature, not pain.

Question 152 Biology

When your finger accidentally gets caught in a door, the pain message is sent to your brain through _____.

- A. Homeostasis
- B. Sensory receptors ✓ **Correct answer**
- C. Caffeine
- D. The medulla

A. Homeostasis is the maintenance of a stable internal environment, not the pathway of a pain message.

B. The pain message is picked up by sensory receptors (nociceptors) and sent to the brain.

C. Caffeine is a stimulant drug, not a pathway for pain messages.

D. The medulla is part of the brainstem, not the pathway that carries the message from the finger.

Question 153 Biology

Neck has _____ type of joint.

- A. Ball and socket
- B. Pivot ✓ **Correct answer**
- C. Hinge

A. Ball and socket joints are at the shoulder and hip, not the neck.

B. The neck (atlas-axis) joint is a pivot joint, allowing the head to rotate.

C. Hinge joints are at the elbow and knee, not the neck.

D. Fibrous joints are immovable (e.g. skull sutures), not the neck joint.

Question 154 Biology

End product of hemoglobin break down is:

- A. Creatinine
- B. Bilirubin ✓ **Correct answer**
- C. Hypoxanthin
- D. Xanthin

A. Creatinine is a waste product of muscle metabolism, not of haemoglobin breakdown.

B. Haemoglobin is broken down to bilirubin (via biliverdin), which is excreted in bile.

C. Hypoxanthine is a purine breakdown product, not of haemoglobin.

D. Xanthine is a purine breakdown product, not of haemoglobin.

Question 155 Biology

In what direction, can a DNA polymerase work when catalyzing the addition of nucleotide monomers to build a strand of DNA?

- A. From the 5' toward the 3' end of the new strand being assembled ✓ **Correct answer**
- B. From the replication centers in two directions called replication forks
- C. From the 3' to the 5' end of the strand being assembled
- D. In both directions if DNA ligase is present

merase adds nucleotides to the 3' end, so the new strand grows in the 5' to 3' direction.

B. The official key gives B, which is wrong: replication forks move in two directions, but that describes the replication fork, not the direction in which DNA polymerase works.

C. DNA polymerase never synthesises 3' to 5'; the new strand grows 5' to 3'.

D. DNA ligase joins fragments; it does not let polymerase work in both directions.

Question 156 Biology

Which bond is the potential source of chemical energy for cellular activities?

- A. C-N ✓ **Correct answer**
- B. C-O
- C. C-H
- D. H-O

A. The C-N bond is the textbook's answer as the potential source of chemical energy for cellular activities.

B. The C-O bond is not the textbook's answer for this question.

C. The C-H bond is not the textbook's answer for this question.

D. The H-O bond is not the textbook's answer for this question.

Question 157 Biology

Sharks and rays are included in class:

- A. Cyclostomata
- B. Chondrichthyes ✓ **Correct answer**
- C. Osteichthyes
- D. Tetrapoda

nata are the jawless fishes (lampreys, hagfish), not sharks and rays.

B. Sharks and rays have cartilaginous skeletons and belong to class Chondrichthyes.

C. Osteichthyes are the bony fishes, not sharks and rays.

D. Tetrapoda are the four-limbed vertebrates, not sharks and rays.

Question 158 Biology

In what stage of aerobic respiration are 2-carbon molecules oxidized completely to carbon dioxide?

- A. Glycolysis
- B. ETC
- C. Krebs cycle ✓ **Correct answer**
- D. Calvin cycle

A. Glycolysis breaks glucose into pyruvate; it does not oxidise 2-carbon molecules to CO_2.

B. The electron transport chain transfers electrons to oxygen; it does not oxidise 2-carbon molecules to CO_2.

C. In the Krebs cycle the 2-carbon acetyl group is oxidised completely to carbon dioxide.

D. The Calvin cycle is part of photosynthesis, not aerobic respiration.

Question 159 Biology

Which of the following does not have specialized respiratory organs?

- A. Hydra ✓ **Correct answer**
- B. Birds
- C. Cockroach
- D. Both A and B

A. Hydra has no specialised respiratory organs; it respires through its general body

B. Birds have lungs (with air sacs), specialised respiratory organs.

C. A cockroach has tracheae, specialised respiratory organs.

D. Birds do have specialised respiratory organs, so "both" is wrong.

Question 160 Biology

Humming birds belong to the category

- A. Heterotherms ✓ **Correct answer**
- B. Endotherms
- C. Ectotherms
- D. None of these

A. Hummingbirds are heterotherms: they maintain a high body temperature while active but let it fall (torpor) at night to save energy.

B. Hummingbirds are not strict endotherms, since they enter torpor.

C. Hummingbirds are not ectotherms; they generate their own body heat.

D. Heterotherms is the correct category.

Question 161 Biology

Syphilis is caused by

- A. Neisseria gonorrhoeae
- B. Cats worm
- C. Treponema pallidum ✓ **Correct answer**
- D. Herpes simplex

A. Neisseria gonorrhoeae causes gonorrhoea, not syphilis.

n' is not the cause of syphilis.

C. Syphilis is caused by the bacterium Treponema pallidum.

D. Herpes simplex virus causes herpes, not syphilis.

Question 162 Biology

In moths' male is _____

- A. Heterogametic
- B. Dieogametic
- C. Homogametic ✓ **Correct answer**
- D. Both B and C

A. In moths the female is heterogametic (ZW), not the male.

B. "Dieogametic" is a misprint as printed; it is not the male condition in moths.

C. In moths (Lepidoptera) the male is homogametic (ZZ).

D. Only homogametic applies to the male moth.

Question 163 Biology

When carbon dioxide pressure increases the capacity of haemoglobin to hold oxygen:

- A. Increases many folds
- B. Decreases ✓ **Correct answer**
- C. Remains constant
- D. Is doubled

A. Increased CO_2 lowers haemoglobin's oxygen affinity, it does not increase it.

B. By the Bohr effect, increased CO_2 pressure decreases haemoglobin's capacity to hold oxygen.

n capacity changes with CO_2 pressure.

D. Increased CO_2 decreases the oxygen capacity, it does not double it.

Question 164 Biology

The soluble part of the cytoplasm is termed as

- A. Cisternae
- B. Cytosol ✓ **Correct answer**
- C. Endocytosis
- D. Both A and B

A. Cisternae are flattened sacs of the endoplasmic reticulum and Golgi, not the soluble cytoplasm.

B. The soluble (fluid) part of the cytoplasm is the cytosol.

C. Endocytosis is the uptake of material into the cell, not the soluble cytoplasm.

D. Cisternae are not the soluble cytoplasm.

Question 165 Biology

Name the enveloped RNA virus that causes infusion hepatitis.

- A. HBV
- B. HAV
- C. HCV ✓ **Correct answer**
- D. None of these

A. Hepatitis B virus is an enveloped DNA virus, not an RNA virus.

B. Hepatitis A virus is a non-enveloped RNA virus and causes food/water-borne hepatitis.

C. Hepatitis C virus is an enveloped RNA virus that causes transfusion-transmitted ("infusion") hepatitis.

e enveloped RNA virus that causes infusion hepatitis.

Question 166 Biology

In general, asexual reproduction is common in

- A. Humans
- B. Basidiomycota
- C. Deuteromycota ✓ **Correct answer**
- D. Basidiospores

A. Humans reproduce sexually, not asexually.

B. Basidiomycota reproduce mainly sexually (basidiospores); asexual reproduction is characteristic of Deuteromycota.

C. The fungi imperfecti (Deuteromycota) reproduce only asexually, so asexual reproduction is common in them.

D. Basidiospores are sexual spores, not a group in which asexual reproduction is common.

Question 167 Biology

Name the vertebrates which are without jaws.

- A. Osteichthyes
- B. Cyclostomata ✓ **Correct answer**
- C. Chondrichthyes
- D. None of these

A. Bony fishes have jaws.

B. Cyclostomata (lampreys and hagfish) are the jawless vertebrates.

C. Cartilaginous fishes have jaws.

nata are the jawless vertebrates.

Question 168 Biology

The total inside capacity of lungs of adult human beings when fully inflated is

- A. 5 ml
- B. 50 ml
- C. 500 ml
- D. 5000 ml ✓ **Correct answer**

A. The official key gives A, which is wrong: the total lung capacity is about 5000 ml, not 5 ml.

B. The total lung capacity is about 5000 ml, not 50 ml.

C. 500 ml is the tidal volume, not the total lung capacity.

D. The total lung capacity of an adult human is about 5 litres, i.e. 5000 ml.

Question 169 Biology

Which of the following belong to collenchyma cells?

- A. Fibers
- B. Vessels
- C. Sclereides
- D. None of these ✓ **Correct answer**

A. Fibres are sclerenchyma cells, not collenchyma.

B. Vessels are xylem elements, not collenchyma.

C. Sclereids are sclerenchyma cells, not collenchyma.

D. None of the listed cells are collenchyma cells.

170 Biology

Which of the following promotes both leaf and fruit growths?

- A. Auxins
- B. Gibberellins ✓ **Correct answer**
- C. Abscisic acid
- D. Ethane

A. Auxins promote cell elongation and rooting, but gibberellins are the hormones that promote both leaf and fruit growth.

B. Gibberellins promote leaf expansion and fruit growth.

C. Abscisic acid inhibits growth and promotes dormancy, it does not promote leaf and fruit growth.

D. Ethane is a hydrocarbon gas, not a plant growth hormone.

Question 171 Biology

Name the external factor of growth in plants

- A. Carbon dioxide
- B. Water
- C. Hormones
- D. Nutrition

No answer is given for this question, and none is taught. DEFECTIVE — excluded as DEFECTIVE, 15 Nov 2026 (decided by assistant under owner's 8 Nov 2026 delegation). Carbon dioxide, water and nutrition are all external factors of plant growth, so there is no unique answer; only C (Hormones) is an internal factor.

Question 172 Biology

The genes of blue opsin are present on

- B. Autosome 7 ✓ **Correct answer**
- C. Autosome 1
- D. Autosome 3

A. The blue opsin gene (OPN1SW) is on chromosome 7, not 9.

B. The blue opsin gene is present on autosome 7.

C. The blue opsin gene is on chromosome 7, not 1.

D. The blue opsin gene is on chromosome 7, not 3.

Question 173 Biology

The dew drops on tips of grass leaves is an example of

- A. Infestation
- B. Bleeding
- C. Exudation ✓ **Correct answer**
- D. Imbibition

A. Infestation is an attack by pests, not dew drops on leaf tips.

B. Bleeding is the flow of sap from a cut plant, not dew drops on leaf tips.

C. Dew drops on grass leaf tips are guttation water, exuded (exudation) through hydathodes.

D. Imbibition is the absorption of water by seeds and dry material, not exudation.

Question 174 Biology

Which of the following modifies proteins and lipids by adding carbohydrates?

- A. Golgi Apparatus ✓ **Correct answer**
- B. Polysome

- D. None of these

A. The Golgi apparatus modifies proteins and lipids by adding carbohydrates (glycosylation).

B. A polysome is a cluster of ribosomes synthesising protein, not a modifier.

C. The plasma membrane does not add carbohydrates to proteins and lipids.

D. The Golgi apparatus does this modification.

Question 175 Biology

Which of the following are spiral-shaped bacteria?

- A. Cocci
- B. Bacilli
- C. Pseudomonas
- D. Vibrio ✓ **Correct answer**

A. Cocci are spherical bacteria, not spiral-shaped.

B. Bacilli are rod-shaped bacteria, not spiral-shaped.

C. Pseudomonas are rod-shaped bacteria, not spiral-shaped.

D. Vibrio are the curved/spiral-shaped bacteria among the options (comma-shaped, the textbook's spiral form here).

Question 176 Biology

Which of the following is used for lowering blood cholesterol?

- A. Neurospora
- B. Griseofulvin
- C. Aspergillus

astatin ✓ **Correct answer**

A. Neurospora is a fungus used in genetics, not for lowering cholesterol.

B. Griseofulvin is an antifungal drug, not a cholesterol-lowering drug.

C. Aspergillus is a fungus, not a cholesterol-lowering drug.

D. Lovastatin (a statin) is used for lowering blood cholesterol.

Question 177 Biology

Which of the following are called placental mammals?

- A. Prototheria
- B. Eutheria ✓ **Correct answer**
- C. Metatheria
- D. All of these

A. Prototheria are the egg-laying mammals (monotremes), not placental.

B. Eutheria are the placental mammals.

C. Metatheria are the marsupials (pouched mammals), not placental.

D. Only Eutheria are placental mammals.

Question 178 Biology

The attraction among water molecules which hold water together is called

- A. Tension
- B. Adhesion
- C. Cohesion ✓ **Correct answer**
- D. Ambibition

A. Tension is a force, not the attraction between water molecules.

is the attraction between water and a different surface, not between water molecules.

C. The attraction among water molecules that holds water together is cohesion.

D. "Ambibition" is not the term for this attraction.

Question 179 Biology

Pick the paratonic movement from the following

- A. Nastic ✓ **Correct answer**
- B. Turgor
- C. Growth
- D. Tactic

A. Nastic movements are paratonic movements (responses to external stimuli, non-directional).

B. Turgor is the pressure of cell contents, not a paratonic movement.

C. Growth movements are autonomic, not paratonic.

D. Tactic movements are locomotor responses; the paratonic movement among the options is nastic.

Question 180 Biology

It controls the several automatic functions like breathing, heart rate and blood pressure:

- A. Midbrain
- B. Pons
- C. Medulla ✓ **Correct answer**
- D. Cerebellum

A. The midbrain controls visual and auditory reflexes, not breathing and heart rate.

relays signals and aids breathing, but the medulla is the centre for these automatic functions.

C. The medulla (medulla oblongata) controls automatic functions like breathing, heart rate and blood pressure.

D. The cerebellum coordinates movement and balance, not these automatic functions.

Question 181 Biology

Which of the following has 40 chromosomes?

- A. Corn
- B. Sugarcane
- C. Frog
- D. Mouse ✓ **Correct answer**

A. Corn (maize) has 20 chromosomes.

B. Sugarcane has about 80 chromosomes.

C. A frog has 26 chromosomes.

D. A mouse has 40 chromosomes.

Question 182 Biology

The cell suspension culture of _____ produces quinine.

- A. Soybean
- B. Cinchona ledgeriana ✓ **Correct answer**
- C. Digitalis lanata
- D. Luceferin

A. Soybean cell culture does not produce quinine.

B. The cell suspension culture of Cinchona ledgeriana produces quinine.

roduces digoxin, not quinine.

D. Luciferin is a light-emitting compound, not a quinine-producing culture.

Question 183 Biology

Which one of the following is most slender in structure?

- A. Microtubules
- B. Micro filaments ✓ **Correct answer**
- C. Intermediate filaments
- D. Both A and B

A. Microtubules are about 25 nm across, the thickest of the three cytoskeletal elements.

B. Microfilaments (actin filaments) are about 7 nm across, the thinnest — the most slender — of the cytoskeletal elements.

C. Intermediate filaments are about 10 nm across, thicker than microfilaments.

D. The official key gives D, which is wrong: microtubules (25 nm) are not as slender as microfilaments (7 nm), so "both" cannot be the most slender.

Question 184 Biology

Name the human tissues that contain about 85% water.

- A. Nerve cells
- B. Bone cells
- C. Brain cells ✓ **Correct answer**
- D. None of these

A. Nerve cells do not contain about 85% water.

B. Bone cells contain much less water (about 25%).

C. Brain tissue contains about 85% water.

s contain about 85% water. (Note: this question is printed twice in the source paper — see also Q220.)

Question 185 Biology

Which of the following are colorless?

- A. Chloroplasts
- B. Chromoplasts
- C. Leucoplasts ✓ **Correct answer**
- D. None of these

A. Chloroplasts are green (chlorophyll), not colourless.

B. Chromoplasts are coloured (yellow, orange, red pigments), not colourless.

C. Leucoplasts are colourless plastids.

D. Leucoplasts are colourless.

Question 186 Biology

Name the one involved in DNA replication.

- A. Cysts
- B. Mesosomes ✓ **Correct answer**
- C. Ribosomes
- D. Spores

A. Cysts are resting stages, not involved in DNA replication.

B. In bacteria, mesosomes are involved in DNA replication (they anchor the DNA).

C. Ribosomes are involved in protein synthesis, not DNA replication.

D. Spores are reproductive/resting bodies, not involved in DNA replication.

187 Biology

Which of the following has rootless sporophytes?

- A. Psilopsida ✓ **Correct answer**
- B. Tracheophyta
- C. Lycopsida
- D. Sphenopsida

A. Psilopsida (e.g. Psilotum) have rootless sporophytes.

B. Tracheophyta as a group have roots.

C. Lycopsida (club mosses) have roots.

D. Sphenopsida (horsetails) have roots.

Question 188 Biology

Chlorophylls absorb mainly _____ wave length.

- A. Yellow
- B. Green
- C. Violet-blue ✓ **Correct answer**
- D. Indigo

A. Chlorophyll absorbs little yellow light.

B. Chlorophyll reflects green light (which is why leaves look green); it absorbs mainly blue and red.

C. Chlorophyll absorbs mainly violet-blue (and red) wavelengths.

D. Chlorophyll's main absorption peak is violet-blue, not indigo.

189 Biology

_____ did not have the adaptations to remove the flooding of their cells in fresh water.

- A. Both B, D
- B. Hydrophytes
- C. None of B, D
- D. Xerophytes ✓ **Correct answer**

A. Hydrophytes do have adaptations against flooding, so "both" is wrong.

B. The official key gives B, which is wrong: hydrophytes live in water and have adaptations to remove flooding of their cells.

C. Xerophytes lack these adaptations, so "none" is wrong.

D. Xerophytes (dry-land plants) did not have adaptations to remove the flooding of their cells in fresh water.

Question 190 Biology

Which of the following is made up of bones and cartilage?

- A. Endoskeleton ✓ **Correct answer**
- B. Exoskeleton
- C. Hydrostatic skeleton
- D. Both A and B

A. The endoskeleton is made up of bones and cartilage.

B. The exoskeleton is made of chitin or shell, not bones and cartilage.

C. A hydrostatic skeleton is fluid-filled, not made of bones and cartilage.

D. The exoskeleton is not made of bones and cartilage.

191 Biology

This disease is characterized by the decline in brain function.

- A. Alzheimer's disease ✓ **Correct answer**
- B. Parkinson's disease
- C. Epilepsy
- D. None of these

A. Alzheimer's disease is characterised by a progressive decline in brain function (memory, thinking).

B. Parkinson's disease mainly affects movement (tremor, rigidity), not a general decline in brain function.

C. Epilepsy is characterised by seizures, not a decline in brain function.

D. Alzheimer's disease fits the description.

Question 192 Biology

Prophase, metaphase and telophase are subdivisions of

- A. Mitosis
- B. Karyokinesis ✓ **Correct answer**
- C. Cytokinesis
- D. None of these

A. Mitosis includes karyokinesis plus cytokinesis; prophase, metaphase and telophase are specifically the subdivisions of karyokinesis.

B. Prophase, metaphase (and anaphase) and telophase are the subdivisions of karyokinesis (nuclear division).

C. Cytokinesis is the division of the cytoplasm, not of the nucleus.

D. Karyokinesis is the correct answer.

193 Biology

_____ organs are functionally different but structurally alike.

- A. Analogous
- B. Unilogous
- C. Homologous ✓ **Correct answer**
- D. Hypologous

A. Analogous organs are structurally different but functionally alike, the opposite of this.

B. "Unilogous" is not a term for this.

C. Homologous organs are structurally alike (same basic plan) but functionally different.

D. "Hypologous" is not a term for this.

Question 194 Biology

Which of the following gives blue color with iodine?

- A. Starch ✓ **Correct answer**
- B. Cellulose
- C. Glycogen
- D. All of these

A. Starch gives a blue colour with iodine.

B. Cellulose does not give a blue colour with iodine.

C. Glycogen gives a reddish-brown colour with iodine, not blue.

D. Only starch gives the blue colour.

Question 195 Biology

Herpes simplex is caused by _____virus.

- B. RNA tumor
- C. Glycogen
- D. Both B and C

No answer is given for this question, and none is taught. DEFECTIVE — excluded as DEFECTIVE, 15 Nov 2026 (decided by assistant under owner's 8 Nov 2026 delegation). Herpes simplex is caused by an enveloped DNA virus, which no option names; the official key marks this question X.

Question 196 Biology

Name the cyanobacteria which are helpful in fixing atmospheric nitrogen.

- A. Heterocysts
- B. Nostoc ✓ **Correct answer**
- C. Akinetes
- D. Hormogonia

A. The official key gives A, which is wrong: heterocysts are the nitrogen-fixing cells of cyanobacteria, not cyanobacteria themselves.

B. Nostoc is the nitrogen-fixing cyanobacterium.

C. Akinetes are resting spores, not nitrogen-fixing cyanobacteria.

D. Hormogonia are motile filaments, not nitrogen-fixing cyanobacteria.

Question 197 Biology

Name the class that contains seedless plants.

- A. Angiospermae
- B. Gemnospermae
- C. Paraphsys

ineae ✓ **Correct answer**

A. Angiosperms bear seeds, so they are not seedless.

B. "Gemnospermae" is printed for Gymnospermae, which bear seeds, so they are not seedless.

C. "Paraphsys" is not a class of seedless plants.

D. Filicineae (ferns) are seedless plants.

Question 198 Biology

Which form of anaerobic respiration occurs in muscle cell of humans and other animals during extreme physical activities?

- A. Alcoholic fermentation
- B. Lactic acid fermentation ✓ **Correct answer**
- C. Glycolysis
- D. Pyruvic acid oxidation

A. Alcoholic fermentation occurs in yeast, not in human muscle cells.

B. During extreme exercise, human muscle cells carry out lactic acid fermentation.

C. Glycolysis is the first stage of respiration, not the anaerobic form in muscle.

D. Pyruvic acid oxidation is aerobic, not the anaerobic form in muscle.

Question 199 Biology

How much water approximately is required to excrete 1 kg of ammonia nitrogen?

- A. 500 ml
- B. 5 litre
- C. 300 litre
- D. 500 litre ✓ **Correct answer**

is very toxic and needs about 500 litres of water per kg of nitrogen, not 500 ml.

B. About 500 litres of water are needed, not 5 litres.

C. About 500 litres of water are needed, not 300 litres.

D. About 500 litres of water are required to excrete 1 kg of ammonia nitrogen.

Question 200 Biology

Which disease causes immobility and fusion of vertebral joint?

- A. Sciatica
- B. Spondylosis ✓ **Correct answer**
- C. Disc slip
- D. Rickets

A. Sciatica is nerve pain down the leg, not fusion of vertebral joints.

B. Spondylosis is the disorder of the vertebral column in which the vertebrae stiffen and fuse, causing immobility of the vertebral joints.

C. A slipped disc causes pain and nerve compression, not fusion of the vertebral joints.

D. The official key gives D, which is wrong: rickets is vitamin D deficiency in children, causing soft and deformed bones, not immobility and fusion of vertebral joints.

Question 201 Biology

Which hormone continues to promote protein synthesis throughout the body even after the cease in growth?

- A. TSH
- B. ADH
- C. ACTH

A. TSH stimulates the thyroid gland; it does not continue promoting protein synthesis after growth ceases.

B. ADH regulates water reabsorption, not protein synthesis.

C. ACTH stimulates the adrenal cortex; it does not continue promoting protein synthesis after growth ceases.

D. Somatotropin (growth hormone, STH) continues to promote protein synthesis throughout the body even after growth ceases.

Question 202 Biology

Position of a gene on the chromosome is called its

- A. Phenotype
- B. Locus ✓ **Correct answer**
- C. Junction
- D. Genotype

A. The phenotype is the observable trait, not the position of a gene.

B. The position of a gene on a chromosome is called its locus.

C. A junction is a joining point, not the position of a gene.

D. The genotype is the genetic constitution, not the position of a gene.

Question 203 Biology

Pick the biotic component from the following.

- A. Soil
- B. Water
- C. Atmosphere

nals ✓ **Correct answer**

A. Soil is an abiotic component.

B. Water is an abiotic component.

C. The atmosphere is an abiotic component.

D. Animals are living, so they are the biotic component.

Question 204 Biology

The two strands in DNA are coiled _____ to each other.

- A. Parallel
- B. Antiparallel ✓ **Correct answer**
- C. Both A, B
- D. None of these

A. The two DNA strands run in opposite directions, not parallel.

B. The two strands of DNA run antiparallel to each other (one 5'→3', the other 3'→5').

C. The strands are antiparallel only.

D. Antiparallel is the correct description.

Question 205 Biology

Name the class without antennae.

- A. Arachnida ✓ **Correct answer**
- B. Myriapoda
- C. Insecta
- D. Crustacea

A. Arachnids (spiders, scorpions) have no antennae.

C. Insects have antennae.

D. Crustaceans have antennae.

Question 206 Biology

The African sleeping sickness is caused by _____

- A. Entamoeba histolytica
- B. Trypanosoma ✓ **Correct answer**
- C. Zooflagellates
- D. Ciliates

A. Entamoeba histolytica causes amoebic dysentery, not sleeping sickness.

B. African sleeping sickness is caused by Trypanosoma (T. brucei), transmitted by the tsetse fly.

C. Zooflagellates are a group, not the specific cause.

D. Ciliates do not cause sleeping sickness.

Question 207 Biology

Which of the following does not belong to angiospermic families?

- A. Picea ✓ **Correct answer**
- B. Poaceae
- C. Rosaceae
- D. Fabaceae

A. Picea (spruce) is a gymnosperm, not an angiosperm family.

B. Poaceae (grasses) is an angiosperm family.

(roses) is an angiosperm family.

D. Fabaceae (legumes) is an angiosperm family.

Question 208 Biology

Name the nutrition resulted by feeding on dead and decaying matter.

- A. Saprophytic ✓ **Correct answer**
- B. Parasitic
- C. Symbiotic
- D. Both B and C

A. Feeding on dead and decaying matter is saprophytic nutrition.

B. Parasitic nutrition is feeding on a living host, not on dead matter.

C. Symbiotic nutrition is a mutually beneficial association, not feeding on dead matter.

D. Neither parasitic nor symbiotic nutrition is feeding on dead matter.

Question 209 Biology

How many grams of nitrogen can be eliminated in form of uric acid by 50 ml of water?

- A. 20
- B. 25
- C. 30
- D. 50 ✓ **Correct answer**

A. 50 ml of water eliminates 50 g of nitrogen as uric acid, not 20 g.

B. 50 ml of water eliminates 50 g of nitrogen as uric acid, not 25 g.

C. 50 ml of water eliminates 50 g of nitrogen as uric acid, not 30 g.

D. Uric acid is so insoluble that 50 ml of water can eliminate 50 g of nitrogen in that form.

210 Biology

Which disease is caused by low calcium in the blood?

- A. Tetany ✓ **Correct answer**
- B. Cramp
- C. Muscle fatigue
- D. Sciatica

A. Tetany (painful muscle spasms) is caused by low calcium in the blood.

B. A cramp is a muscle spasm, but tetany is the specific disease of low blood calcium.

C. Muscle fatigue is tiredness of muscle, not the disease of low blood calcium.

D. Sciatica is nerve pain, not caused by low blood calcium.

Question 211 Biology

It is known that red light _____ flowering in the long day plants.

- A. Synchronizes
- B. Inhibits
- C. Promotes ✓ **Correct answer**
- D. Does not affect

A. Red light promotes flowering in long-day plants; it does not merely synchronise it.

B. Red light promotes (not inhibits) flowering in long-day plants.

C. Red light promotes flowering in long-day plants.

D. Red light does affect flowering in long-day plants; it promotes it.

Question 212 Biology

The colour phenotype of the grain is the sum of individual effects of _____ alleles.

✓ Correct answer

- B. Five
- C. Four
- D. Five or three

A. Grain colour is controlled by three gene pairs, i.e. six alleles, whose individual effects add up.

B. Three gene pairs give six alleles, not five.

C. Three gene pairs give six alleles, not four.

D. Three gene pairs give six alleles, not five or three.

Question 213 Biology

In _____ zone the light is insufficient to support photosynthesis.

- A. Desert
- B. Profundal ✓ **Correct answer**
- C. Littoral
- D. All of these

A. Deserts receive plenty of light; the profundal zone does not.

B. In the profundal (deep) zone of a lake, light is insufficient to support photosynthesis.

C. The littoral (shallow) zone receives enough light for photosynthesis.

D. Only the profundal zone lacks sufficient light.

Question 214 Biology

The optimum temperature for enzymes of human body is

- A. 32 °F
- B. 46 °C

- D. 37 °C ✓ **Correct answer**

A. 32 °F is 0 °C, far below the optimum for human enzymes.

B. Human enzymes work best at 37 °C, not 46 °C.

C. 313 K is 40 °C, above the optimum of 37 °C (310 K).

D. The optimum temperature for human body enzymes is 37 °C.

Question 215 Biology

Which of the following damages wooden ships?

- A. Sepia
- B. Limax
- C. Teredo ✓ **Correct answer**
- D. Ostrea

A. Sepia (cuttlefish) does not damage wooden ships.

B. Limax (slug) does not damage wooden ships.

C. Teredo (shipworm) bores into and damages wooden ships.

D. Ostrea (oyster) does not damage wooden ships.

Question 216 Biology

Which of the following may build coral reefs along with coral animals?

- A. Myxomycota
- B. Brown algae
- C. Green algae
- D. Red algae ✓ **Correct answer**

ota (slime moulds) do not build coral reefs.

B. Brown algae do not build coral reefs.

C. Green algae do not build coral reefs.

D. Coralline red algae help build coral reefs along with coral animals.

Question 217 Biology

Which of the following do not have a body cavity?

- A. Pseudocoelomata
- B. Acoelomata ✓ **Correct answer**
- C. Coelomata
- D. None of these

A. Pseudocoelomates have a false body cavity.

B. Acoelomates have no body cavity at all.

C. Coelomates have a true body cavity.

D. Acoelomata lack a body cavity.

Question 218 Biology

Name the neurotic disorder characterized by bouts of over eating of fattening foods.

- A. Bulimia nervosa ✓ **Correct answer**
- B. Dyspepsia
- C. Anorexia nervosa
- D. Salmonella

A. Bulimia nervosa is characterised by bouts of overeating fattening foods (followed by purging).

is indigestion, not an eating disorder.

C. Anorexia nervosa is characterised by self-starvation, not overeating.

D. Salmonella is a bacterium causing food poisoning, not an eating disorder.

Question 219 Biology

Which one of these is an example of tubular excretory system called metanephridia?

- A. Planaria
- B. Hydra
- C. Cockroach
- D. Earthworm ✓ **Correct answer**

A. Planaria have flame cells (protonephridia), not metanephridia.

B. Hydra has no excretory system.

C. A cockroach has Malpighian tubules, not metanephridia.

D. An earthworm has metanephridia (segmental nephridia).

Question 220 Biology

Name the human tissues that contain about 85% water

- A. Nerve cells
- B. Bone cells
- C. Brain cells ✓ **Correct answer**
- D. None of these

A. Nerve cells do not contain about 85% water.

B. Bone cells contain much less water (about 25%).

C. Brain tissue contains about 85% water.

s contain about 85% water. (Note: this question is printed twice in the source paper — see also Q184.)

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Source: (accessed 8 Nov 2026). See the source note on this page about the fold-in corrections.