Lecturer Physics (BPS-17) — 2015 · Solved Past Paper

Body: Sindh Public Service Commission (SPSC) · **Post:** Lecturer Physics (BPS-17) · **Year:** 2015 · **Questions:** 100 in the original paper — **98 solved and verified**, 2 excluded as defective (Q21, Q42) · **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 2015 sitting.

Source note: OFFICIAL SPSC PDF: https://spsc.gos.pk/Past_Papers/Lecturers/Physics-2015.pdf (also mirrored at https://spsc.gov.pk/Past_Papers/Lecturers/Physics-2015.pdf), 4 pages Q1–Q100, Type A. Page 1 text-fetched; pages 2–4 (and page 1 re-read) recovered 9 Nov 2026 (Wave 144) from 150–300 dpi renders of the same official PDF, correcting three OCR-garbled option lists (Q2, Q5, Q12) with answer values unchanged. Two Facebook reproductions of the same 4-page paper used only to confirm question ranges per page. 6 PICK-ONE asserted under the owner's 8 Nov 2026 delegation (Q19 capacitor voltage; Q37 dictaphone/phonograph; Q43 impulse unit; Q46 pendulum latitude vs altitude; Q76 infrared series; Q98 isoseismal lines). 2 DEFECTIVE-excluded (Q21 truncated stem; Q42 star colour/temperature not offered). Completion of the held Wave 64 partial (13/100).

Question 1 Resistor tolerance in parallel

A resistor of 4 kΩ with tolerance 10% is connected in parallel with a resistor of 6 kΩ with tolerance 10%. The tolerance of the parallel combination is nearly

- A. 10% ✓ **Correct answer**
- B. 20%

- D. 40%

Note: - Why A is correct: the equivalent resistance is (4 × 6)/(4 + 6) = 2.4 kΩ, and the relative error of a parallel combination is the resistance-weighted mean of the two relative errors — 0.6 × 10% + 0.4 × 10% = 10%. - Why B is wrong: 20% would be the sum of the two tolerances, which applies to neither series nor parallel combinations of equal-percentage errors. - Why C is wrong: 30% has no basis — it is larger than either individual tolerance, and combining resistors cannot amplify the percentage error beyond the largest single tolerance. - Why D is wrong: 40% is the sum of 10% + 30% or a similar invented combination; the worst-case relative error stays at 10%.

Question 2 Projectile maximum range

A man can throw a ball to a maximum height of h. He can throw the same ball to the maximum horizontal distance of

- A. h
- B. 2h ✓ **Correct answer**
- C. h^2
- D. $2h^2$

Note: - Why A is wrong: h is the maximum height itself, not the range — the range at 45° is twice the vertical height reached at 90°. - Why B is correct: maximum height $H = u^2/2g$ and maximum range $R = u^2/g$ for the same speed u, so R = 2H = 2h. - Why C is wrong: h^2 has the dimensions of an area, not a distance — it cannot be a horizontal distance. - Why D is wrong: $2h^2$ likewise has the dimensions of an area, not a distance. - Reproduction note: the page-1 text fetch misread the options as h/2 and 2h (and left B unreadable); the 300-dpi render of the official PDF (Wave 144, 9 Nov 2026) shows C = h^2 and D = $2h^2$, so the answer 2h sits at B, not D. The answer VALUE (2h) is unchanged from the held file.

3 Projectile bursting in flight

One projectile moving with velocity V in space gets burst into 2 parts of masses in the ratio 1:3. The smaller part becomes stationary. What is the velocity of the other part?

- A. 4V
- B. V
- C. 4V/3 ✓ **Correct answer**
- D. 3V/4

Note: - Why C is correct: total mass 4m carries momentum 4mV; the smaller part (mass m) stops, so the larger part (mass 3m) must carry all of it — 3m × v = 4mV, giving v = 4V/3. - Why A is wrong: 4V would be the speed if a part of mass m carried the whole momentum; the moving part has mass 3m, not m. - Why B is wrong: V would mean the burst changed nothing, but the smaller part stopped, so the larger part must speed up to conserve momentum. - Why D is wrong: 3V/4 inverts the mass ratio — it is the speed the larger part would have if it carried only 3/4 of the momentum with mass 4m, which is not the case. - Reproduction note: option A reads "4V" with an OCR artefact after it; option C clearly reads "4V/3" and is the derived answer. Decided by the assistant under the owner's 8 Nov 2026 delegation that the letter carrying 4V/3 (C) is the answer.

Question 4 Projectile angle for maximum range

A body is projected with the same velocity at angle 35°, 70°, 60°, 20° from the horizontal. The maximum range will be at

- A. 35° ✓ **Correct answer**
- B. 70°
- C. 60°
- D. 20°

Note: - Why A is correct: range $R = u^2\sin2\theta/g$ is maximum at $\theta = 45°$; of the angles offered, 35° is closest to 45°. - Why B is wrong: 70° is 25° away from 45°, and sin140° is well below sin70°... precisely, $\sin2\theta = \sin140° \approx 0.64$ versus $\sin70° \approx 0.94$ for 35°. - Why C is wrong:

away from 45°; sin120° ≈ 0.87, below the 35° value. - Why D is wrong: 20° is 25° away from 45°; sin40° ≈ 0.64, the joint-lowest of the four.

Question 5 Weight in a downward-accelerating lift

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

- A. g/3 ✓ **Correct answer**
- B. g/2
- C. g
- D. 2g

Note: - Why A is correct: apparent weight in the lift is m(g − a), so mg / m(g − a) = 3/2 gives g − a = 2g/3, hence a = g/3. - Why B is wrong: a = g/2 would give the ratio g/(g/2) = 2:1, not 3:2. - Why C is wrong: a = g would make the man weightless (apparent weight zero), not a 3:2 ratio. - Why D is wrong: a = 2g would give a negative apparent weight, impossible for a lift accelerating downward. - Reproduction note: the page-1 text fetch read D as "2g/3" and left C unreadable; the 300-dpi render of the official PDF (Wave 144, 9 Nov 2026) shows C = g and D = 2g. The answer (A, g/3) is unchanged.

Question 6 Momentum decrease and kinetic energy

If momentum decreases by 20% kinetic energy will decrease:

- A. 40%
- B. 36% ✓ **Correct answer**
- C. 18%
- D. 8%

Note: - Why B is correct: kinetic energy is proportional to p^2, so p' = 0.8p gives KE' = 0.64 KE — a decrease of 36%. - Why A is wrong: 40% would be twice the momentum decrease, i.e. a linear treatment of a squared quantity. - Why C is wrong: 18% is roughly half of 36% and corresponds to no consistent power of the 0.8 factor. - Why D is wrong: 8% is far too

n a linear fall would be 20%, and the squared fall is larger, not smaller.

Question 7 Proton–antiproton annihilation energy

When a proton and anti-proton annihilate, the energy released is

- A. 3×10^-10 J ✓ **Correct answer**
- B. 3×10^-8 J
- C. 3×10^-6 J
- D. 3×10^-4 J

Note: - Why A is correct: $E = 2m_p c^2 = 2 \times 1.67\times10^{-27}$ kg × $(3\times10^8$ m/s$)^2 \approx 3.0\times10^{-10}$ J (938 MeV per proton, doubled). - Why B is wrong: 3×10^-8 J is 100 times too large — it would need a mass 100 times the proton mass. - Why C is wrong: 3×10^-6 J is 10,000 times too large and is in the range of macroscopic, not single-particle, energies. - Why D is wrong: 3×10^-4 J is a million times too large — the annihilation of one proton pair releases only about 10^-10 J.

Question 8 Kepler's third law

Kepler's law states that square of the time period of any planet about the sun is directly proportional to

- A. R
- B. 1/R
- C. R^3 ✓ **Correct answer**
- D. $1/R^3$

Note: - Why C is correct: Kepler's third law is $T^2 \propto r^3$, where r is the mean orbital radius. - Why A is wrong: $T^2 \propto R$ would make the period grow only as the square root of distance, contradicting the observed periods of the outer planets. - Why B is wrong: 1/R would make the period shorter for more distant planets, the opposite of what is observed. - Why D is wrong: $1/R^3$ is the inverse-cube relation, which describes no planetary law — it would make distant planets orbit fastest.

9 Satellite period at four times the geo-stationary height

Satellite is revolving around earth. If its height is increased to four times the height of geo-stationary satellite, what will become its time period?

- A. 8 days ✓ **Correct answer**
- B. 4 days
- C. 2 days
- D. 16 days

Note: - Why A is correct: on the standard paper-setter's treatment the orbital radius is taken as 4 times the geo-stationary radius, so T ∝ r^3/2 gives T' = 4^3/2 × 1 day = 8 days. - Why B is wrong: 4 days would follow a linear scaling of the period with height, but the period scales as the 3/2 power of the radius, not linearly. - Why C is wrong: 2 days would follow a square-root scaling, which is the wrong power law for orbital periods. - Why D is wrong: 16 days would follow a squared scaling (4^2), again the wrong power — the correct exponent is 3/2. - Note (recorded openly): using exact radii ($r_{geo} \approx 42{,}164$ km; new height 4 × 35,786 km above the surface, $r' \approx 149{,}515$ km) the period would be about 6.7 days, so the setter's intended 8-day answer rests on the simplified 4x-radius treatment. Of the options offered, 8 days is the only one consistent with the intended treatment, and it is the standard textbook-bank answer to this exact question. Decided by the assistant under the owner's 8 Nov 2026 delegation.

Question 10 Escape velocity on a heavier, larger planet

Escape velocity on earth is 11.2 km/s. What would be the escape velocity on a planet whose mass is 1000 times, and radius is 10 times that of earth?

- A. 112 km/s ✓ **Correct answer**
- B. 11.2 km/s
- C. 1.12 km/s
- D. 3.7 km/s

Note: - Why A is correct: $v_{esc} = \sqrt{(2GM/R)}$, so the factor is $\sqrt{(1000/10)} = \sqrt{100} = 10$, giving

12 km/s. - Why B is wrong: 1.2 km/s would mean the mass and radius changes cancelled exactly, but they give a factor of 10, not 1. - Why C is wrong: 1.12 km/s is ten times too small — it applies the factor upside down (√(10/1000) = 0.1). - Why D is wrong: 3.7 km/s corresponds to no consistent combination of the given factors (it is near 11.2/3, not a √100 scaling).

Question 11 Carnot engine efficiency

A Carnot engine, with its cold body at 17°C, has 50% efficiency. If the temperature of its hot body is now increased by 145°C, the efficiency becomes

- A. 55%
- B. 60% ✓ **Correct answer**
- C. 40%
- D. 45%

Note: - Why B is correct: T_cold = 290 K; 50% efficiency gives T_hot = 290/(1 − 0.5) = 580 K; raising it by 145 K gives 725 K, so the new efficiency is 1 − 290/725 = 60%. - Why A is wrong: 55% would need T_hot ≈ 644 K, i.e. a rise of only about 64 K, not 145 K. - Why C is wrong: 40% is below the original 50% — raising the hot-body temperature can only raise the efficiency, never lower it. - Why D is wrong: 45% is likewise below the starting efficiency and contradicts the direction of the change.

Question 12 Degrees of freedom of a monoatomic gas

What is the degree of freedom in case of a monoatomic gas?

- A. 3 ✓ **Correct answer**
- B. 1
- C. 5
- D. None of these

Note: - Why A is correct: a monoatomic gas molecule has only the three translational degrees of freedom (motion along x, y and z); it has no rotational or vibrational modes at

temperatures. - Why B is wrong: 1 is the degree of freedom of a particle confined to move on a line, not of a free gas molecule. - Why C is wrong: 5 is the number for a diatomic gas (3 translational + 2 rotational), not a monoatomic one. - Why D is wrong: "None of these" fails because 3 is present among the options and is the correct count. - Reproduction note: the page-1 text fetch read the "5" after C's bracket as belonging to B; the 300-dpi render of the official PDF (Wave 144, 9 Nov 2026) shows B = 1 and C = 5. The answer (A, 3) is unchanged.

Question 13 Spring cut in two

A light spring of constant K is cut into two equal parts. The spring constant of each part is

- A. K
- B. 2K ✓ **Correct answer**
- C. K/2
- D. 4K

Note: - Why B is correct: the spring constant is inversely proportional to the length, so halving the length doubles the constant — each half has 2K. - Why A is wrong: K would mean cutting the spring changed nothing, but a shorter spring of the same material is stiffer. - Why C is wrong: K/2 is the constant of two such springs in series (or of a spring twice as long), not of one half. - Why D is wrong: 4K would be the result of quartering the length, not halving it. - Reproduction note: the options are heavily garbled in the OCR ("2K" mid-line, "C K/2 D 4K" legible, "A K" fragmentary); they are restored as shown. The derived answer 2K is certain from the physics.

Question 14 Pitch of sound

The pitch of sound wave is related to its

- A. Frequency ✓ **Correct answer**
- B. Amplitude

- D. Beats

Note: - Why A is correct: pitch is the ear's perception of frequency; higher frequency means higher pitch - Why B is wrong: amplitude governs loudness, not pitch - Why C is wrong: velocity governs how fast sound travels, not its pitch - Why D is wrong: beats are the throbbing heard when two close frequencies interfere, not pitch

Question 15 Amplitude at resonance

At resonance, which of the following is maximum

- A. Frequency
- B. Wavelength
- C. Velocity
- D. Amplitude ✓ **Correct answer**

Note: - Why A is wrong: the driving frequency equals the natural frequency at resonance, but it is not a maximum - Why B is wrong: wavelength is set by the frequency and the medium, it is not maximised at resonance - Why C is wrong: velocity is not maximised at resonance - Why D is correct: at resonance the amplitude of vibration builds up to its maximum value

Question 16 Frequency across media

What does not change, when sound enters from one medium to another?

- A. Wavelength
- B. Speed
- C. Frequency ✓ **Correct answer**
- D. None of these

Note: - Why A is wrong: wavelength changes because speed changes while frequency stays fixed - Why B is wrong: the speed of sound differs from medium to medium - Why C

frequency is fixed by the source and does not change on entering a new medium - Why D is wrong: frequency is among the options and does not change

Question 17 Pendulum in a freely falling lift

What will be the time period of a simple pendulum in a freely falling lift?

- A. ∞ ✓ **Correct answer**
- B. 0
- C. √1/g
- D. √1/2g

Note: - Why A is correct: in free fall the effective gravity is zero, so T = 2π√(l/g) grows without limit - Why B is wrong: zero period would mean infinitely fast swinging, the opposite of what happens - Why C is wrong: √1/g is not the period formula and is not infinite - Why D is wrong: √1/2g is not the period formula and is not infinite

Question 18 Speeds after falling through a potential

A particle A has a charge +q and particle B has a charge +4q with each of them having the same mass m. When allowed to fall from rest through same electrical potential difference, the ratio of their aped VA: VB will becomes

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

Note: - Why A is wrong: 2:1 is the inverse of the correct ratio; the heavier-charged particle moves faster, not slower - Why B is correct: each gains kinetic energy qV, so speed is proportional to √q; VA:VB = √q:√4q = 1:2 - Why C is wrong: 1:4 is the ratio of the charges, not of the speeds, which go as the square root - Why D is wrong: 4:1 is the inverse of the charge ratio and contradicts energy conservation - Reproduction note: Print reads 'aped' for 'speed' and 'will becomes'; filed as printed.

19 Capacitor plates pulled apart

If the plates of a charged parallel plates capacitors are pulled away from each other

- A. Capacitance increase
- B. Energy increase
- C. Voltage increase ✓ **Correct answer**
- D. Voltage decrease

Note: - Why A is wrong: capacitance falls as the plates separate, since C is proportional to 1/d - Why B is plausible but not picked: the stored energy does increase ($U = Q^2/2C$ with Q fixed and C falling), but the bank-standard key for this stem is the voltage - Why C is correct as picked: with charge fixed and capacitance falling, $V = Q/C$ rises; this is the keyed answer in the standard banks for this exact stem - Why D is wrong: the voltage rises, it does not fall

Question 20 Conductivity on heating

When a substance was heated, its conductivity was increased, what should it be out of the following

- A. Metals
- B. Insulators
- C. Semi-conductors ✓ **Correct answer**
- D. Semi-metal

Note: - Why A is wrong: a metal's conductivity falls on heating because lattice vibrations scatter the electrons more - Why B is wrong: an insulator stays an insulator on ordinary heating; its conductivity does not rise usefully - Why C is correct: in a semiconductor heating frees more charge carriers, so conductivity rises - Why D is wrong: 'semi-metal' is not the standard name for the class whose conductivity rises on heating

21 Power dissipated through resistors

What will be the power dissipated through any of them if it is individually connected across the same battery

- A. 30 W
- B. 10/3 W
- C. 90 W
- D. 10 W

No answer is given for this question, and none is taught. NO ANSWER ASSERTED — DEFECTIVE-excluded, decided by the assistant under the owner's 8 Nov 2026 delegation. The stem is truncated in the printed paper: 'any of them' refers to a set of resistors that is never given, so no power can be computed from the paper as printed. No answer is asserted.

Question 22 Power fall in a bulb

If the current in electric bulb decreases by 0.5% then the power in the bulb decreases by approximately

- A. 0.5%
- B. 2%
- C. 1% ✓ **Correct answer**
- D. 0.25%

Note: - Why A is wrong: power goes as the square of the current, so its percentage change is about twice the current's, not equal - Why B is wrong: 2% is about double the correct figure - Why C is correct: $P \propto I^2$, so a 0.5% fall in current gives about a 1% fall in power - Why D is wrong: 0.25% is about a quarter of the correct figure

Question 23 Strongly magnetized substances

The substances which can be strongly magnetized are called

- B. Paramagnetic
- C. Diamagnetic
- D. Ferromagnetic ✓ **Correct answer**

Note: - Why A is wrong: antiferromagnetic materials have opposing spins that cancel and are not strongly magnetized - Why B is wrong: paramagnetic materials are only weakly attracted to a magnetic field - Why C is wrong: diamagnetic materials are weakly repelled by a magnetic field - Why D is correct: ferromagnetic materials (iron, cobalt, nickel) can be strongly magnetized

Question 24 Force on a charge in a magnetic field

Force acting on a charge moving in a magnetic field will not depend upon

- A. Its mass ✓ **Correct answer**
- B. Amount of charge
- C. Its Velocity
- D. Intensity of magnetic field

Note: - Why A is correct: F = qvB sinθ contains charge, velocity and field, but no mass term - Why B is wrong: the force is directly proportional to the amount of charge - Why C is wrong: the force is directly proportional to the velocity - Why D is wrong: the force is directly proportional to the magnetic field strength

Question 25 Energy gain in electric and magnetic fields

One electron is moving in electric and magnetic fields. It will gain energy from

- A. Magnetic field
- B. Electric field ✓ **Correct answer**
- C. Both of these
- D. None of these

A is wrong: a magnetic field does no work on a moving charge because its force is always perpendicular to the motion - Why B is correct: only the electric field can do work on the charge and change its kinetic energy - Why C is wrong: the magnetic field contributes no energy, so 'both' is false - Why D is wrong: the electric field does give the electron energy

Question 26 Photoelectric ejection speed

In a photo electric cell, velocity of ejection of electron emitted depends upon

- A. Frequency of the incident light ✓ **Correct answer**
- B. Intensity of the incident light
- C. Work function of the metal
- D. None of these

Note: - Why A is correct: Einstein's equation gives the maximum kinetic energy as $hf - \varphi$, so the ejection speed depends on the light's frequency - Why B is wrong: intensity changes the number of electrons ejected, not their speed - Why C is wrong: the work function shifts the energy by a fixed amount but the speed varies with the incident frequency - Why D is wrong: the frequency of the incident light is among the options and governs the speed

Question 27 Minimum forces summing to zero

The minimum number of unequal forces whose sum can equal to zero is

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

Note: - Why A is correct: three unequal forces can close into a triangle and sum to zero; two unequal forces can never cancel - Why B is wrong: four forces can also sum to zero, but three is the minimum - Why C is wrong: two unequal forces always leave a non-zero resultant - Why D is wrong: a single non-zero force cannot sum to zero

28 Inertial and gravitational mass

The ratio of the inertial mass to gravitational mass is equal to:

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

Note: - Why A is wrong: the two masses are equal, not in a 1:2 ratio - Why B is wrong: the two masses are equal, not in a 2:1 ratio - Why C is correct: inertial mass and gravitational mass are equal — the equivalence principle - Why D is wrong: the two masses are equal, not in a 3:1 ratio

Question 29 Weight at the poles if the earth stops rotating

If the earth stopped rotating, the weight of objects at either pole would:

- A. Be less
- B. Be greater
- C. Be same as before ✓ **Correct answer**
- D. Vary with latitude

Note: - Why A is wrong: rotation has no centrifugal effect at the poles, so stopping it changes nothing there - Why B is wrong: rotation has no centrifugal effect at the poles, so stopping it changes nothing there - Why C is correct: at the poles the centrifugal force is zero, so the weight is the same whether the earth rotates or not - Why D is wrong: at the poles there is no latitude variation from rotation to remove

Question 30 Escape velocity from the earth

Escape velocity from the earth surface is

- A. 11.2 km/sec ✓ **Correct answer**
- B. 1.7 km/sec

- D. 9.1 km/sec

Note: - Why A is correct: the standard escape velocity from the earth's surface is 11.2 km/s - Why B is wrong: 1.7 km/s is far below the escape velocity (it is near the moon's escape velocity scale) - Why C is wrong: 8 km/s is the first cosmic (orbital) velocity, not the escape velocity - Why D is wrong: 9.1 km/s is neither the orbital nor the escape velocity

Question 31 Turbulent flow and the Reynolds number

Turbulent flow occurs when the Reynold number is above

- A. 1000
- B. 800
- C. 500
- D. 5000 ✓ **Correct answer**

Note: - Why A is wrong: 1000 is well inside the laminar regime - Why B is wrong: 800 is well inside the laminar regime - Why C is wrong: 500 is well inside the laminar regime - Why D is correct: flow turns turbulent above a Reynolds number of about 4000, and 5000 is the only option above that threshold

Question 32 Elastic after-effect

The substance which shows practically no elastic after effect is

- A. Copper
- B. Silk
- C. Quartz ✓ **Correct answer**
- D. Rubber

Note: - Why A is wrong: copper shows a measurable elastic after-effect - Why B is wrong: silk shows a marked elastic after-effect - Why C is correct: quartz shows practically no elastic after-effect; it returns to shape at once - Why D is wrong: rubber shows a large

Question 33 Projection angle for the greatest range

Which of the following projection angles will result in the greatest range?

- A. 48° ✓ **Correct answer**
- B. 60°
- C. 37°
- D. 20°

Note: - Why A is correct: range is greatest at 45°, and 48° is the closest of the four angles to 45° - Why B is wrong: 60° is 15° away from 45°, further than 48° - Why C is wrong: 37° is 8° away from 45°, further than 48° - Why D is wrong: 20° is 25° away from 45°, much further than 48°

Question 34 What fixes a pendulum's period

Period of pendulum is determined by its:

- A. Mass
- B. Length ✓ **Correct answer**
- C. Speed
- D. Amplitude

Note: - Why A is wrong: the period of a simple pendulum does not depend on the bob's mass - Why B is correct: $T = 2\pi\sqrt{(l/g)}$, so the period is fixed by the length (and g) - Why C is wrong: the period does not depend on the speed of swing - Why D is wrong: for small swings the period does not depend on the amplitude

Question 35 Crest-to-crest distance

Distance from crest to crest of any wave is called

- A. Frequency

- C. Velocity
- D. Wave length ✓ **Correct answer**

Note: - Why A is wrong: frequency counts waves per second, it is not a distance - Why B is wrong: speed is a rate, not the crest-to-crest distance - Why C is wrong: velocity is a rate with direction, not the crest-to-crest distance - Why D is correct: the distance between two successive crests is one wavelength

Question 36 Sound cannot be polarized

Sound waves cannot be

- A. Polarized ✓ **Correct answer**
- B. Diffracted
- C. Reflected
- D. Refracted

Note: - Why A is correct: sound waves are longitudinal, and only transverse waves can be polarized - Why B is wrong: sound waves can be diffracted around obstacles - Why C is wrong: sound waves can be reflected (echoes) - Why D is wrong: sound waves can be refracted when entering a different medium

Question 37 Instrument used to record sound

Which of the following instrument is used to be record sound?

- A. Amplifier
- B. Phonograph ✓ **Correct answer**
- C. Headphone
- D. Dictaphone

Note: - Why A is wrong: an amplifier only increases the strength of a sound signal, it does not record it - Why B is correct as picked: the phonograph is the textbook instrument for

und - Why C is wrong: a headphone reproduces sound for listening, it does not record it - Why D is plausible but not picked: a dictaphone does record dictated speech, but the phonograph is the standard textbook answer for 'instrument used to record sound'

Question 38 What causes resonance

Physical property which is most responsible for resonance is

- A. Wave form
- B. Frequency ✓ **Correct answer**
- C. Quality
- D. Intensity

Note: - Why A is wrong: the wave form does not cause resonance - Why B is correct: resonance occurs when the driving frequency matches the natural frequency of the system - Why C is wrong: quality (timbre) describes the character of a sound, not resonance - Why D is wrong: intensity affects loudness, not whether resonance occurs

Question 39 Power of a lens

Power of lens is measured in

- A. C.m
- B. $C.m^2$
- C. Diopters ✓ **Correct answer**
- D. Meter

Note: - Why A is wrong: C.m is not a unit of lens power - Why B is wrong: $C.m^2$ is not a unit of lens power - Why C is correct: lens power is measured in diopters (dioptre), the reciprocal of the focal length in metres - Why D is wrong: the metre measures the focal length itself, not the power

40 Image formed by a bi-convex lens

Image formed by a bi-convex lens is

- A. Virtual
- B. Erect
- C. Real ✓ **Correct answer**
- D. Infinite

Note: - Why A is wrong: a bi-convex lens forms a virtual image only when the object is inside the focal length; in general it forms a real image - Why B is wrong: the image of a bi-convex lens is generally inverted, not erect - Why C is correct: a bi-convex (converging) lens generally forms a real, inverted image of a distant object - Why D is wrong: 'infinite' is not a kind of image

Question 41 Shortest wavelength

Which has shortest wave length?

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

Note: - Why A is wrong: X-rays have a longer wavelength than gamma rays - Why B is wrong: alpha rays are particles, not electromagnetic waves, and do not have the shortest wavelength - Why C is correct: gamma rays have the shortest wavelength in the electromagnetic spectrum - Why D is wrong: beta rays are particles, not electromagnetic waves, and do not have the shortest wavelength

Question 42 Colour of a star

Colour of star is an indication of its

- A. Displacement

- C. Size
- D. Distance

No answer is given for this question, and none is taught. NO ANSWER ASSERTED — DEFECTIVE-excluded, decided by the assistant under the owner's 8 Nov 2026 delegation. The colour of a star indicates its surface TEMPERATURE, which is in none of the four options. No answer is asserted.

Question 43 SI unit of impulse

System of international unit in impulse

- A. NS
- B. NS^-1
- C. Kg m sec^-1 ✓ **Correct answer**
- D. kg m sec^-2

Note: - Why A is plausible but not picked: newton-second is also a valid SI unit of impulse, since 1 N·s = 1 kg m/s; C is picked because the force-unit distractor D is paired against C, showing C is the intended key - Why B is wrong: NS^-1 has the wrong dimensions for impulse - Why C is correct as picked: impulse is change of momentum, whose SI base unit is kg m/s - Why D is wrong: kg m/s^2 is the unit of force (newton), not of impulse

Question 44 Rotational analog of force

In rotational motion the analog of force is

- A. Torque ✓ **Correct answer**
- B. Momentum
- C. Velocity
- D. Speed

Note: - Why A is correct: torque plays the role of force in rotational motion, just as force

acceleration - Why B is wrong: momentum is the analog of linear momentum, not of force - Why C is wrong: velocity is the analog of linear velocity, not of force - Why D is wrong: speed is a scalar rate, not the rotational analog of force

Question 45 Conservation of angular momentum

Angular momentum is conserved under

- A. Central force ✓ **Correct answer**
- B. Variable force
- C. Constant force
- D. Uniform force

Note: - Why A is correct: a central force exerts no torque about the centre, so angular momentum is conserved - Why B is wrong: a variable force can exert a torque and change angular momentum - Why C is wrong: a constant force can exert a torque about a point and change angular momentum - Why D is wrong: a uniform force can exert a torque about a point and change angular momentum

Question 46 Where a pendulum swings fastest

At which of the following places motion of a simple pendulum become fast

- A. Murree ✓ **Correct answer**
- B. Lahore
- C. Multan
- D. Karachi

Note: - Why A is correct as picked: Murree is the northernmost place, so by the school rule (g increases with latitude) its g is largest and the pendulum swings fastest - Why B is plausible but not picked: a precise computation including altitude gives Lahore a marginally larger g (about 9.794 against Murree's 9.789 m/s^2), but the paper plainly intends the latitude rule - Why C is wrong: Multan is south of both Lahore and Murree, so its g is smaller than theirs - Why D is wrong: Karachi is the southernmost place, so its g is

Question 47 Sound is fastest in steel

Velocity of sound is greatest in

- A. Water
- B. Air
- C. Glass
- D. Steel ✓ **Correct answer**

Note: - Why A is wrong: sound travels faster in water than in air, but slower than in steel - Why B is wrong: sound is slowest in air of the four media - Why C is wrong: sound travels fast in glass, but faster still in steel - Why D is correct: sound travels fastest in steel (about 5,000 m/s), faster than in glass, water or air

Question 48 Light speed in a medium

Medium in which velocity of light remains constant is

- A. Homogenous ✓ **Correct answer**
- B. Heterogeneous
- C. Plane medium
- D. None of these

Note: - Why A is correct: in a homogeneous medium the refractive index is uniform, so light keeps a constant speed - Why B is wrong: in a heterogeneous medium the speed changes from place to place - Why C is wrong: 'plane medium' is not the term for a medium of constant light speed - Why D is wrong: a homogeneous medium is among the options and is correct

Question 49 Image in a simple microscope

Image obtained in case of a simple microscope

- ual and erect ✓ **Correct answer**
- B. Real and erect
- C. Real and inverted
- D. Virtual and inverted

Note: - Why A is correct: a simple microscope (magnifying glass) forms a virtual, erect, magnified image - Why B is wrong: a real image cannot be erect in a simple microscope - Why C is wrong: the image is virtual and erect, not real and inverted - Why D is wrong: the image is erect, not inverted

Question 50 Measuring the velocity of light

The scientist who correctly measured the velocity of light was

- A. Maxwell
- B. Galileo
- C. Newton
- D. Michelson ✓ **Correct answer**

Note: - Why A is wrong: Maxwell predicted electromagnetic waves but did not measure the speed of light - Why B is wrong: Galileo attempted the measurement with lanterns but could not obtain a value - Why C is wrong: Newton worked on optics but did not measure the speed of light - Why D is correct: Michelson made the first accurate measurement of the speed of light (rotating-mirror method)

Question 51 Land and sea breeze

The phenomenon of land and sea breeze is a result of

- A. Conduction
- B. Convection ✓ **Correct answer**
- C. Radiation
- D. Entropy

A is wrong: conduction transfers heat through solids, it does not move the air masses - Why B is correct: land and sea breezes are convection currents caused by unequal heating of land and sea - Why C is wrong: radiation transfers heat without a medium but does not drive the breeze circulation - Why D is wrong: entropy is a thermodynamic quantity, not the cause of the breeze

Question 52 Gas pressure and kinetic energy

Pressure of a gas directly proportional to

- A. Potential energy
- B. Kinetic energy ✓ **Correct answer**
- C. Sound energy
- D. Wind energy

Note: - Why A is wrong: pressure is not proportional to the potential energy of the gas molecules - Why B is correct: by the kinetic theory, pressure is proportional to the mean kinetic energy of the molecules (P = 2/3 × energy density) - Why C is wrong: sound energy is not what gas pressure is proportional to - Why D is wrong: wind energy is not what gas pressure is proportional to

Question 53 Constant-pressure process

The process in which pressure remain constant is called

- A. Isothermal
- B. Adiabatic
- C. Isobaric ✓ **Correct answer**
- D. Isochoric

Note: - Why A is wrong: isothermal means constant temperature - Why B is wrong: adiabatic means no heat exchange - Why C is correct: isobaric means constant pressure - Why D is wrong: isochoric means constant volume

54 Normal body temperature

Normal temperature of human body in centigrade

- A. 35°C
- B. 36°C
- C. 37°C ✓ **Correct answer**
- D. 38°C

Note: - Why A is wrong: 35°C is below the normal body temperature - Why B is wrong: 36°C is below the normal body temperature of about 37°C - Why C is correct: the normal human body temperature is 37°C - Why D is wrong: 38°C is a fever temperature, above normal

Question 55 Field inside a hollow conductor

The field inside a hollow spherical conductor is

- A. Constantly zero ✓ **Correct answer**
- B. Constant but not necessarily zero
- C. Function of charge on sphere
- D. Function of distance from the centre

Note: - Why A is correct: inside a hollow charged conductor the electric field is zero everywhere (electrostatic shielding) - Why B is wrong: the field inside is zero, not merely constant - Why C is wrong: the field inside does not depend on the charge on the sphere - Why D is wrong: the field inside is zero at every distance from the centre - Reproduction note: Option D is misprinted in the paper as '(A) Function of distance from the centre'; filed under its correct letter D.

Question 56 Capacity of a spherical conductor

Capacity of a spherical conductor is numerically equal to

- A. Surface area

meter

- C. Radius ✓ **Correct answer**
- D. Volume

Note: - Why A is wrong: the capacity is not numerically equal to the surface area - Why B is wrong: the capacity is not numerically equal to the diameter - Why C is correct: for an isolated sphere C = $4\pi\varepsilon_0 R$, which in CGS units is numerically equal to the radius - Why D is wrong: the capacity is not numerically equal to the volume

Question 57 Minimum charge

Minimum charge on any object cannot be less than

- A. 1.6x10^-19 c ✓ **Correct answer**
- B. 1.1x10^-18 c
- C. 1.3x10^-21 c
- D. 1.8x10^-16 c

Note: - Why A is correct: charge is quantised in units of the elementary charge e = 1.6 × 10^-19 C - Why B is wrong: 1.1 × 10^-18 C is about seven elementary charges, not the minimum - Why C is wrong: 1.3 × 10^-21 C is smaller than one elementary charge and cannot exist as a free charge - Why D is wrong: 1.8 × 10^-16 C is about a thousand elementary charges, not the minimum

Question 58 Field at infinite distance

Electric intensity at infinite distance from point charge will be

- A. Infinite
- B. Positive
- C. Negative
- D. Zero ✓ **Correct answer**

Note: - Why A is wrong: the field falls as $1/r^2$, so it tends to zero, not to infinity - Why B is

tive' is not a value of the field strength at infinity - Why C is wrong: 'negative' is not a value of the field strength at infinity - Why D is correct: $E \propto 1/r^2$, so at infinite distance the field strength is zero

Question 59 Drift velocity of an electron

Drift velocity of an electron is

- A. 10^-8 m/sec
- B. 333 m/sec
- C. 3x10^8 m/sec
- D. 10^-3 m/sec ✓ **Correct answer**

Note: - Why A is wrong: 10^-8 m/s is far below the drift speed of electrons in a conductor - Why B is wrong: 333 m/s is near the speed of sound, far above the drift speed - Why C is wrong: 3 × 10^8 m/s is the speed of light, far above the drift speed - Why D is correct: the drift speed of electrons in a conductor is of the order of 10^-3 m/s (about a millimetre per second) - Reproduction note: The first option is misprinted in the paper as '(C) 10^-8 m/sec'; filed under its correct letter A.

Question 60 Joule heating

Heating effect caused by an electric circuit is written

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

Note: - Why A is correct: Joule's heating law is $H = I^2Rt$ - Why B is wrong: I^2R is the power, not the total heat; the time factor is missing - Why C is wrong: IR^2t has the wrong form; the current must be squared, not the resistance - Why D is wrong: IR^2 has the wrong form and no time factor

61 Resistor material

Resister used in most of electronic devices are made of

- A. Gold
- B. Copper ✓ **Correct answer**
- C. Carbon
- D. Rubber

Note: - Why A is wrong: gold is used only in special contacts, not in ordinary resistors - Why B is wrong: copper is a conductor used for wiring, not for resistors - Why C is correct: most ordinary resistors are carbon-composition or carbon-film resistors - Why D is wrong: rubber is an insulator, not a resistor material

Question 62 Field inside a solenoid

Magnetic field inside the solenoid along its axis

- A. Zero
- B. Non-uniform
- C. Strong and uniform ✓ **Correct answer**
- D. Infinite line

Note: - Why A is wrong: the field inside a solenoid is strong, not zero - Why B is wrong: the field inside a solenoid is uniform along its axis - Why C is correct: the field inside a solenoid is strong and uniform along its axis - Why D is wrong: 'infinite line' does not describe the field inside a solenoid

Question 63 Field in a moving-coil galvanometer

Magnetic field used in a moving coil galvanometer its

- A. longitudinal
- B. Transverse
- C. Radial ✓ **Correct answer**

Note: - Why A is wrong: a longitudinal field would not give a torque proportional to the current - Why B is wrong: a transverse field would not give a uniform torque over the coil's swing - Why C is correct: a moving-coil galvanometer uses a radial magnetic field so the torque is the same at every deflection - Why D is wrong: a circular field would not give a torque proportional to the current

Question 64 What an avometer cannot measure

Which one of the following cannot be measured with an Avometer?

- A. Voltage
- B. Resistance
- C. Current
- D. Inductance ✓ **Correct answer**

Note: - Why A is wrong: an avometer (multimeter) measures voltage - Why B is wrong: an avometer measures resistance - Why C is wrong: an avometer measures current - Why D is correct: an avometer cannot measure inductance; that needs an inductance meter or bridge

Question 65 Inductor coil shape

An inductor coil may appear like a

- A. LED
- B. Toroid
- C. Super conductor
- D. Solenoid ✓ **Correct answer**

Note: - Why A is wrong: an LED is a light-emitting diode, not an inductor coil - Why B is wrong: a toroid is a ring-shaped coil, a special form, not the general appearance of an inductor - Why C is wrong: a superconductor is a material with zero resistance, not the

nductor coil - Why D is correct: an inductor coil is wound like a solenoid (a helix of wire)

Question 66 Generator brushes

Brushes used in a generator are commonly made up of

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

Note: - Why A is wrong: iron brushes would wear the commutator and spark badly - Why B is wrong: steel brushes would damage the commutator - Why C is correct: generator brushes are commonly made of carbon (graphite), which conducts and slides smoothly - Why D is wrong: copper is used for windings, not for brushes

Question 67 What a transformer conserves

Transformer obeys the Law of Conservation of

- A. Flux
- B. Power ✓ **Correct answer**
- C. Momentum
- D. e.m.F

Note: - Why A is wrong: flux is not conserved in a transformer; it changes with the turns ratio - Why B is correct: an ideal transformer conserves power (input power equals output power) - Why C is wrong: momentum is not the conserved quantity in a transformer - Why D is wrong: the e.m.f. changes with the turns ratio, it is not conserved

Question 68 Highest-frequency absorption in hydrogen

The transition absorbing of photons of highest frequency in hydrogen atom is

to j=2 ✓ **Correct answer**

- B. j=2 to j=1
- C. j=2 to j=4
- D. j=4 to j=2

Note: - Why A is correct: absorption means a jump to a higher level, and the 1 → 2 jump has the largest energy gap of the options, hence the highest-frequency photon - Why B is wrong: 2 → 1 is an emission, not an absorption - Why C is wrong: the 2 → 4 gap (2.55 eV) is smaller than the 1 → 2 gap (10.2 eV) - Why D is wrong: 4 → 2 is an emission, not an absorption

Question 69 Longest wavelength

Which of the following has the longest wave length?

- A. X-rays
- B. Visible light
- C. Radio waves ✓ **Correct answer**
- D. Infrared

Note: - Why A is wrong: X-rays have a very short wavelength - Why B is wrong: visible light has a much shorter wavelength than radio waves - Why C is correct: radio waves have the longest wavelength of the four - Why D is wrong: infrared has a longer wavelength than visible light but a shorter one than radio waves

Question 70 Compton effect

Compton effect is associated to

- A. Alpha Rays
- B. Beta Rays
- C. Gama Rays
- D. X-Rays ✓ **Correct answer**

A is wrong: alpha rays are helium nuclei, not involved in the Compton effect - Why B is wrong: beta rays are electrons, not involved in the Compton effect - Why C is wrong: gamma rays are not the radiation used in the classic Compton-effect experiment - Why D is correct: the Compton effect is the scattering of X-rays by electrons

Question 71 Idea of the matter wave

Who gave the idea of matter wave?

- A. Einstein
- B. Hygen
- C. Plank
- D. De-Broglie ✓ **Correct answer**

Note: - Why A is wrong: Einstein gave the photon idea, not matter waves - Why B is wrong: Huygens gave the wave theory of light, not matter waves - Why C is wrong: Planck gave the quantum idea, not matter waves - Why D is correct: Louis de Broglie proposed that matter has a wave nature

Question 72 Radioactivity

Radio activity is associated with

- A. Decay of Nucleus ✓ **Correct answer**
- B. Decay of atoms
- C. Fusion Nuclei
- D. Emissions of electrons

Note: - Why A is correct: radioactivity is the spontaneous decay of an unstable atomic nucleus - Why B is wrong: radioactivity is a nuclear process, not the decay of whole atoms - Why C is wrong: fusion joins nuclei; radioactivity is the decay of a nucleus - Why D is wrong: electron emission is only one possible outcome, not what radioactivity is

73 Tunnel effect and alpha decay

Tunel effect make a possible

- A. Negative beta decay
- B. Positive beta decay
- C. Alpha decay ✓ **Correct answer**
- D. Gama decay

Note: - Why A is wrong: negative beta decay is not explained by quantum tunnelling - Why B is wrong: positive beta decay is not explained by quantum tunnelling - Why C is correct: alpha decay is possible because the alpha particle tunnels through the nuclear potential barrier - Why D is wrong: gamma decay is the emission of a photon, not a tunnelling process - Reproduction note: Print reads 'Tunel effect'; filed as printed.

Question 74 Highest-energy electrons

Highest energy electrons will be produced by

- A. Visible light
- B. X-rays
- C. Gama rays ✓ **Correct answer**
- D. Ultra violet rays

Note: - Why A is wrong: visible light has the lowest photon energy of the four - Why B is wrong: X-rays have high energy, but gamma rays have still higher energy - Why C is correct: gamma rays carry the highest photon energy, so they eject the most energetic electrons - Why D is wrong: ultraviolet has higher energy than visible light but lower than X-rays and gamma rays

Question 75 Energy of fusion

Energy released in process of fusion is

- A. Equal to fission

- C. Greater than fission ✓ **Correct answer**
- D. Sometime greater and sometime less

Note: - Why A is wrong: fusion and fission do not release equal energy per nucleon - Why B is wrong: per nucleon, fusion releases more energy than fission - Why C is correct: fusion releases more energy per nucleon than fission (about 3.5 MeV per nucleon against about 0.85 MeV) - Why D is wrong: per nucleon, fusion consistently releases more energy than fission

Question 76 Hydrogen series in the infrared

Which of the following series of hydrogen falls in the infrared region

- A. Lyman
- B. Balmer
- C. Bracket ✓ **Correct answer**
- D. Pefund

Note: - Why A is wrong: the Lyman series lies in the ultraviolet region - Why B is wrong: the Balmer series lies in the visible region - Why C is correct as picked: the Brackett series lies in the infrared region - Why D is plausible but not picked: the Pfund series also lies in the infrared, but Brackett is the standard bank key for this stem

Question 77 Discovery of the positron

Positron was discovered by

- A. Chadwick
- B. Muller
- C. Anderson ✓ **Correct answer**
- D. Bohr

Note: - Why A is wrong: Chadwick discovered the neutron - Why B is wrong: Muller did not

positron - Why C is correct: Carl Anderson discovered the positron in 1932 - Why D is wrong: Bohr gave the atomic model, he did not discover the positron

Question 78 PN junction as a rectifier

PN junction can be used as

- A. Amplifier
- B. Oscillator
- C. Moderator
- D. Rectifier ✓ **Correct answer**

Note: - Why A is wrong: a single PN junction cannot amplify; amplification needs a transistor - Why B is wrong: a PN junction alone is not an oscillator - Why C is wrong: 'moderator' is a nuclear-reactor term, not a PN-junction use - Why D is correct: a PN junction diode is used as a rectifier, converting AC to DC

Question 79 Binding energy of helium

Binding energy of Helium is

- A. 20 Mev
- B. 28.2 Mev ✓ **Correct answer**
- C. 31 Mev
- D. 40 Mev

Note: - Why A is wrong: 20 MeV is below the binding energy of the helium-4 nucleus - Why B is correct: the binding energy of helium-4 is about 28.2 MeV - Why C is wrong: 31 MeV is above the binding energy of helium-4 - Why D is wrong: 40 MeV is well above the binding energy of helium-4

Question 80 Darfur conflict

Darfur conflict is in:

- B. Tunisia
- C. Sudan ✓ **Correct answer**
- D. None of these

Note: - Why A is wrong: Darfur is not in Egypt - Why B is wrong: Darfur is not in Tunisia - Why C is correct: Darfur is a region of Sudan - Why D is wrong: Sudan is among the options and is correct

Question 81 Parachinar

Parachinar is the main town of:

- A. North Waziristan
- B. Khyber Agency
- C. Kurram Agency ✓ **Correct answer**
- D. None of these

Note: - Why A is wrong: Parachinar is not in North Waziristan - Why B is wrong: Parachinar is not in Khyber Agency - Why C is correct: Parachinar is the main town of Kurram Agency (now Kurram District) - Why D is wrong: Kurram Agency is among the options and is correct

Question 82 Cell with no nucleus

Which cell has no Nucleus:

- A. Red blood cell ✓ **Correct answer**
- B. White blood cell
- C. Nerve cell
- D. Muscle cell

Note: - Why A is correct: a mature mammalian red blood cell has no nucleus - Why B is wrong: a white blood cell has a nucleus - Why C is wrong: a nerve cell has a nucleus - Why

Question 83 Melting of ice at the poles

Melting of ice at poles is due to:

- A. Chlorofluorocarbons
- B. Global Warming ✓ **Correct answer**
- C. Green House Effect
- D. Ozone Depletion

Note: - Why A is wrong: chlorofluorocarbons deplete ozone; they are not the named cause of polar ice melting - Why B is correct: polar ice is melting because of global warming - Why C is wrong: the greenhouse effect is the mechanism behind global warming, but the named cause of the melting is global warming - Why D is wrong: ozone depletion causes extra ultraviolet radiation, not the melting of polar ice

Question 84 Bali

Bali is an Island of:

- A. Indonesia ✓ **Correct answer**
- B. Malaysia
- C. Singapore
- D. Philippines

Note: - Why A is correct: Bali is an island of Indonesia - Why B is wrong: Bali is not part of Malaysia - Why C is wrong: Singapore is a separate island state, not the country Bali belongs to - Why D is wrong: Bali is not part of the Philippines

Question 85 International Court of Justice

The International court of Justice is located in:

- A. New York

- C. Geneva
- D. The Hague ✓ **Correct answer**

Note: - Why A is wrong: New York hosts the UN headquarters, not the International Court of Justice - Why B is wrong: Washington D.C. does not host the International Court of Justice - Why C is wrong: Geneva hosts many UN bodies, but not the International Court of Justice - Why D is correct: the International Court of Justice sits at The Hague, Netherlands

Question 86 Members of SAARC

There are ____ members of SAARC

- A. 5
- B. 6
- C. 7
- D. 8 ✓ **Correct answer**

Note: - Why A is wrong: SAARC had 7 members before Afghanistan joined, but now has 8 - Why B is wrong: SAARC has 8 members, not 6 - Why C is wrong: SAARC had 7 members before Afghanistan joined in 2007, but now has 8 - Why D is correct: SAARC has 8 member states

Question 87 OIC official languages

Organization of Islamic Cooperation (OIC) has ____ official languages:

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

Note: - Why A is wrong: the OIC has more than one official language - Why B is wrong: the OIC has three official languages, not two - Why C is correct: the OIC has three official

- Arabic, English and French - Why D is wrong: the OIC has three official languages, not four

Question 88 Ulan Bator

Ulan Bator is the capital of:

- A. Mongolia ✓ **Correct answer**
- B. Chad
- C. Ivory Coast
- D. Chechnya

Note: - Why A is correct: Ulan Bator (Ulaanbaatar) is the capital of Mongolia - Why B is wrong: the capital of Chad is N'Djamena - Why C is wrong: the capital of Ivory Coast is Yamoussoukro - Why D is wrong: Chechnya is a republic within Russia, not a country with Ulan Bator as capital

Question 89 Radio station at Pakistan's creation

Which Radio Station already existed at the time of creation of Pakistan:

- A. Peshawar ✓ **Correct answer**
- B. Karachi
- C. Quetta
- D. None of these

Note: - Why A is correct: the Peshawar radio station was established in 1935, before Pakistan's creation in 1947 - Why B is wrong: the Karachi radio station was set up after the creation of Pakistan - Why C is wrong: the Quetta radio station was set up after the creation of Pakistan - Why D is wrong: Peshawar is among the options and its station predates 1947

90 Ministers under the 1962 Constitution

In which Constitution of Pakistan, the Ministers were neither members of the parliament nor answerable to the Parliament:

- A. 1956
- B. 1962 ✓ **Correct answer**
- C. 1973
- D. None of these

Note: - Why A is wrong: under the 1956 Constitution ministers were members of parliament and answerable to it - Why B is correct: under the 1962 Constitution ministers were not members of the National Assembly and were not answerable to it - Why C is wrong: under the 1973 Constitution ministers are members of parliament and answerable to it - Why D is wrong: the 1962 Constitution is among the options and is correct

Question 91 Founder of Muslim rule in India

Founder of Muslim rule in India was:

- A. Zaheeruddin Baabar
- B. Sher Shah Suri
- C. Qutubuddin Aibak ✓ **Correct answer**
- D. Mohamed Tughluq

Note: - Why A is wrong: Babar founded the Mughal Empire, not the first Muslim rule in India - Why B is wrong: Sher Shah Suri ruled later and is known for his reforms, not as the founder of Muslim rule - Why C is correct: Qutubuddin Aibak founded the Slave Dynasty and is regarded as the founder of Muslim rule in India - Why D is wrong: Muhammad Tughluq ruled much later, in the 14th century

Question 92 Attock Fort

Attock fort was constructed by:

ar ✓ Correct answer

- B. Shahjehan
- C. Jehangir
- D. Humayun

Note: - Why A is correct: Attock Fort was built by Emperor Akbar in 1581–1583 - Why B is wrong: Shah Jahan did not build Attock Fort - Why C is wrong: Jehangir did not build Attock Fort - Why D is wrong: Humayun died before Attock Fort was built

Question 93 Largest tribal agency

The largest tribal Agency in Pakistan, area-wise is:

- A. Khyber Agency
- B. South Waziristan ✓ **Correct answer**
- C. North Waziristan
- D. Kurram Agency

Note: - Why A is wrong: Khyber Agency is smaller in area than South Waziristan - Why B is correct: South Waziristan was the largest tribal agency by area - Why C is wrong: North Waziristan is smaller in area than South Waziristan - Why D is wrong: Kurram Agency is smaller in area than South Waziristan

Question 94 Indus Waters Treaty

Under the Indus Water Treaty of 1960 Pakistan has the right to use exclusively the water of:

- A. Ravi, Sutlej and Chenab
- B. Sutlej, Chenab and Jhelum
- C. Chenab, Jhelum and Indus ✓ **Correct answer**
- D. None of these

Note: - Why A is wrong: the Ravi and Sutlej were allocated to India, not to Pakistan - Why B

e Sutlej was allocated to India, not to Pakistan - Why C is correct: the Indus Waters Treaty gives Pakistan the exclusive use of the Indus, Jhelum and Chenab - Why D is wrong: the Indus, Jhelum and Chenab are among the options and are correct

Question 95 First TV station in Pakistan

The first TV station was established in Pakistan in:

- A. 1966
- B. 1964 ✓ **Correct answer**
- C. 1971
- D. 1976

Note: - Why A is wrong: 1966 is after the first station opened - Why B is correct: Pakistan Television's first station opened in Lahore on 26 November 1964 - Why C is wrong: 1971 is after the first station opened - Why D is wrong: 1976 is after the first station opened

Question 96 KANUPP

The first Nuclear Power Plant (KANUPP) was set up in Pakistan in:

- A. 1970
- B. 1984
- C. 1972 ✓ **Correct answer**
- D. 1974

Note: - Why A is wrong: KANUPP was not set up in 1970 - Why B is wrong: 1984 is after KANUPP was commissioned - Why C is correct: KANUPP was commissioned in 1972 (construction began in 1966) - Why D is wrong: 1974 is after KANUPP was commissioned

Question 97 Time for sunlight to reach the earth

How much time the light takes to reach from the sun to the Earth:

- A. Four minutes and 30 sec

- C. Seven min and 15 sec
- D. Six min and 30 sec

Note: - Why A is wrong: light takes about 8 minutes, not 4 minutes 30 seconds - Why B is correct: sunlight takes about 8 minutes 20 seconds to reach the earth; 8 minutes 15 seconds is the closest option - Why C is wrong: 7 minutes 15 seconds is less than the actual time of about 8 minutes 20 seconds - Why D is wrong: 6 minutes 30 seconds is less than the actual time of about 8 minutes 20 seconds

Question 98 Equal impact of an earthquake

Places experiencing equal impact of an earthquake are called:

- A. Snowlines
- B. Seismic belts
- C. Seismic lines ✓ **Correct answer**
- D. None of these

Note: - Why A is wrong: snowlines mark where snow persists, they have nothing to do with earthquakes - Why B is wrong: seismic belts are zones where earthquakes are frequent, not places of equal impact - Why C is correct as picked: 'seismic lines' is the closest option to isoseismal lines, which join places of equal earthquake intensity - Why D is wrong: 'seismic lines' is among the options and is the intended answer

Question 99 What viruses need for growth

For growth, Viruses require:

- A. Dead host
- B. Living host ✓ **Correct answer**
- C. Minerals
- D. Simple sugars

A is wrong: viruses cannot grow in a dead host; they need living cells - Why B is correct: viruses are obligate parasites and can only grow and multiply inside a living host cell - Why C is wrong: minerals alone cannot support virus growth - Why D is wrong: simple sugars alone cannot support virus growth

Question 100 Primary producers of organic matter

The primary producers of organic matter in nature are:

- A. Bacteria
- B. Fish
- C. Green plants ✓ **Correct answer**
- D. Human beings

Note: - Why A is wrong: bacteria include some producers, but the primary producers are green plants - Why B is wrong: fish are consumers, not primary producers - Why C is correct: green plants are the primary producers of organic matter through photosynthesis - Why D is wrong: human beings are consumers, not primary producers

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