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How did this prediction paper actually do? 65 of 180 questions predicted.

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NEET UG 2026 — Prediction Paper

Set 4 | Full-Length Practice Paper

Based on NEW NTA 2026 Exam Pattern | ChapterNotes.in

TOTAL QUESTIONS	MAXIMUM MARKS	DURATION
180	720	3 hours

MARKING
+4 / −1

General Instructions (NEW 2026 Pattern)

1. This paper contains **180 questions** divided into 4 subjects: Physics, Chemistry, Botany and Zoology — **45 questions each**.
2. **All questions are compulsory.** Section B / optional questions have been removed by NTA from 2025 onwards. There is no choice.
3. Each correct answer carries **+4 marks**. Each wrong answer carries **−1 mark**. Unanswered questions carry **0 marks**.

4. Total duration: **3 hours (180 minutes)**.
5. Use of calculator, log tables, or any electronic device is **NOT permitted**.
6. This is a pen-paper OMR-based offline exam.
7. Assume standard values: g = 10 m/s², c = 3 × 10⁸ m/s, h = 6.63 × 10⁻³⁴ J·s, e = 1.6 × 10⁻¹⁹ C, k = 9 × 10⁹ N·m²/C², R = 8.314 J/K·mol unless stated otherwise.
8. **Set 4 angle:** Mixed format — assertion-reason, match-the-list, statement-correctness, NCERT verbatim recall.

PHYSICS

45 Questions | 180 Marks | All Compulsory

Physics (Q1 to Q45)

All 45 questions are compulsory. +4 for correct, −1 for incorrect, 0 for unattempted.

Q1

Assertion (A): A current-carrying solenoid behaves like a bar magnet. Reason (R): The magnetic field inside an ideal solenoid is uniform and along its axis.

(a) Both A and R are true and R is the correct explanation of A

(b) Both A and R are true but R is NOT the correct explanation of A

(c) A is true but R is false

(d) A is false but R is true

Q2

A horizontal conducting rod of length 1 m moves with velocity 5 m/s perpendicular to a magnetic field of 0.4 T. The induced EMF across the rod is:

(a) 2 V

(b) 0.5 V

(c) 20 V

(d) 8 V

Q3

Match Column I (AC quantity) with Column II (relation): A. Capacitive reactance — i. ωL B. Inductive reactance — ii. 1/(ωC) C. Resonant frequency — iii. 1/(2π√LC) D. Quality factor —

iv. $(1/R)\sqrt{(L/C)}$

(a) A-ii, B-i, C-iii, D-iv

(b) A-i, B-ii, C-iii, D-iv

(c) A-ii, B-i, C-iv, D-iii

(d) A-i, B-ii, C-iv, D-iii

Q4

Assertion (A): The magnetic moment of a diamagnetic substance is small and opposite to the applied field. Reason (R): Diamagnetic substances have all electrons paired with no net atomic magnetic moment.

(a) Both A and R are true and R is the correct explanation of A

(b) Both A and R are true but R is NOT the correct explanation of A

(c) A is true but R is false

(d) A is false but R is true

Q5

The mutual inductance between two coils is 0.5 H. If the current in one coil changes from 0 to 4 A in 0.1 s, the EMF induced in the other coil is:

(a) 20 V

(b) 2 V

(c) 10 V

(d) 40 V

Q6

Assertion (A): Electric field lines never intersect each other. Reason (R): Two field lines crossing would imply two directions of field at the point, which is impossible.

(a) Both A and R are true and R is the correct explanation of A

(b) Both A and R are true but R is NOT the correct explanation of A

(c) A is true but R is false

(d) A is false but R is true

Q7

A point charge q is placed at the centre of a cube of side a. The flux through one face is:

(a) $q/(6\varepsilon_0)$

(b) q/ε_0

(c) $q/(8\varepsilon_0)$

(d) $q/(24\varepsilon_0)$

Q8

Three capacitors of 6 μF each are connected in parallel and the combination is connected in series with another 6 μF capacitor. The equivalent capacitance is:

(a) 4.5 μF

(b) 3 μF

(c) 9 μF

(d) 12 μF

Q9

Match Column I (capacitor configuration) with Column II (capacitance change factor with dielectric K filling): A. K fills entire space — i. K B. K fills half (parallel to plates, half thickness) — ii. 2K/(K+1) C. K fills half (perpendicular, half area) — iii. (K+1)/2 D. K fills full and area doubled — iv. 2K

(a) A-i, B-ii, C-iii, D-iv

(b) A-i, B-iii, C-ii, D-iv

(c) A-iv, B-iii, C-ii, D-i

(d) A-i, B-iv, C-ii, D-iii

Q10

Assertion (A): The resistivity of a semiconductor decreases with rise in temperature. Reason (R): The number density of charge carriers in a semiconductor increases with temperature.

(a) Both A and R are true and R is the correct explanation of A

(b) Both A and R are true but R is NOT the correct explanation of A

(c) A is true but R is false

(d) A is false but R is true

Q11

Kirchhoff's junction rule is based on the conservation of:

(a) charge

(b) energy

(c) mass

(d) momentum

Q12

In a meter bridge, the null point is obtained at 40 cm with an unknown resistance X in the left gap and a 6 Ω resistance in the right gap. The value of X is:

(a) 4 Ω

(b) 9 Ω

(c) 2.4 Ω

(d) 6 Ω

Q13

Match Column I (cell network) with Column II (effective EMF): A. n cells of EMF E in series — i. E B. n cells of EMF E in parallel (same EMF) — ii. nE C. Two cells of EMFs E_1, E_2 in series (same polarity) — iii. $E_1 + E_2$ D. Two cells of EMFs E_1, E_2 in parallel — iv. $(E_1r_2 + E_2r_1)/(r_1 + r_2)$

(a) A-ii, B-i, C-iii, D-iv

(b) A-i, B-ii, C-iii, D-iv

(c) A-ii, B-i, C-iv, D-iii

(d) A-iii, B-iv, C-ii, D-i

Q14

Assertion (A): A convex lens behaves as a diverging lens when immersed in a medium of refractive index greater than its own. Reason (R): The focal length depends on the relative refractive index of the lens with respect to the surrounding medium.

(a) Both A and R are true and R is the correct explanation of A

(b) Both A and R are true but R is NOT the correct explanation of A

(c) A is true but R is false

(d) A is false but R is true

Q15

Critical angle for a glass-air interface is 42°. The refractive index of glass is approximately:

(a) 1.49

(b) 1.33

(c) 1.5

(d) 2

Q16

In Young's double-slit experiment, if monochromatic light is replaced by white light, the central fringe is:

(a) white

(b) coloured with violet on top

(c) dark

(d) coloured with red on top

Q17

Match Column I (phenomenon) with Column II (explanation): A. Polarisation — i. Transverse nature of light B. Interference — ii. Superposition principle C. Diffraction — iii. Bending around obstacles D. Doppler effect (light) — iv. Relative motion of source and observer

(a) A-i, B-ii, C-iii, D-iv

(b) A-ii, B-i, C-iii, D-iv

(c) A-i, B-iii, C-ii, D-iv

(d) A-iv, B-iii, C-ii, D-i

Q18

Assertion (A): The de Broglie wavelength of a moving body decreases as its kinetic energy increases. Reason (R): de Broglie wavelength is given by $\lambda = h/\sqrt{(2mKE)}$.

(a) Both A and R are true and R is the correct explanation of A

(b) Both A and R are true but R is NOT the correct explanation of A

(c) A is true but R is false

(d) A is false but R is true

Q19

The threshold frequency of a metal is 5×10^{14} Hz. The work function of the metal is approximately:

(a) 2.07 eV

(b) 3.31 eV

(c) 1.66 eV

(d) 4.14 eV

Q20

In the nuclear reaction ${}^{2}_{1}H + {}^{3}_{1}H \rightarrow {}^{4}_{2}He + X$, the particle X is:

(a) neutron

(b) proton

(c) electron

(d) α-particle

Q21

Match Column I (Bohr orbit quantity in hydrogen) with Column II (n-dependence): A. Radius — i. n^2 B. Speed — ii. $1/n$ C. Total energy — iii. $1/n^2$ D. Frequency of revolution — iv. $1/n^3$

(a) A-i, B-ii, C-iii, D-iv

(b) A-ii, B-i, C-iii, D-iv

(c) A-i, B-iii, C-ii, D-iv

(d) A-iv, B-iii, C-ii, D-i

Q22

Two radioactive nuclei P and Q have decay constants λ and 2λ. Initially they have equal numbers. At time $t = 1/\lambda$, the ratio $N_P : N_Q$ is:

(a) e : 1

(b) 1 : e

(c) $e^2 : 1$

(d) $1 : e^2$

Q23

Assertion (A): A body placed on a smooth inclined plane will slide down with acceleration g sinθ. Reason (R): The normal reaction does no work as it is perpendicular to motion.

(a) Both A and R are true and R is the correct explanation of A

(b) Both A and R are true but R is NOT the correct explanation of A

(c) A is true but R is false

(d) A is false but R is true

Q24

A body of mass 5 kg is acted on by a force $\vec{F} = 20\hat{i} - 15\hat{j}$ N. The magnitude of acceleration is:

(a) 5 m/s²

(b) 3 m/s²

(c) 7 m/s²

(d) 25 m/s²

Q25

A particle moving with velocity v collides perfectly inelastically with an identical stationary particle. The fraction of initial KE lost is:

(a) 1/2

(b) 1/4

(c) 1

(d) 3/4

Q26

Match Column I (force/situation) with Column II (work done): A. Centripetal force in uniform circular motion — i. zero B. Friction on a stationary block on rough floor — ii. zero C. Gravity on a body in free fall — iii. positive D. Spring force during compression — iv. negative

(a) A-i, B-ii, C-iii, D-iv

(b) A-ii, B-i, C-iii, D-iv

(c) A-i, B-ii, C-iv, D-iii

(d) A-iii, B-i, C-ii, D-iv

Q27

A pump of efficiency 80% is used to lift water from a depth of 20 m to deliver 15 kg of water per second. The input power required is ($g = 10\ m/s^2$):

(a) 3750 W

(b) 3000 W

(c) 2400 W

(d) 6000 W

Q28

A disc of moment of inertia 2 $kg \cdot m^2$ spinning at 10 rad/s is dropped onto a stationary identical disc on the same axle. The common angular speed is:

(a) 5 rad/s

(b) 10 rad/s

(c) 2.5 rad/s

(d) 20 rad/s

Q29

Assertion (A): The angular momentum of a system of particles is conserved when no external torque acts on it. Reason (R): The total external torque equals the rate of change of angular momentum.

(a) Both A and R are true and R is the correct explanation of A

(b) Both A and R are true but R is NOT the correct explanation of A

(c) A is true but R is false

(d) A is false but R is true

Q30

In an adiabatic process for an ideal gas, the relation between pressure and volume is:

(a) PV^γ = constant

(b) PV = constant

(c) P/V = constant

(d) P + V = constant

Q31

For an ideal monoatomic gas at temperature T, the average translational KE per molecule is:

(a) (3/2)kT

(b) kT

(c) (5/2)kT

(d) (1/2)kT

Q32

Match Column I (process) with Column II (first law expression): A. Isothermal — i. Q = W B. Adiabatic — ii. Q = 0, ΔU = −W C. Isochoric — iii. W = 0, Q = ΔU D. Isobaric — iv. Q = ΔU + PΔV

(a) A-i, B-ii, C-iii, D-iv

(b) A-ii, B-i, C-iii, D-iv

(c) A-i, B-ii, C-iv, D-iii

(d) A-iv, B-iii, C-ii, D-i

Q33

A simple pendulum has time period 2 s on Earth. Its time period on the Moon (g_moon = g/6) is approximately:

(a) 4.9 s

(b) 2 s

(c) 12 s

(d) 0.82 s

Q34

Assertion (A): The fundamental frequency of a closed organ pipe is half that of an open organ pipe of the same length. Reason (R): A closed pipe supports only odd harmonics.

(a) Both A and R are true and R is the correct explanation of A

(b) Both A and R are true but R is NOT the correct explanation of A

(c) A is true but R is false

(d) A is false but R is true

Q35

A train moving at 30 m/s towards a stationary observer sounds a whistle of frequency 600 Hz. The frequency heard is (v_sound = 340 m/s):

(a) 658 Hz

(b) 552 Hz

(c) 630 Hz

(d) 570 Hz

Q36

Match Column I (property) with Column II (S.I. unit): A. Surface tension — i. N/m B. Coefficient of viscosity — ii. Pa·s C. Bulk modulus — iii. Pa D. Stress — iv. N/m^2

(a) A-i, B-ii, C-iii, D-iv

(b) A-ii, B-i, C-iii, D-iv

(c) A-i, B-ii, C-iv, D-iii

(d) A-iv, B-iii, C-ii, D-i

Q37

A small steel ball of radius 1 mm and density 8000 kg/m^3 falls through glycerine of density 1300 kg/m^3 and viscosity 0.83 Pa·s. The terminal velocity is approximately (g = 10 m/s^2):

(a) 1.79×10^{-2} m/s

(b) 1.79×10^{-3} m/s

(c) 8.95×10^{-3} m/s

(d) 3.6×10^{-2} m/s

Q38

Assertion (A): A photodiode is operated in reverse bias. Reason (R): In reverse bias, the change in photocurrent due to incident light is more easily measurable.

(a) Both A and R are true and R is the correct explanation of A

(b) Both A and R are true but R is NOT the correct explanation of A

(c) A is true but R is false

(d) A is false but R is true

Q39

The output of the logic circuit obtained by combining a NAND gate followed by a NOT gate is equivalent to:

(a) AND gate

(b) OR gate

(c) NOR gate

(d) XOR gate

Q40

The acceleration due to gravity at a depth d below Earth's surface (radius R) is:

(a) $g(1 - d/R)$

(b) $g(1 - d/R)^2$

(c) $g(R - d)/R^2$

(d) $g(1 + d/R)$

Q41

Two satellites of the same mass orbit Earth at radii R and 4R. The ratio of their orbital periods $T_1 : T_2$ is:

(a) 1 : 8

(b) 1 : 4

(c) 1 : 2

(d) 1 : 16

Q42

A particle starts from rest with constant acceleration. The ratio of distances covered in the 1st, 2nd, and 3rd seconds is:

(a) 1 : 3 : 5

(b) 1 : 2 : 3

(c) 1 : 4 : 9

(d) 2 : 3 : 4

Q43

A boy throws a ball vertically up with speed 20 m/s from the top of a 25 m tower. Time to reach ground (g = 10 m/s²):

(a) 5 s

(b) 4 s

(c) 2 s

(d) 6 s

Q44

In an EM wave, the energy density associated with the electric field component compared to that with the magnetic field component is:

(a) equal

(b) double

(c) half

(d) one-fourth

Q45

Assertion (A): The dimensional formula of Planck's constant is the same as that of angular momentum. Reason (R): Both have S.I. unit J·s.

(a) Both A and R are true and R is the correct explanation of A

(b) Both A and R are true but R is NOT the correct explanation of A

(c) A is true but R is false

(d) A is false but R is true

CHEMISTRY

45 Questions | 180 Marks | All Compulsory

Chemistry (Q46 to Q90)

All 45 questions are compulsory. +4 for correct, −1 for incorrect, 0 for unattempted.

Q46

The number of atoms in 4.4 g of CO_2 (M = 44) is:

(a) 6.022×10^{22}

(b) 1.806×10^{23}

(c) 2.408×10^{23}

(d) 6.022×10^{23}

Q47

Match List I (quantity) with List II (unit) and choose the correct option: List I: (A) Molarity (B) Molality (C) Mole fraction (D) Mass percent List II: (i) mol/kg (ii) mol/L (iii) dimensionless (iv) g per 100 g

(a) A-ii, B-i, C-iii, D-iv

(b) A-i, B-ii, C-iii, D-iv

(c) A-ii, B-iii, C-i, D-iv

(d) A-iv, B-ii, C-i, D-iii

Q48

Assertion (A): The 4s orbital is filled before the 3d orbital. Reason (R): The (n+l) value of 4s (4+0=4) is less than that of 3d (3+2=5).

(a) Both A and R are true and R is the correct explanation of A

(b) Both A and R are true but R is NOT the correct explanation of A

(c) A is true but R is false

(d) A is false but R is true

Q49

The orbital angular momentum of an electron in a 3d orbital is (in units of h/2π):

(a) $\sqrt{2}$

(b) $\sqrt{6}$

(c) $\sqrt{3}$

(d) $\sqrt{12}$

Q50

Assertion (A): The dipole moment of NF_3 is less than that of NH_3. Reason (R): The N–F bond moment and the lone-pair moment in NF_3 point in opposite directions.

(a) Both A and R are true and R is the correct explanation of A

(b) Both A and R are true but R is NOT the correct explanation of A

(c) A is true but R is false

(d) A is false but R is true

Q51

Match List I (species) with List II (geometry): (A) BrF_5 (B) SF_4 (C) ClF_3 (D) XeF_4 (i) See-saw (ii) Square pyramidal (iii) T-shaped (iv) Square planar

(a) A-ii, B-i, C-iii, D-iv

(b) A-i, B-ii, C-iii, D-iv

(c) A-ii, B-iii, C-i, D-iv

(d) A-iii, B-i, C-iv, D-ii

Q52

Which of the following statements is/are correct? (I) O_2 is paramagnetic according to MO theory. (II) The bond order of N_2^+ is 2.5. (III) The bond order of CO is 3.

(a) I and II only

(b) II and III only

(c) I and III only

(d) I, II and III

Q53

The bond order in superoxide ion (O_2^-) is:

(a) 1

(b) 1.5

(c) 2

(d) 2.5

Q54

The standard enthalpy of formation of $CO_2(g)$, $H_2O(l)$ and $C_3H_8(g)$ are −393.5, −285.8 and −103.8 kJ/mol respectively. The enthalpy of combustion of propane is:

(a) −1220 kJ/mol

(b) −2220 kJ/mol

(c) −1820 kJ/mol

(d) −1620 kJ/mol

Q55

Assertion (A): Entropy of a perfect crystal at 0 K is zero. Reason (R): At 0 K all molecular motion ceases and there is only one possible microstate.

(a) Both A and R are true and R is the correct explanation of A

(b) Both A and R are true but R is NOT the correct explanation of A

(c) A is true but R is false

(d) A is false but R is true

Q56

The freezing point depression of 0.1 m K_2SO_4 aqueous solution (Kf = 1.86 K kg/mol, complete dissociation) is:

(a) 0.186 K

(b) 0.372 K

(c) 0.558 K

(d) 0.744 K

Q57

Assertion (A): Aquatic species are more comfortable in cold waters than in warm waters. Reason (R): Solubility of gases in water decreases with rise in temperature.

(a) Both A and R are true and R is the correct explanation of A

(b) Both A and R are true but R is NOT the correct explanation of A

(c) A is true but R is false

(d) A is false but R is true

Q58

For the reaction $PCl_5(g) \rightleftharpoons PCl_3(g) + Cl_2(g)$ at equilibrium, addition of inert gas at constant volume will:

(a) Shift forward

(b) Shift backward

(c) No change

(d) Increase Kc

Q59

The pH of a buffer made of 0.1 M CH_3COOH and 0.1 M CH_3COONa (pKa = 4.74) is:

(a) 3.74

(b) 4.74

(c) 5.74

(d) 7.00

Q60

Match List I (oxidising agent in acidic medium) with List II (reduced product): (A) MnO_4^- (B) $Cr_2O_7^{2-}$ (C) MnO_2 (D) ClO_3^- (i) Cl^- (ii) Mn^{2+} (iii) Cr^{3+} (iv) Mn^{2+}

(a) A-ii, B-iii, C-iv, D-i

(b) A-iii, B-ii, C-iv, D-i

(c) A-ii, B-iii, C-i, D-iv

(d) A-i, B-ii, C-iii, D-iv

Q61

The standard reduction potentials of Cu^{2+}/Cu and Ag^+/Ag are +0.34 V and +0.80 V respectively. The standard EMF of the cell $Cu|Cu^{2+}||Ag^+|Ag$ is:

(a) 0.46 V

(b) 1.14 V

(c) 0.34 V

(d) 0.80 V

Q62

Assertion (A): Molar conductivity of a strong electrolyte increases slowly with dilution. Reason (R): On dilution, ions get apart and ionic mobility increases due to decrease in interionic attractions.

(a) Both A and R are true and R is the correct explanation of A

(b) Both A and R are true but R is NOT the correct explanation of A

(c) A is true but R is false

(d) A is false but R is true

Q63

For a zero-order reaction, the integrated rate law is:

(a) $[A] = [A]_0 - kt$

(b) $[A] = [A]_0 e^{(-kt)}$

(c) $\ln[A] = \ln[A]_0 - kt$

(d) $1/[A] = 1/[A]_0 + kt$

Q64

Which of the following statements is/are correct about order of a reaction? (I) Order can be zero, integer or fractional. (II) Order is always equal to molecularity. (III) Order is determined experimentally.

(a) I and III only

(b) II and III only

(c) I and II only

(d) I, II and III

Q65

The element with the highest electron gain enthalpy (most negative) is:

(a) F

(b) Cl

(c) Br

(d) O

Q66

Match List I (compound) with List II (property): (A) $BeCl_2$ (B) $AlCl_3$ (C) $PbCl_2$ (D) $SnCl_2$ (i) Lewis acid, dimer (ii) Polymeric in solid state (iii) Reducing agent (iv) Inert pair effect, +2 stable

(a) A-ii, B-i, C-iv, D-iii

(b) A-i, B-ii, C-iv, D-iii

(c) A-ii, B-i, C-iii, D-iv

(d) A-iv, B-i, C-ii, D-iii

Q67

Assertion (A): Bleaching action of chlorine is permanent. Reason (R): Cl_2 bleaches by oxidation in presence of moisture.

(a) Both A and R are true and R is the correct explanation of A

(b) Both A and R are true but R is NOT the correct explanation of A

(c) A is true but R is false

(d) A is false but R is true

Q68

Which of the following statements about noble gases is/are correct? (I) They have completely filled valence shell $ns^2\ np^6$ (except He, $1s^2$). (II) Xenon forms compounds like XeF_2, XeF_4, XeF_6. (III) Helium has the highest first ionisation enthalpy of all elements.

(a) I and II only

(b) II and III only

(c) I and III only

(d) I, II and III

Q69

Assertion (A): Zn, Cd and Hg are not regarded as transition elements. Reason (R): They have completely filled $(n-1)d^{10}\ ns^2$ configuration in ground and common oxidation states.

(a) Both A and R are true and R is the correct explanation of A

(b) Both A and R are true but R is NOT the correct explanation of A

(c) A is true but R is false

(d) A is false but R is true

Q70

Match List I (ion) with List II (number of unpaired e^-) (high spin / aqueous): (A) Mn^{2+} (B) Fe^{2+} (C) Co^{2+} (D) Ni^{2+} (i) 2 (ii) 3 (iii) 4 (iv) 5

(a) A-iv, B-iii, C-ii, D-i

(b) A-i, B-ii, C-iii, D-iv

(c) A-iv, B-iii, C-i, D-ii

(d) A-ii, B-iii, C-iv, D-i

Q71

The lanthanoid contraction is mainly responsible for:

(a) Higher ionisation enthalpy of 5d elements over 4d

(b) Almost identical sizes of Zr and Hf

(c) Coloured ions in lanthanoids

(d) Variable oxidation states in d-block

Q72

Assertion (A): $[Ni(CO)_4]$ is tetrahedral and diamagnetic. Reason (R): CO is a strong field ligand and forces pairing of d electrons in Ni(0).

(a) Both A and R are true and R is the correct explanation of A

(b) Both A and R are true but R is NOT the correct explanation of A

(c) A is true but R is false

(d) A is false but R is true

Q73

Match List I (complex) with List II (hybridisation): (A) $[Ni(CO)_4]$ (B) $[Ni(CN)_4]^{2-}$ (C) $[NiCl_4]^{2-}$ (D) $[Co(NH_3)_6]^{3+}$ (i) sp^3 (ii) dsp^2 (iii) sp^3 (iv) d^2sp^3

(a) A-i, B-ii, C-iii, D-iv

(b) A-ii, B-i, C-iii, D-iv

(c) A-i, B-iii, C-ii, D-iv

(d) A-iv, B-ii, C-i, D-iii

Q74

In the spectrochemical series, which of the following is the correct order of crystal field strength?

(a) $Cl^- < F^- < H_2O < NH_3 < CN^-$

(b) $CN^- < NH_3 < H_2O < F^- < Cl^-$

(c) $NH_3 < CN^- < F^- < H_2O < Cl^-$

(d) $H_2O < NH_3 < CN^- < F^- < Cl^-$

Q75

Linkage isomerism is shown by which of the following pairs of complexes?

(a) $[Co(NH_3)_5(NO_2)]Cl_2$ and $[Co(NH_3)_5(ONO)]Cl_2$

(b) $[Co(NH_3)_6][Cr(CN)_6]$ and $[Cr(NH_3)_6][Co(CN)_6]$

(c) $[Co(NH_3)_5Br]SO_4$ and $[Co(NH_3)_5SO_4]Br$

(d) cis and trans $[Pt(NH_3)_2Cl_2]$

Q76

Assertion (A): Vinyl chloride and chlorobenzene are less reactive towards nucleophilic substitution. Reason (R): The C–Cl bond in these compounds has partial double-bond character due to resonance.

(a) Both A and R are true and R is the correct explanation of A

(b) Both A and R are true but R is NOT the correct explanation of A

(c) A is true but R is false

(d) A is false but R is true

Q77

Sandmeyer reaction is used to convert:

(a) Aniline to chlorobenzene via diazonium salt

(b) Phenol to chlorobenzene

(c) Benzene to chlorobenzene

(d) Toluene to chlorotoluene

Q78

Which of the following statements about benzene is/are correct? (I) It has equal C–C bond lengths (~139 pm). (II) It contains six delocalised π electrons. (III) It undergoes addition reactions more readily than substitution.

(a) I and II only

(b) II and III only

(c) I and III only

(d) I, II and III

Q79

The number of σ and π bonds in propyne (CH_3–C≡CH) are:

(a) 6σ, 2π

(b) 5σ, 2π

(c) 6σ, 1π

(d) 7σ, 2π

Q80

Among CH_3^+, $CH_3CH_2^+$, $(CH_3)_2CH^+$ and $(CH_3)_3C^+$, the order of stability is:

(a) $CH_3^+ > CH_3CH_2^+ > (CH_3)_2CH^+ > (CH_3)_3C^+$

(b) $(CH_3)_3C^+ > (CH_3)_2CH^+ > CH_3CH_2^+ > CH_3^+$

(c) $(CH_3)_2CH^+ > (CH_3)_3C^+ > CH_3CH_2^+ > CH_3^+$

(d) $CH_3CH_2^+ > CH_3^+ > (CH_3)_2CH^+ > (CH_3)_3C^+$

Q81

Assertion (A): t-butyl alcohol reacts with Lucas reagent immediately. Reason (R): It forms a stable tertiary carbocation in SN1 mechanism.

(a) Both A and R are true and R is the correct explanation of A

(b) Both A and R are true but R is NOT the correct explanation of A

(c) A is true but R is false

(d) A is false but R is true

Q82

Kolbe's reaction of sodium phenoxide with CO_2 followed by acidification gives:

(a) Salicylic acid

(b) Salicylaldehyde

(c) Picric acid

(d) Anisole

Q83

Match List I (reagent) with List II (reaction it is associated with): (A) Tollens' reagent (B) Fehling's solution (C) NH_2NH_2/KOH (D) Zn-Hg/HCl (i) Wolff–Kishner reduction (ii)

Clemmensen reduction (iii) Silver mirror test (iv) Red ppt with aldehydes

(a) A-iii, B-iv, C-i, D-ii

(b) A-iv, B-iii, C-i, D-ii

(c) A-iii, B-iv, C-ii, D-i

(d) A-i, B-ii, C-iii, D-iv

Q84

Which of the following compounds gives benzoic acid on oxidation with hot $KMnO_4$?

(a) Toluene only

(b) Ethylbenzene only

(c) Both toluene and ethylbenzene

(d) Tert-butylbenzene

Q85

Assertion (A): Carboxylic acids are more acidic than phenols. Reason (R): The carboxylate anion is stabilised by resonance with two equivalent oxygen atoms.

(a) Both A and R are true and R is the correct explanation of A

(b) Both A and R are true but R is NOT the correct explanation of A

(c) A is true but R is false

(d) A is false but R is true

Q86

The carbylamine reaction ($RNH_2 + CHCl_3 + KOH$) is given by:

(a) Primary amines only

(b) Secondary amines only

(c) Tertiary amines only

(d) All amines

Q87

Match List I (compound) with List II (test/reaction): (A) Glucose (B) Sucrose (C) Starch (D) Protein (i) Iodine test gives blue colour (ii) Biuret test (iii) Tollens' positive (iv) Non-reducing

(a) A-iii, B-iv, C-i, D-ii

(b) A-iv, B-iii, C-i, D-ii

(c) A-iii, B-i, C-iv, D-ii

(d) A-i, B-ii, C-iii, D-iv

Q88

Which of the following statements is/are correct about α-amino acids? (I) They exist as zwitterions in aqueous solution. (II) Glycine is optically inactive. (III) All natural amino acids in proteins have the L-configuration.

(a) I and II only

(b) II and III only

(c) I and III only

(d) I, II and III

Q89

Assertion (A): Vitamin C cannot be stored in the body. Reason (R): It is water-soluble and gets readily excreted in urine.

(a) Both A and R are true and R is the correct explanation of A

(b) Both A and R are true but R is NOT the correct explanation of A

(c) A is true but R is false

(d) A is false but R is true

Q90

Which of the following statements about basic strength of amines in gas phase is correct?

(a) $3° > 2° > 1° > NH_3$

(b) $NH_3 > 1° > 2° > 3°$

(c) $1° > 2° > 3° > NH_3$

(d) $2° > 1° > 3° > NH_3$

BOTANY

45 Questions | 180 Marks | All Compulsory

Botany (Q91 to Q135)

All 45 questions are compulsory. +4 for correct, −1 for incorrect, 0 for unattempted.

Q91

Assertion (A): C4 plants show higher productivity than C3 plants under high temperature. Reason (R): C4 plants lack photorespiration due to the presence of Kranz anatomy and PEP carboxylase.

(a) Both A and R are true and R is the correct explanation of A

(b) Both A and R are true but R is NOT the correct explanation of A

(c) A is true but R is false

(d) A is false but R is true

Q92

Match Column I with Column II: Column I (Plant hormone) — Column II (Function) A. Auxin — i. Bolting in rosette plants B. Gibberellin — ii. Promotes apical dominance C. Cytokinin — iii. Stomatal closure in water stress D. ABA — iv. Promotes cytokinesis

(a) A-i, B-ii, C-iii, D-iv

(b) A-ii, B-i, C-iv, D-iii

(c) A-iv, B-iii, C-ii, D-i

(d) A-iii, B-iv, C-i, D-ii

Q93

As per NCERT, the splitting of water molecules during photosynthesis is associated with which photosystem?

(a) Photosystem I

(b) Photosystem II

(c) Both PS I and PS II

(d) Cytochrome b6f complex

Q94

Which of the following statements regarding photorespiration is INCORRECT?

(a) It occurs in C3 plants

(b) It involves chloroplast, peroxisome and mitochondria

(c) It produces sugars and ATP

(d) It is initiated by RuBisCO acting as oxygenase

Q95

Assertion (A): Respiratory Quotient (RQ) of carbohydrates is 1. Reason (R): The volume of CO_2 evolved is equal to the volume of O_2 consumed during oxidation of glucose.

(a) Both A and R are true and R is the correct explanation of A

(b) Both A and R are true but R is NOT the correct explanation of A

(c) A is true but R is false

(d) A is false but R is true

Q96

As per NCERT, photoperiodism was first described in:

(a) Tobacco variety Maryland Mammoth

(b) Wheat variety Sonalika

(c) Rice variety IR8

(d) Maize variety Hi-protein

Q97

The cell organelle described in NCERT as the 'site of formation of glycoproteins and glycolipids' is:

(a) Endoplasmic reticulum

(b) Golgi apparatus

(c) Lysosome

(d) Mitochondrion

Q98

Assertion (A): Lysosomes are described as 'suicidal bags' of the cell. Reason (R): Lysosomes contain hydrolytic enzymes capable of digesting carbohydrates, proteins, lipids and nucleic acids.

(a) Both A and R are true and R is the correct explanation of A

(b) Both A and R are true but R is NOT the correct explanation of A

(c) A is true but R is false

(d) A is false but R is true

Q99

Match Column I with Column II: Column I (Cell phase) — Column II (Event) A. G1 — i. DNA synthesis B. S — ii. Cell prepares to divide; metabolic activity C. G2 — iii. Synthesis of proteins for mitosis D. M — iv. Equational division

(a) A-ii, B-i, C-iii, D-iv

(b) A-i, B-ii, C-iv, D-iii

(c) A-iv, B-iii, C-ii, D-i

(d) A-iii, B-iv, C-i, D-ii

Q100

Which of the following statements about the nucleolus is CORRECT as per NCERT?

(a) It is bound by a single membrane

(b) It is the site of ribosomal RNA synthesis

(c) It is the site of mRNA synthesis

(d) It contains its own DNA

Q101

As per NCERT, in animal cells, centrioles are present in:

(a) Nucleus

(b) Ribosome

(c) Centrosome

(d) Mitochondria

Q102

Assertion (A): Vernalisation refers to qualitative dependence of flowering on low temperature exposure. Reason (R): Some plants like winter wheat and biennials require chilling treatment to induce flowering.

(a) Both A and R are true and R is the correct explanation of A

(b) Both A and R are true but R is NOT the correct explanation of A

(c) A is true but R is false

(d) A is false but R is true

Q103

Which one of the following correctly describes the position of the female gametophyte at maturity in angiosperms (NCERT verbatim)?

(a) 7-celled, 8-nucleate

(b) 8-celled, 7-nucleate

(c) 7-celled, 7-nucleate

(d) 8-celled, 8-nucleate

Q104

Match Column I with Column II: Column I (Plant) — Column II (Pollination) A. Vallisneria — i. Cross-pollination by bees B. Salvia — ii. Hydrophily C. Yucca — iii. Lever mechanism D. Maize — iv. Wind pollination

(a) A-ii, B-iii, C-i, D-iv

(b) A-i, B-ii, C-iii, D-iv

(c) A-iv, B-i, C-ii, D-iii

(d) A-iii, B-iv, C-i, D-ii

Q105

Assertion (A): Pollen-pistil interaction is a dynamic event involving signals between pollen and pistil. Reason (R): The pistil has the ability to recognise the pollen and either accept or reject it.

(a) Both A and R are true and R is the correct explanation of A

(b) Both A and R are true but R is NOT the correct explanation of A

(c) A is true but R is false

(d) A is false but R is true

Q106

Which one of the following statements about parthenocarpy is CORRECT?

(a) It produces seedless fruits without fertilisation

(b) It involves formation of seeds without fertilisation

(c) It is the same as apomixis

(d) It requires double fertilisation

Q107

As per NCERT, the outermost and innermost wall layers of the anther wall, respectively, are:

(a) Endothecium and tapetum

(b) Epidermis and tapetum

(c) Tapetum and endothecium

(d) Middle layer and tapetum

Q108

Match Column I with Column II: Column I (Disease) — Column II (Inheritance pattern) A. Sickle-cell anaemia — i. Autosomal aneuploidy B. Down syndrome — ii. Sex chromosome aneuploidy (XXY) C. Klinefelter syndrome — iii. Autosomal recessive (point mutation) D. Turner syndrome — iv. 45, X0

(a) A-iii, B-i, C-ii, D-iv

(b) A-i, B-ii, C-iii, D-iv

(c) A-ii, B-iv, C-i, D-iii

(d) A-iv, B-iii, C-ii, D-i

Q109

Assertion (A): DNA is more stable than RNA. Reason (R): The 2′-OH group present in RNA makes it labile and easily degradable.

(a) Both A and R are true and R is the correct explanation of A

(b) Both A and R are true but R is NOT the correct explanation of A

(c) A is true but R is false

(d) A is false but R is true

Q110

Which of the following statements about the genetic code is INCORRECT?

(a) It is degenerate

(b) It is universal

(c) It is overlapping

(d) It is unambiguous

Q111

Match Column I with Column II: Column I (Scientist) — Column II (Contribution) A. Griffith — i. DNA is genetic material (transformation in T2 phage) B. Avery, MacLeod, McCarty — ii. Transforming principle in Streptococcus C. Hershey & Chase — iii. Biochemical nature of transforming principle (DNA) D. Meselson & Stahl — iv. Semi-conservative DNA replication

(a) A-ii, B-iii, C-i, D-iv

(b) A-i, B-ii, C-iii, D-iv

(c) A-iii, B-ii, C-i, D-iv

(d) A-iv, B-iii, C-ii, D-i

Q112

Assertion (A): The Human Genome Project is called a mega project. Reason (R): It was a 13-year project to sequence the entire 3×10^9 bp human genome.

(a) Both A and R are true and R is the correct explanation of A

(b) Both A and R are true but R is NOT the correct explanation of A

(c) A is true but R is false

(d) A is false but R is true

Q113

Which of the following statements about Mendel's law of independent assortment is CORRECT (NCERT verbatim)?

(a) The segregation of one pair of characters is independent of another pair when located on different chromosomes

(b) Both pairs of alleles always assort together

(c) It applies only to linked genes

(d) It contradicts the law of segregation

Q114

Match Column I (Ecological pyramid) with Column II (Nature): A. Pyramid of energy — i. Always upright B. Pyramid of biomass in sea — ii. Inverted C. Pyramid of numbers in tree — iii. Inverted D. Pyramid of numbers in grassland — iv. Upright

(a) A-i, B-ii, C-iii, D-iv

(b) A-ii, B-i, C-iv, D-iii

(c) A-iii, B-iv, C-i, D-ii

(d) A-iv, B-iii, C-ii, D-i

Q115

Assertion (A): A stable community shows high productivity and resistance to invasion by alien species. Reason (R): Stability arises from long-term evolutionary adjustment among species.

(a) Both A and R are true and R is the correct explanation of A

(b) Both A and R are true but R is NOT the correct explanation of A

(c) A is true but R is false

(d) A is false but R is true

Q116

Which of the following statements is INCORRECT regarding the population age pyramids?

(a) Triangular pyramid → expanding population

(b) Bell-shaped pyramid → stable population

(c) Urn-shaped pyramid → declining population

(d) Inverted triangle → expanding population

Q117

Match Column I (Biodiversity hotspot in India) with Column II (Region): A. Western Ghats — i. NE India B. Indo-Burma — ii. Peninsular India C. Himalaya — iii. Northern mountains D. Sundaland — iv. Nicobar Islands

(a) A-ii, B-i, C-iii, D-iv

(b) A-i, B-ii, C-iv, D-iii

(c) A-iv, B-iii, C-ii, D-i

(d) A-iii, B-iv, C-i, D-ii

Q118

As per NCERT, the largest biodiversity in India is shown by:

(a) Mammals

(b) Birds

(c) Fungi

(d) Insects

Q119

Match Column I (Algal class) with Column II (Reserve food): A. Chlorophyceae — i. Mannitol, laminarin B. Phaeophyceae — ii. Floridean starch C. Rhodophyceae — iii. Starch

(a) A-iii, B-i, C-ii

(b) A-i, B-ii, C-iii

(c) A-ii, B-iii, C-i

(d) A-iii, B-ii, C-i

Q120

Assertion (A): Pteridophytes are called vascular cryptogams. Reason (R): They produce seeds enclosed in fruits.

(a) Both A and R are true and R is the correct explanation of A

(b) Both A and R are true but R is NOT the correct explanation of A

(c) A is true but R is false

(d) A is false but R is true

Q121

Which of the following is the correct sequence of taxonomic categories from kingdom to species?

(a) Kingdom → Phylum → Class → Order → Family → Genus → Species

(b) Kingdom → Class → Phylum → Order → Family → Genus → Species

(c) Kingdom → Order → Phylum → Class → Family → Genus → Species

(d) Kingdom → Family → Class → Phylum → Order → Genus → Species

Q122

Match Column I (Fungal class) with Column II (Example): A. Phycomycetes — i. Agaricus B. Ascomycetes — ii. Puccinia C. Basidiomycetes — iii. Penicillium D. Deuteromycetes — iv. Rhizopus

(a) A-iv, B-iii, C-i, D-ii

(b) A-iii, B-iv, C-ii, D-i

(c) A-i, B-ii, C-iii, D-iv

(d) A-ii, B-i, C-iv, D-iii

Q123

As per NCERT, in the lac operon, the regulator gene (i) codes for:

(a) β-galactosidase

(b) Permease

(c) Transacetylase

(d) Repressor protein

Q124

Match Column I (Tool of rDNA technology) with Column II (Function): A. Restriction enzyme — i. Joins DNA fragments B. DNA ligase — ii. Cuts DNA at specific sequences C. PCR — iii. Amplifies DNA in vitro D. Gel electrophoresis — iv. Separates DNA fragments by size

(a) A-ii, B-i, C-iii, D-iv

(b) A-i, B-ii, C-iv, D-iii

(c) A-iii, B-iv, C-ii, D-i

(d) A-iv, B-iii, C-i, D-ii

Q125

Assertion (A): Bt toxin produced by Bacillus thuringiensis is harmless to the bacterium itself. Reason (R): Bt toxin exists as inactive protoxin (crystal protein) in the bacterium and gets activated only in the alkaline insect gut.

(a) Both A and R are true and R is the correct explanation of A

(b) Both A and R are true but R is NOT the correct explanation of A

(c) A is true but R is false

(d) A is false but R is true

Q126

Which of the following statements about cry genes is CORRECT?

(a) cryIAc and cryIIAb control cotton bollworm

(b) cryIAb controls corn borer

(c) Both a and b

(d) Neither a nor b

Q127

Match Column I (Plant tissue) with Column II (Feature): A. Collenchyma — i. Dead cells, lignified, support B. Sclerenchyma — ii. Living cells, thickened at corners with cellulose & pectin C. Parenchyma — iii. Photosynthesis, storage D. Aerenchyma — iv. Buoyancy in aquatic plants

(a) A-ii, B-i, C-iii, D-iv

(b) A-i, B-ii, C-iv, D-iii

(c) A-iii, B-iv, C-ii, D-i

(d) A-iv, B-iii, C-i, D-ii

Q128

Assertion (A): Casparian strip in the endodermis of dicot root forces water and ions to enter the symplast. Reason (R): Casparian strips are bands of suberin that are impermeable to water.

(a) Both A and R are true and R is the correct explanation of A

(b) Both A and R are true but R is NOT the correct explanation of A

(c) A is true but R is false

(d) A is false but R is true

Q129

As per NCERT, the floral formula of family Solanaceae is:

(a) ⊕ ♂ K(5) C(5) A5 G(2)

(b) ⊕ ♂ K(5) C5 A(9)+1 G1

(c) ⊕ ♂ P(3+3) A(3+3) G(3)

(d) ⊕ ♂ K5 C5 A∞ G(5)

Q130

Which of the following plants is the correct example of pneumatophores (breathing roots)?

(a) Sugarcane

(b) Banyan

(c) Rhizophora

(d) Carrot

Q131

Match Column I (Microbial product) with Column II (Source organism): A. Penicillin — i. Streptococcus B. Streptokinase — ii. Penicillium C. Cyclosporin A — iii. Trichoderma D. Lactic acid — iv. Lactobacillus

(a) A-ii, B-i, C-iii, D-iv

(b) A-i, B-ii, C-iv, D-iii

(c) A-iii, B-iv, C-ii, D-i

(d) A-iv, B-iii, C-i, D-ii

Q132

Assertion (A): Activated sludge process in sewage treatment uses aerobic microbes. Reason (R): Aerobic microbes vigorously grow on organic matter forming flocs which can be removed by sedimentation.

(a) Both A and R are true and R is the correct explanation of A

(b) Both A and R are true but R is NOT the correct explanation of A

(c) A is true but R is false

(d) A is false but R is true

Q133

Match Column I (Biomolecule) with Column II (Example): A. Polysaccharide — i. Insulin B. Protein — ii. Cellulose C. Lipid — iii. Lecithin D. Nucleic acid — iv. tRNA

(a) A-ii, B-i, C-iii, D-iv

(b) A-i, B-ii, C-iv, D-iii

(c) A-iii, B-iv, C-ii, D-i

(d) A-iv, B-iii, C-i, D-ii

Q134

Which of the following statements about enzymes is CORRECT as per NCERT?

(a) All enzymes are proteins

(b) All enzymes are nucleic acids

(c) Some enzymes are RNA (ribozymes)

(d) Enzymes are always denatured at 0°C

Q135

Assertion (A): Industrial melanism in peppered moth (Biston betularia) is an example of natural selection. Reason (R): During industrial revolution, dark-coloured moths were better camouflaged on soot-covered tree bark and survived predation better.

(a) Both A and R are true and R is the correct explanation of A

(b) Both A and R are true but R is NOT the correct explanation of A

(c) A is true but R is false

(d) A is false but R is true

ZOOLOGY

45 Questions | 180 Marks | All Compulsory

Zoology (Q136 to Q180)

All 45 questions are compulsory. +4 for correct, −1 for incorrect, 0 for unattempted.

Q136

Assertion (A): Blood is a connective tissue. Reason (R): Blood has a fluid matrix called plasma in which cells are suspended.

(a) Both A and R are true and R is the correct explanation of A

(b) Both A and R are true but R is NOT the correct explanation of A

(c) A is true but R is false

(d) A is false but R is true

Q137

Assertion (A): Bowman's capsule along with the glomerulus is called the renal/Malpighian corpuscle. Reason (R): Glomerulus is a tuft of capillaries formed by afferent arteriole.

(a) Both A and R are true and R is the correct explanation of A

(b) Both A and R are true but R is NOT the correct explanation of A

(c) A is true but R is false

(d) A is false but R is true

Q138

Assertion (A): Haemoglobin is the respiratory pigment of human RBCs. Reason (R): Each haemoglobin molecule carries a maximum of four molecules of O_2.

(a) Both A and R are true and R is the correct explanation of A

(b) Both A and R are true but R is NOT the correct explanation of A

(c) A is true but R is false

(d) A is false but R is true

Q139

Assertion (A): Down's syndrome individuals have 47 chromosomes. Reason (R): It is caused by trisomy of chromosome 21.

(a) Both A and R are true and R is the correct explanation of A

(b) Both A and R are true but R is NOT the correct explanation of A

(c) A is true but R is false

(d) A is false but R is true

Q140

Assertion (A): The Pace-maker of human heart is the SA node. Reason (R): SA node generates the maximum number of action potentials per minute (70-75).

(a) Both A and R are true and R is the correct explanation of A

(b) Both A and R are true but R is NOT the correct explanation of A

(c) A is true but R is false

(d) A is false but R is true

Q141

Assertion (A): Insulin is synthesised as a prohormone. Reason (R): The C-peptide is removed during the maturation of insulin.

(a) Both A and R are true and R is the correct explanation of A

(b) Both A and R are true but R is NOT the correct explanation of A

(c) A is true but R is false

(d) A is false but R is true

Q142

Assertion (A): The number of ATPs produced per glucose in aerobic respiration is 36-38. Reason (R): The Krebs cycle does not occur in the absence of oxygen.

(a) Both A and R are true and R is the correct explanation of A

(b) Both A and R are true but R is NOT the correct explanation of A

(c) A is true but R is false

(d) A is false but R is true

Q143

Assertion (A): Lamarck's theory of inheritance of acquired characters is rejected. Reason (R): Weismann cut tails of mice for 21 generations but mice were still born with tails.

(a) Both A and R are true and R is the correct explanation of A

(b) Both A and R are true but R is NOT the correct explanation of A

(c) A is true but R is false

(d) A is false but R is true

Q144

Match List I with List II: List I (Hormone) List II (Disorder) A. GH (excess in adult) I. Cretinism B. Thyroxin deficiency in child II. Acromegaly C. Insulin deficiency III. Diabetes mellitus D. ADH deficiency IV. Diabetes insipidus

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

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

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

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

Q145

Match List I (Contraceptive) with List II (Type): A. Cu-T I. Hormonal IUD B. LNG-20 II. Copper releasing IUD C. Saheli III. Non-steroidal pill D. Mala-D IV. Steroidal oral pill

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

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

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

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

Q146

Match List I (Animal) with List II (Phylum): A. Limulus I. Echinodermata B. Antedon II. Arthropoda C. Pleurobrachia III. Ctenophora D. Adamsia IV. Cnidaria

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

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

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

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

Q147

Match List I (Disease) with List II (Causal organism): A. Typhoid I. Wuchereria B. Pneumonia II. Salmonella C. Filariasis III. Streptococcus D. Ringworm IV. Microsporum

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

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

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

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

Q148

Match List I (Bone) with List II (Number in adult human): A. Cervical vertebrae I. 12 B. Thoracic vertebrae II. 7 C. Pairs of ribs III. 12 D. Carpals (per hand) IV. 8

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

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

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

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

Q149

Which of the following statements is correct regarding the human heart?

(a) The right ventricle pumps oxygenated blood into the aorta

(b) The bicuspid valve guards the right atrio-ventricular opening

(c) The SA node initiates and maintains the rhythmic contractile activity of the heart

(d) The pulmonary vein carries deoxygenated blood to the lungs

Q150

Which one of the following is NOT correctly matched?

(a) Tendon — joins muscle to bone

(b) Ligament — joins bone to bone

(c) Cartilage — covered by perichondrium

(d) Bone — composed of chondrocytes

Q151

Which of the following statements about the cell cycle is correct?

(a) G1 phase is the DNA synthesis phase

(b) S phase is the gap phase

(c) DNA content doubles in S phase

(d) Mitosis lasts longest in cell cycle

Q152

Which structure in the human eye contains rods and cones?

(a) Cornea

(b) Iris

(c) Retina

(d) Sclera

Q153

Acrosome of the sperm contains:

(a) Mitochondria for energy

(b) Hyaluronidase enzymes that help in penetrating the egg

(c) DNA

(d) Centrioles

Q154

Sertoli cells are also known as:

(a) Interstitial cells of Leydig

(b) Nurse cells, providing nutrition to germ cells

(c) Acrosomal cells

(d) Oogonial cells

Q155

Corpus luteum secretes large amounts of:

(a) Estrogen

(b) FSH

(c) Progesterone

(d) Oxytocin

Q156

Amniocentesis is being misused for:

(a) Detection of cancer

(b) Sex determination of foetus leading to female foeticide

(c) Determining sperm count

(d) Testing for HIV

Q157

ART technique in which sperm is directly injected into the ovum is called:

(a) GIFT

(b) ZIFT

(c) ICSI

(d) IUI

Q158

Match List I (Cockroach part) with List II (Function): A. Mandibles I. Excretion B. Malpighian tubules II. Biting and chewing C. Spiracles III. Respiration D. Anal cerci IV. Sensory

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

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

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

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

Q159

In Periplaneta the nervous system consists of:

(a) Brain only

(b) Nerve net

(c) Series of fused, segmentally arranged ganglia connected by paired longitudinal connectives

(d) Paired dorsal nerve cord

Q160

Which of the following is correct about haemoglobin?

(a) It contains iron porphyrin called haem

(b) It is found inside the WBCs

(c) Each globin has one polypeptide chain

(d) Adult haemoglobin is HbF

Q161

Statement I: ABO blood grouping is based on the presence/absence of two surface antigens A and B on RBCs. Statement II: Persons with blood group O are universal donors and group AB are universal recipients. Choose the correct option:

(a) Both statements are true

(b) Both statements are false

(c) Only statement I is true

(d) Only statement II is true

Q162

Statement I: Sickle-cell anaemia is autosomal recessive caused by substitution of glutamic acid by valine at 6th position of beta-globin chain. Statement II: It is a chromosomal disorder due to non-disjunction.

(a) Statement I correct, II incorrect

(b) Both correct

(c) Both incorrect

(d) Statement II correct, I incorrect

Q163

Statement I: Haemophilia is sex-linked recessive disorder. Statement II: A single defective copy in males (XY) is sufficient to manifest the disease.

(a) Both correct

(b) I correct II incorrect

(c) Both incorrect

(d) I incorrect II correct

Q164

Match List I (Animal) with List II (Feature): A. Spongilla I. Choanocytes B. Hydra II. Cnidoblasts C. Ascaris III. Pseudocoelom D. Octopus IV. Mantle

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

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

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

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

Q165

Which of the following statements about Class Aves is incorrect?

(a) Forelimbs are modified into wings

(b) They have hollow pneumatic bones

(c) They have urinary bladder

(d) Heart is four chambered

Q166

Assertion (A): Mammals have heterodont dentition. Reason (R): All mammals are oviparous.

(a) Both A and R are true and R is the correct explanation of A

(b) Both A and R are true but R is NOT the correct explanation of A

(c) A is true but R is false

(d) A is false but R is true

Q167

Assertion (A): The first cloned sheep was named Dolly. Reason (R): Dolly was created using somatic cell nuclear transfer.

(a) Both A and R are true and R is the correct explanation of A

(b) Both A and R are true but R is NOT the correct explanation of A

(c) A is true but R is false

(d) A is false but R is true

Q168

The first transgenic cow Rosie produced human protein-enriched milk containing:

(a) Beta-casein only

(b) Alpha-lactalbumin (2.4 g/L)

(c) Insulin

(d) Hemoglobin

Q169

Which one of the following ELISA techniques detects HIV?

(a) Detection of HIV antibodies in patient's serum

(b) Detection of HIV protein in saliva

(c) Detection of HBV

(d) Direct counting of HIV particles

Q170

Smack (heroin) is obtained from latex of:

(a) Cannabis sativa

(b) Erythroxylum coca

(c) Papaver somniferum

(d) Atropa belladonna

Q171

Which of the following gives passive immunity to a newborn?

(a) BCG vaccine

(b) Mother's colostrum (rich in IgA)

(c) Polio drops

(d) DPT vaccine

Q172

Match List I (Vitamin) with List II (Deficiency disease): A. Vitamin A I. Beriberi B. Vitamin B1 II. Night blindness C. Vitamin C III. Rickets D. Vitamin D IV. Scurvy

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

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

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

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

Q173

Statement I: Meiosis I is reductional division while meiosis II is equational. Statement II: Crossing over takes place in pachytene of prophase I.

(a) Both correct

(b) Both incorrect

(c) Only I correct

(d) Only II correct

Q174

Anaphase of mitosis is characterised by:

(a) Pairing of homologous chromosomes

(b) Splitting of centromeres and movement of sister chromatids to opposite poles

(c) Disappearance of nuclear membrane

(d) Formation of cell plate

Q175

In meiosis I, chiasmata are visible during:

(a) Leptotene

(b) Zygotene

(c) Diplotene

(d) Diakinesis only

Q176

Age distribution of a population shows three ecological ages: pre-reproductive, reproductive and post-reproductive. The shape of the age pyramid that indicates a growing population is:

(a) Triangular (broad base)

(b) Bell-shaped

(c) Urn-shaped

(d) Inverted triangle

Q177

Assertion (A): Homologous organs show divergent evolution. Reason (R): Forelimbs of whales, bats and humans have similar anatomical structure but different functions.

(a) Both A and R are true and R is the correct explanation of A

(b) Both A and R are true but R is NOT the correct explanation of A

(c) A is true but R is false

(d) A is false but R is true

Q178

Industrial melanism in peppered moth (Biston betularia) was studied by:

(a) Darwin

(b) Mendel

(c) JBS Haldane / Bernard Kettlewell

(d) Lamarck

Q179

Hardy-Weinberg principle is disturbed by all the following EXCEPT:

(a) Gene migration

(b) Genetic drift

(c) Mutation

(d) Random mating

Q180

Which of the following statements is correct about Plasmodium life cycle?

(a) Sexual cycle (sporogony) takes place in human host

(b) Asexual cycle takes place in female Anopheles mosquito

(c) Sporozoites are infective stage entering human via mosquito bite

(d) Plasmodium directly infects RBCs without entering liver

Click to Reveal Answer Key + Explanations

NEET UG 2026 Prediction Paper — Set 4

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Pattern: 180 Qs / 720 marks / 3 hours / All compulsory (NTA 2026 Information Bulletin)

Syllabus: NMC rationalised NCERT 2025 (unchanged for 2026)

Companion sets: **Set 2**