JEE Main 2027
10 FULL-LENGTH MOCK TESTS

Based on Official Exam Pattern

Computer-Based Test | 3 Hours | 75 Questions | 300 Marks

Exam Pattern Followed
• Mode: Computer-Based Test (CBT)
• Duration: 3 hours
• Total Questions: 75 (25 Physics + 25 Chemistry + 25 Mathematics)
• Question Types: MCQs + Numerical Value Questions
• Marking: +4 correct | −1 incorrect | 0 unattempted
• Subject-wise Marks: 100 each

In this PDF: Each mock contains 20 MCQs + 5 Numerical questions per subject (total 75 questions). Answer key provided after every mock.

Practice under timed conditions • Analyse mistakes after each test

MOCK TEST 1 | 75 Questions | 300 Marks | Time: 3 Hours

Marking Scheme: +4 for correct, −1 for incorrect, 0 for unattempted

PHYSICS – Section A (MCQs) [Q1–Q20]

Q1. A particle starts from rest with acceleration 2 m/s². Distance in 5th second is:
(A) 9 m
(B) 11 m
(C) 13 m
(D) 15 m

Q2. Dimensional formula of Planck's constant is same as:
(A) Linear momentum
(B) Angular momentum
(C) Force
(D) Energy

Q3. A body of mass 2 kg has KE = 16 J. Momentum is:
(A) 8 kg m/s
(B) 4 kg m/s
(C) 16 kg m/s
(D) 32 kg m/s

Q4. Escape velocity from earth surface is approximately:
(A) 7.9 km/s
(B) 11.2 km/s
(C) 16.7 km/s
(D) 3 km/s

Q5. In SHM, maximum acceleration is at:
(A) Mean position
(B) Extreme position
(C) Anywhere
(D) None

Q6. Two resistors 4 Ω and 12 Ω in parallel. Equivalent R =
(A) 3 Ω
(B) 16 Ω
(C) 8 Ω
(D) 6 Ω

Q7. Unit of magnetic flux is:
(A) Tesla
(B) Weber
(C) Henry
(D) Ampere

Q8. Faraday's law states induced emf equals rate of change of:
(A) Current
(B) Magnetic flux
(C) Charge
(D) Resistance

Q9. A convex lens of f = 20 cm forms real image at 60 cm. Object distance =
(A) 15 cm
(B) 30 cm
(C) 40 cm
(D) 25 cm

Q10. In YDSE, fringe width is proportional to:
(A) λ
(B) 1/λ
(C) d
(D) Intensity

Q11. Work function = 4 eV. Threshold wavelength ≈
(A) 3100 Å
(B) 4000 Å
(C) 2500 Å
(D) 5000 Å

Q12. Bohr radius of first orbit of H-atom is:
(A) 0.53 Å
(B) 0.053 Å
(C) 5.3 Å
(D) 1 Å

Q13. Half-life of a radioactive sample is 10 days. Fraction left after 30 days:
(A) 1/2
(B) 1/4
(C) 1/8
(D) 1/16

Q14. Transformer: Np=100, Ns=500, Vp=20 V. Vs =
(A) 4 V
(B) 100 V
(C) 20 V

(D) 500 V

Q15. Electric flux through one face of a cube with charge +q at centre:
(A) q/ε_0
(B) $q/6\varepsilon_0$
(C) $q/2\varepsilon_0$
(D) 0

Q16. Magnetic field inside long solenoid is:
(A) Zero
(B) Uniform & parallel to axis
(C) Non-uniform
(D) Perpendicular

Q17. At resonance in series LCR, impedance is:
(A) Maximum
(B) Minimum (=R)
(C) Zero
(D) XL

Q18. de Broglie wavelength of electron $\propto$
(A) $\sqrt{V}$
(B) $1/\sqrt{V}$
(C) V
(D) 1/V

Q19. Nuclear force is:
(A) Charge dependent
(B) Long range
(C) Short range & charge independent
(D) Spin independent only

Q20. In p-n junction, depletion width increases in:
(A) Forward bias
(B) Reverse bias
(C) Zero bias
(D) Heavy doping

PHYSICS – Section B (Numerical Value) [Q21–Q25]

(Enter the correct numerical value. Integer or decimal as required.)

Q21. A body is projected at 45° with speed 20 m/s (g=10). Maximum height in metres is:

Q22. Resistance of a wire is 10 Ω. If length is doubled and radius halved, new resistance (in Ω) is:

Q23. A capacitor of 2 μF is charged to 100 V. Energy stored (in mJ) is:

Q24. Time period of a simple pendulum of length 1 m ($g=\pi^2$) is (in s):

Q25. A photon of wavelength 4000 Å has energy (in eV) approximately (hc=12400 eV·Å):

CHEMISTRY – Section A (MCQs) [Q26–Q45]

Q26. Number of moles in 22.4 L of O_2 at STP is:
(A) 0.5
(B) 1
(C) 2
(D) 0.25

Q27. Highest first ionisation enthalpy among Na, Mg, Al, Si is of:
(A) Na
(B) Mg
(C) Al
(D) Si

Q28. Hybridisation of carbon in ethyne is:
(A) sp^3
(B) sp^2
(C) sp
(D) sp^3d

Q29. pH of 0.001 M HCl is:
(A) 1
(B) 2
(C) 3
(D) 4

Q30. Oxidation number of Cr in $K_2Cr_2O_7$ is:
(A) +3
(B) +6
(C) +7
(D) +2

Q31. Rate constant of first-order reaction has unit:
(A) $mol\ L^{-1}\ s^{-1}$
(B) s^{-1}
(C) $L\ mol^{-1}\ s^{-1}$
(D) $L^2\ mol^{-2}\ s^{-1}$

Q32. Shape of XeF_4 is:
(A) Tetrahedral
(B) Square planar

(C) See-saw
(D) Octahedral

Q33. IUPAC name of $CH_3–CH=CH–CHO$ is:
(A) But-2-enal
(B) But-2-en-1-al
(C) Butenal
(D) But-1-en-3-al

Q34. Strongest acid among HF, HCl, HBr, HI is:
(A) HF
(B) HCl
(C) HBr
(D) HI

Q35. Bond order of N_2 is:
(A) 2
(B) 2.5
(C) 3
(D) 1

Q36. Conjugate base of $H_2PO_4^-$ is:
(A) H_3PO_4
(B) HPO_4^{2-}
(C) PO_4^{3-}
(D) H_2PO_4

Q37. Faraday's first law: mass deposited $\propto$
(A) Time only
(B) Current only
(C) Quantity of electricity
(D) Resistance

Q38. Number of unpaired electrons in Fe^{3+} (Z=26) is:
(A) 3
(B) 4
(C) 5
(D) 6

Q39. Henderson equation for buffer is pH =
(A) pKa + log([salt]/[acid])
(B) pKa − log([salt]/[acid])
(C) pKa
(D) 7

Q40. Which is diamagnetic?
(A) O_2
(B) O_2^+
(C) O_2^-
(D) O_2^{2-}

Q41. SN1 reaction is favoured by:
(A) 1° alkyl halide
(B) 3° alkyl halide
(C) Methyl halide
(D) 2° only

Q42. Glucose is an:
(A) Aldohexose
(B) Ketohexose
(C) Aldopentose
(D) Ketopentose

Q43. Common name of ethanoic acid is:
(A) Formic acid
(B) Acetic acid
(C) Propionic acid
(D) Butyric acid

Q44. Secondary amine is:
(A) CH_3NH_2
(B) $(CH_3)_2NH$
(C) $(CH_3)_3N$
(D) $C_6H_5NH_2$

Q45. Hybridisation of central atom in SF_6 is:
(A) sp^3
(B) sp^3d
(C) sp^3d^2
(D) sp^2

CHEMISTRY – Section B (Numerical Value) [Q46–Q50]

(Enter the correct numerical value. Integer or decimal as required.)

Q46. Molarity of a solution containing 5 g NaOH in 250 mL solution is:

Q47. pH of 0.01 M NaOH is:

Q48. Number of moles of electrons required to deposit 1 mole of Al from Al^{3+} is:

Q49. Half-life of a first-order reaction with k = 0.0693 min^{-1} is (in min):

Q50. Osmotic pressure of 0.1 M ideal solution at 27°C (R=0.082) is (in atm):

MATHEMATICS – Section A (MCQs) [Q51–Q70]

Q51. If roots of $x^2-5x+k=0$ are equal, k =
(A) 25/4
(B) 5/2
(C) 25
(D) 5

Q52. ${}^nC_r + {}^nC_{r-1}$ =
(A) ${}^{n+1}C_r$
(B) ${}^nC_{r+1}$
(C) ${}^{n+1}C_{r-1}$
(D) ${}^{n-1}C_r$

Q53. Sum of infinite GP 1 + 1/3 + 1/9 + ... is:
(A) 3/2
(B) 2/3
(C) 3
(D) 1

Q54. If |A|=5 for 3×3 matrix, |adj A| =
(A) 5
(B) 25
(C) 125
(D) 1/5

Q55. sin 75° =
(A) $(\sqrt{6}+\sqrt{2})/4$
(B) $(\sqrt{6}-\sqrt{2})/4$
(C) $\sqrt{3}/2$
(D) 1/2

Q56. $\lim_{x\to 0} (\sin x)/x$ =
(A) 0
(B) 1
(C) ∞
(D) Does not exist

Q57. $d/dx\ (\sin^{-1}x)$ =
(A) $1/\sqrt{(1-x^2)}$
(B) $-1/\sqrt{(1-x^2)}$
(C) $1/(1+x^2)$
(D) $\sqrt{(1-x^2)}$

Q58. $\int e^x\, dx$ =
(A) $e^x + C$
(B) $x\, e^x + C$
(C) $e^x/x + C$
(D) $\ln x + C$

Q59. Solution of dy/dx = y is:
(A) y = x+C
(B) $y = Ce^x$
(C) y = C/x
(D) y = Cx

Q60. Distance of (1,2) from 3x+4y−5=0 is:
(A) 2
(B) 1
(C) 3/5
(D) 6/5

Q61. Centre of $x^2+y^2-4x+6y-3=0$ is:
(A) (2,−3)
(B) (−2,3)
(C) (2,3)
(D) (−2,−3)

Q62. Eccentricity of ellipse $x^2/25 + y^2/9 = 1$ is:
(A) 4/5
(B) 3/5
(C) 5/4
(D) $\sqrt{(16/25)}$

Q63. P(A)=0.4, P(B)=0.3, P(A∩B)=0.1 → P(A∪B)=
(A) 0.6
(B) 0.7
(C) 0.5
(D) 0.8

Q64. Arrangements of letters of DELHI is:
(A) 120
(B) 60
(C) 24
(D) 720

Q65. Complex number with $|z|=\sqrt{2}$, arg=π/4 is:
(A) 1+i

(B) 1−i
(C) −1+i
(D) −1−i

Q66. Range of √(9−x²) is:
(A) [0,3]
(B) [−3,3]
(C) [0,9]
(D) (−∞,3]

Q67. ∫₀^{π/2} sin x dx =
(A) 1
(B) 0
(C) 2
(D) π/2

Q68. Maximum of x³−3x+2 on [−2,2] is:
(A) 4
(B) 0
(C) 2
(D) 6

Q69. If |a|=3, |b|=4, a·b=6, |a×b| =
(A) √108
(B) √72
(C) 6
(D) √48

Q70. If P(A)=1/2, P(B)=1/3 independent, P(A∩B)=
(A) 1/6
(B) 5/6
(C) 1
(D) 1/2

MATHEMATICS – Section B (Numerical Value) [Q71–Q75]

(Enter the correct numerical value. Integer or decimal as required.)

Q71. Sum of first 20 natural numbers is:

Q72. Value of $^{10}C_2$ is:

Q73. If A is 2×2 matrix with |A|=3, then |2A| is:

Q74. Derivative of x^2 at x=3 is:

Q75. Area under y=x from x=0 to x=4 is:

ANSWER KEY – MOCK TEST 1

Q1:(A)	Q2:(B)	Q3:(A)	Q4:(B)	Q5:(B)
Q6:(A)	Q7:(B)	Q8:(B)	Q9:(B)	Q10:(A)
Q11:(A)	Q12:(A)	Q13:(C)	Q14:(B)	Q15:(B)
Q16:(B)	Q17:(B)	Q18:(B)	Q19:(C)	Q20:(B)
Q21:10	Q22:80	Q23:10	Q24:2	Q25:3.1
Q26:(B)	Q27:(D)	Q28:(C)	Q29:(C)	Q30:(B)
Q31:(B)	Q32:(B)	Q33:(B)	Q34:(D)	Q35:(C)
Q36:(B)	Q37:(C)	Q38:(C)	Q39:(A)	Q40:(D)
Q41:(B)	Q42:(A)	Q43:(B)	Q44:(B)	Q45:(C)
Q46:0.5	Q47:12	Q48:3	Q49:10	Q50:2.46
Q51:(A)	Q52:(A)	Q53:(A)	Q54:(B)	Q55:(A)
Q56:(B)	Q57:(A)	Q58:(A)	Q59:(B)	Q60:(D)
Q61:(A)	Q62:(A)	Q63:(A)	Q64:(A)	Q65:(A)
Q66:(A)	Q67:(A)	Q68:(A)	Q69:(A)	Q70:(A)
Q71:210	Q72:45	Q73:12	Q74:6	Q75:8

Score = (No. of correct × 4) − (No. of incorrect × 1). Unattempted = 0. Max = 300.

MOCK TEST 2 | 75 Questions | 300 Marks | Time: 3 Hours

Marking Scheme: +4 for correct, −1 for incorrect, 0 for unattempted

PHYSICS – Section A (MCQs) [Q1–Q20]

Q1. A car starts from rest and accelerates at 2 m/s² for 10 s. Distance covered:
(A) 100 m
(B) 50 m
(C) 200 m
(D) 20 m

Q2. SI unit of power is:
(A) Joule
(B) Watt
(C) Newton
(D) Pascal

Q3. Potential energy of spring (k, compression x) is:
(A) kx
(B) ½kx
(C) ½kx²
(D) kx²

Q4. g at height R above surface becomes:
(A) g/2
(B) g/4
(C) g
(D) g/8

Q5. Time period of simple pendulum length L:
(A) 2π√(L/g)
(B) 2π√(g/L)
(C) π√(L/g)
(D) √(L/g)

Q6. In series capacitors, equivalent C:
(A) Increases
(B) Decreases
(C) Same
(D) Zero

Q7. A plane mirror forms:
(A) Real inverted
(B) Virtual erect
(C) Real erect
(D) Virtual inverted

Q8. Speed of light in vacuum:
(A) 3×10^{8} m/s
(B) 3×10^{6} m/s
(C) 3×10^{10} m/s
(D) 3×10^{5} m/s

Q9. de Broglie λ of electron ∝
(A) √V
(B) 1/√V
(C) V
(D) 1/V

Q10. In adiabatic process for ideal gas:
(A) PV=const
(B) PV^{γ}=const
(C) TV=const
(D) P/T=const

Q11. Electric field inside charged spherical shell:
(A) Zero
(B) σ/ε_0
(C) $\sigma/2\varepsilon_0$
(D) kQ/r^2

Q12. Magnetic field due to long wire at distance r:
(A) $\mu_0 I/(2\pi r)$
(B) $\mu_0 I/(2r)$
(C) $\mu_0 I/(4\pi r)$
(D) $\mu_0 I/r$

Q13. Power of lens f=25 cm is:
(A) +4 D
(B) +0.25 D
(C) −4 D
(D) +2.5 D

Q14. Stopping potential in photoelectric effect depends on:
(A) Intensity
(B) Frequency
(C) Work function only

(D) Both intensity & frequency

Q15. Half-life 5 days. Fraction left after 15 days:
(A) 1/2
(B) 1/4
(C) 1/8
(D) 1/16

Q16. Moment of inertia of solid sphere about diameter:
(A) $(2/5)MR^2$
(B) $(2/3)MR^2$
(C) $(5/2)MR^2$
(D) $(3/5)MR^2$

Q17. Projectile at 45°. Ratio H : R =
(A) 1:1
(B) 1:2
(C) 1:4
(D) 1:8

Q18. Coefficient of static friction is always:
(A) = kinetic
(B) < kinetic
(C) ≥ kinetic
(D) Zero

Q19. In pure inductive circuit, phase difference V & I:
(A) 0°
(B) 90°
(C) 180°
(D) 45°

Q20. Binding energy per nucleon max for:
(A) Uranium
(B) Iron
(C) Helium
(D) Hydrogen

PHYSICS – Section B (Numerical Value) [Q21–Q25]

(Enter the correct numerical value. Integer or decimal as required.)

Q21. A body projected vertically up with 20 m/s (g=10). Time of flight (s):

Q22. KE of 4 kg mass moving at 3 m/s (in J):

Q23. Capacitance of parallel plate (A=0.01 m^2, d=1 mm, $\varepsilon_0=8.85\times10^{-12}$) in pF approximately:

Q24. Wavelength of photon of energy 3.1 eV (hc=12400 eV·Å) in Å:

Q25. Angular frequency of SHM with T=0.2 s (in rad/s):

CHEMISTRY – Section A (MCQs) [Q26–Q45]

Q26. Molarity of pure water ≈
(A) 55.5 M
(B) 18 M
(C) 1 M
(D) 100 M

Q27. Most electronegative element:
(A) F
(B) Cl
(C) Br
(D) I

Q28. Lone pairs on central atom in ClF_3:
(A) 0
(B) 1
(C) 2
(D) 3

Q29. Spontaneous process at const T,P has:
(A) $\Delta G>0$
(B) $\Delta G<0$
(C) $\Delta G=0$
(D) $\Delta H<0$

Q30. In Nernst eq. n stands for:
(A) Number of electrons
(B) Moles
(C) Valency
(D) Atomic number

Q31. Half-life of first-order is independent of:
(A) k
(B) Initial concentration
(C) Temperature
(D) Ea

Q32. $[Ni(CN)_4]^{2-}$ is:
(A) Tetrahedral paramagnetic
(B) Square planar diamagnetic

(C) Tetrahedral diamagnetic
(D) Square planar paramagnetic

Q33. Common name of ethanal:
(A) Formaldehyde
(B) Acetaldehyde
(C) Acetone
(D) Acetic acid

Q34. Markovnikov rule applies to:
(A) Symmetrical alkenes
(B) Unsymmetrical alkenes
(C) Alkynes only
(D) Aromatics

Q35. Glucose belongs to:
(A) Aldohexose
(B) Ketohexose
(C) Aldopentose
(D) Ketopentose

Q36. Empirical formula C=40%, H=6.7%, O=53.3%:
(A) CH_2O
(B) C_2H_4O
(C) CH_4O
(D) C_2H_2O

Q37. Max unpaired electrons among Fe^{2+}, Fe^{3+}, Mn^{2+}, Cr^{3+}:
(A) Fe^{2+}
(B) Fe^{3+}
(C) Mn^{2+}
(D) Cr^{3+}

Q38. Bond angle in water ≈
(A) 109.5°
(B) 104.5°
(C) 120°
(D) 90°

Q39. $\Delta G^\circ = -nFE^\circ$ relates free energy to:
(A) Enthalpy
(B) Entropy
(C) Cell potential
(D) Temperature only

Q40. Unit of second-order rate constant:
(A) s^{-1}
(B) mol L^{-1} s^{-1}
(C) L mol^{-1} s^{-1}
(D) L^2 mol^{-2} s^{-1}

Q41. Kohlrausch law gives:
(A) Λ_m°
(B) Cell constant
(C) Resistance
(D) EMF

Q42. IUPAC of $(CH_3)_2CHCH_2Br$:
(A) 1-Bromo-2-methylpropane
(B) 2-Bromobutane
(C) 1-Bromobutane
(D) 2-Bromo-2-methylpropane

Q43. Phenol more acidic than ethanol due to:
(A) Inductive
(B) Resonance of phenoxide
(C) Hyperconjugation
(D) Steric

Q44. Primary amine + $CHCl_3$ + KOH is:
(A) Hoffmann
(B) Carbylamine
(C) Gabriel
(D) Hinsberg

Q45. Condensation polymer example:
(A) Polythene
(B) PVC
(C) Nylon-6,6
(D) Teflon

CHEMISTRY – Section B (Numerical Value) [Q46–Q50]

(Enter the correct numerical value. Integer or decimal as required.)

Q46. Moles of electrons to deposit 54 g Al (from Al^{3+}):

Q47. pH of 10^{-3} M HCl:

Q48. k for first-order $t_{1/2}$=10 min is (min^{-1}, take ln2=0.693):

Q49. Normality of 0.5 M H_2SO_4:

Q50. Number of sigma bonds in ethene:

MATHEMATICS – Section A (MCQs) [Q51–Q70]

Q51. Sum of roots of $2x^2-5x+3=0$:
(A) 5/2
(B) 3/2
(C) −5/2
(D) 2/5

Q52. $^{10}P_2$ =
(A) 90
(B) 45
(C) 100
(D) 20

Q53. |3A| if |A|=2 (3×3):
(A) 6
(B) 18
(C) 54
(D) 2

Q54. cos 75° =
(A) (√6−√2)/4
(B) (√6+√2)/4
(C) √3/2
(D) 1/2

Q55. $\lim_{x\to 0} (1-\cos x)/x^2$ =
(A) 0
(B) 1
(C) 1/2
(D) ∞

Q56. $\int e^x\,dx$ =
(A) e^x+C
(B) $x\,e^x+C$
(C) $e^x/x+C$
(D) $\ln|x|+C$

Q57. Line with slope 2, y-intercept 3:
(A) y=2x+3
(B) y=3x+2
(C) x=2y+3
(D) y=2x−3

Q58. Centre of $x^2+y^2-6x+4y-12=0$:
(A) (3,−2)
(B) (−3,2)
(C) (3,2)
(D) (−3,−2)

Q59. a·b=0 means a and b are:
(A) Parallel
(B) Perpendicular
(C) Equal
(D) Opposite

Q60. Mean of binomial n=10, p=0.3:
(A) 3
(B) 7
(C) 0.3
(D) 30

Q61. If α,β roots of $x^2-3x+2=0$, $\alpha^2+\beta^2$=
(A) 5
(B) 13
(C) 9
(D) 4

Q62. Arrangements of RAM:
(A) 3
(B) 6
(C) 9
(D) 1

Q63. |A| for [[1,2],[3,4]] =
(A) −2
(B) 2
(C) 10
(D) −10

Q64. tan(A+B) =
(A) (tanA+tanB)/(1−tanA tanB)
(B) (tanA−tanB)/(1+tanA tanB)
(C) (tanA+tanB)/(1+tanA tanB)
(D) tanA+tanB

Q65. $\int 1/x\,dx$ =
(A) $\ln|x|+C$

(B) $x+C$
(C) $1/x+C$
(D) e^x+C

Q66. $f(x)=x^3$ is:
(A) Odd
(B) Even
(C) Neither
(D) Periodic

Q67. Slope of tangent to $y=x^2$ at $x=2$:
(A) 2
(B) 4
(C) 8
(D) 1

Q68. Circle centre (0,0) radius 5:
(A) $x^2+y^2=25$
(B) $x^2+y^2=5$
(C) $x^2+y^2=10$
(D) $(x-5)^2+y^2=0$

Q69. $a=2i+3j$, $b=i-j \rightarrow a\cdot b =$
(A) -1
(B) 1
(C) 5
(D) 0

Q70. $P(A\cup B)=P(A)+P(B)-$?
(A) $P(A\cap B)$
(B) $P(A)P(B)$
(C) $P(A|B)$
(D) 1

MATHEMATICS – Section B (Numerical Value) [Q71–Q75]

(Enter the correct numerical value. Integer or decimal as required.)

Q71. Sum of first 10 natural numbers:

Q72. Value of ${}^5C_2$:

Q73. If $|A|=4$ (2×2), $|\text{adj } A| =$

Q74. $d/dx\ (x^3)$ at $x=2$:

Q75. $\int_0^2 x\ dx =$

ANSWER KEY – MOCK TEST 2

Q1:(A)	Q2:(B)	Q3:(C)	Q4:(B)	Q5:(A)
Q6:(B)	Q7:(B)	Q8:(A)	Q9:(B)	Q10:(B)
Q11:(A)	Q12:(A)	Q13:(A)	Q14:(B)	Q15:(C)
Q16:(A)	Q17:(C)	Q18:(C)	Q19:(B)	Q20:(B)
Q21:4	Q22:18	Q23:88.5	Q24:4000	Q25:31.4
Q26:(A)	Q27:(A)	Q28:(C)	Q29:(B)	Q30:(A)
Q31:(B)	Q32:(B)	Q33:(B)	Q34:(B)	Q35:(A)
Q36:(A)	Q37:(B)	Q38:(B)	Q39:(C)	Q40:(C)
Q41:(A)	Q42:(A)	Q43:(B)	Q44:(B)	Q45:(C)
Q46:6	Q47:3	Q48:0.0693	Q49:1	Q50:5
Q51:(A)	Q52:(A)	Q53:(C)	Q54:(A)	Q55:(C)
Q56:(A)	Q57:(A)	Q58:(A)	Q59:(B)	Q60:(A)
Q61:(A)	Q62:(B)	Q63:(A)	Q64:(A)	Q65:(A)
Q66:(A)	Q67:(B)	Q68:(A)	Q69:(A)	Q70:(A)
Q71:55	Q72:10	Q73:4	Q74:12	Q75:2

Score = (No. of correct × 4) − (No. of incorrect × 1). Unattempted = 0. Max = 300.

MOCK TEST 3 | 75 Questions | 300 Marks | Time: 3 Hours

Marking Scheme: +4 for correct, −1 for incorrect, 0 for unattempted

PHYSICS – Section A (MCQs) [Q1–Q20]

Q1. A particle starts from rest with acceleration 2 m/s². Distance in 5th second is:
(A) 9 m
(B) 11 m
(C) 13 m
(D) 15 m

Q2. Dimensional formula of Planck's constant is same as:
(A) Linear momentum
(B) Angular momentum
(C) Force
(D) Energy

Q3. A body of mass 2 kg has KE = 16 J. Momentum is:
(A) 8 kg m/s
(B) 4 kg m/s
(C) 16 kg m/s
(D) 32 kg m/s

Q4. Escape velocity from earth surface is approximately:
(A) 7.9 km/s
(B) 11.2 km/s
(C) 16.7 km/s
(D) 3 km/s

Q5. In SHM, maximum acceleration is at:
(A) Mean position
(B) Extreme position
(C) Anywhere
(D) None

Q6. Two resistors 4 Ω and 12 Ω in parallel. Equivalent R =
(A) 3 Ω
(B) 16 Ω
(C) 8 Ω
(D) 6 Ω

Q7. Unit of magnetic flux is:
(A) Tesla
(B) Weber
(C) Henry
(D) Ampere

Q8. Faraday's law states induced emf equals rate of change of:
(A) Current
(B) Magnetic flux
(C) Charge
(D) Resistance

Q9. A convex lens of f = 20 cm forms real image at 60 cm. Object distance =
(A) 15 cm
(B) 30 cm
(C) 40 cm
(D) 25 cm

Q10. In YDSE, fringe width is proportional to:
(A) λ
(B) 1/λ
(C) d
(D) Intensity

Q11. Work function = 4 eV. Threshold wavelength ≈
(A) 3100 Å
(B) 4000 Å
(C) 2500 Å
(D) 5000 Å

Q12. Bohr radius of first orbit of H-atom is:
(A) 0.53 Å
(B) 0.053 Å
(C) 5.3 Å
(D) 1 Å

Q13. Half-life of a radioactive sample is 10 days. Fraction left after 30 days:
(A) 1/2
(B) 1/4
(C) 1/8
(D) 1/16

Q14. Transformer: Np=100, Ns=500, Vp=20 V. Vs =
(A) 4 V
(B) 100 V
(C) 20 V

(D) 500 V

Q15. Electric flux through one face of a cube with charge +q at centre:
(A) q/ε_0
(B) $q/6\varepsilon_0$
(C) $q/2\varepsilon_0$
(D) 0

Q16. Magnetic field inside long solenoid is:
(A) Zero
(B) Uniform & parallel to axis
(C) Non-uniform
(D) Perpendicular

Q17. At resonance in series LCR, impedance is:
(A) Maximum
(B) Minimum (=R)
(C) Zero
(D) XL

Q18. de Broglie wavelength of electron $\propto$
(A) $\sqrt{V}$
(B) $1/\sqrt{V}$
(C) V
(D) 1/V

Q19. Nuclear force is:
(A) Charge dependent
(B) Long range
(C) Short range & charge independent
(D) Spin independent only

Q20. In p-n junction, depletion width increases in:
(A) Forward bias
(B) Reverse bias
(C) Zero bias
(D) Heavy doping

PHYSICS – Section B (Numerical Value) [Q21–Q25]

(Enter the correct numerical value. Integer or decimal as required.)

Q21. A body is projected at 45° with speed 20 m/s (g=10). Maximum height in metres is:

Q22. Resistance of a wire is 10 Ω. If length is doubled and radius halved, new resistance (in Ω) is:

Q23. A capacitor of 2 μF is charged to 100 V. Energy stored (in mJ) is:

Q24. Time period of a simple pendulum of length 1 m ($g=\pi^2$) is (in s):

Q25. A photon of wavelength 4000 Å has energy (in eV) approximately (hc=12400 eV·Å):

CHEMISTRY – Section A (MCQs) [Q26–Q45]

Q26. Number of moles in 22.4 L of O_2 at STP is:
(A) 0.5
(B) 1
(C) 2
(D) 0.25

Q27. Highest first ionisation enthalpy among Na, Mg, Al, Si is of:
(A) Na
(B) Mg
(C) Al
(D) Si

Q28. Hybridisation of carbon in ethyne is:
(A) sp^3
(B) sp^2
(C) sp
(D) sp^3d

Q29. pH of 0.001 M HCl is:
(A) 1
(B) 2
(C) 3
(D) 4

Q30. Oxidation number of Cr in $K_2Cr_2O_7$ is:
(A) +3
(B) +6
(C) +7
(D) +2

Q31. Rate constant of first-order reaction has unit:
(A) $mol\ L^{-1}\ s^{-1}$
(B) s^{-1}
(C) $L\ mol^{-1}\ s^{-1}$
(D) $L^2\ mol^{-2}\ s^{-1}$

Q32. Shape of XeF_4 is:
(A) Tetrahedral
(B) Square planar

(C) See-saw
(D) Octahedral

Q33. IUPAC name of $CH_3–CH=CH–CHO$ is:
(A) But-2-enal
(B) But-2-en-1-al
(C) Butenal
(D) But-1-en-3-al

Q34. Strongest acid among HF, HCl, HBr, HI is:
(A) HF
(B) HCl
(C) HBr
(D) HI

Q35. Bond order of N_2 is:
(A) 2
(B) 2.5
(C) 3
(D) 1

Q36. Conjugate base of $H_2PO_4^-$ is:
(A) H_3PO_4
(B) HPO_4^{2-}
(C) PO_4^{3-}
(D) H_2PO_4

Q37. Faraday's first law: mass deposited $\propto$
(A) Time only
(B) Current only
(C) Quantity of electricity
(D) Resistance

Q38. Number of unpaired electrons in Fe^{3+} (Z=26) is:
(A) 3
(B) 4
(C) 5
(D) 6

Q39. Henderson equation for buffer is pH =
(A) pKa + log([salt]/[acid])
(B) pKa − log([salt]/[acid])
(C) pKa
(D) 7

Q40. Which is diamagnetic?
(A) O_2
(B) O_2^+
(C) O_2^-
(D) O_2^{2-}

Q41. SN1 reaction is favoured by:
(A) 1° alkyl halide
(B) 3° alkyl halide
(C) Methyl halide
(D) 2° only

Q42. Glucose is an:
(A) Aldohexose
(B) Ketohexose
(C) Aldopentose
(D) Ketopentose

Q43. Common name of ethanoic acid is:
(A) Formic acid
(B) Acetic acid
(C) Propionic acid
(D) Butyric acid

Q44. Secondary amine is:
(A) CH_3NH_2
(B) $(CH_3)_2NH$
(C) $(CH_3)_3N$
(D) $C_6H_5NH_2$

Q45. Hybridisation of central atom in SF_6 is:
(A) sp^3
(B) sp^3d
(C) sp^3d^2
(D) sp^2

CHEMISTRY – Section B (Numerical Value) [Q46–Q50]

(Enter the correct numerical value. Integer or decimal as required.)

Q46. Molarity of a solution containing 5 g NaOH in 250 mL solution is:

Q47. pH of 0.01 M NaOH is:

Q48. Number of moles of electrons required to deposit 1 mole of Al from Al^{3+} is:

Q49. Half-life of a first-order reaction with k = 0.0693 min^{-1} is (in min):

Q50. Osmotic pressure of 0.1 M ideal solution at 27°C (R=0.082) is (in atm):

MATHEMATICS – Section A (MCQs) [Q51–Q70]

Q51. If roots of $x^2-5x+k=0$ are equal, k =
(A) 25/4
(B) 5/2
(C) 25
(D) 5

Q52. ${}^nC_r + {}^nC_{r-1}$ =
(A) ${}^{n+1}C_r$
(B) ${}^nC_{r+1}$
(C) ${}^{n+1}C_{r-1}$
(D) ${}^{n-1}C_r$

Q53. Sum of infinite GP 1 + 1/3 + 1/9 + ... is:
(A) 3/2
(B) 2/3
(C) 3
(D) 1

Q54. If |A|=5 for 3×3 matrix, |adj A| =
(A) 5
(B) 25
(C) 125
(D) 1/5

Q55. sin 75° =
(A) $(\sqrt{6}+\sqrt{2})/4$
(B) $(\sqrt{6}-\sqrt{2})/4$
(C) $\sqrt{3}/2$
(D) 1/2

Q56. $\lim_{x\to 0} (\sin x)/x$ =
(A) 0
(B) 1
(C) ∞
(D) Does not exist

Q57. $d/dx\ (\sin^{-1}x)$ =
(A) $1/\sqrt{(1-x^2)}$
(B) $-1/\sqrt{(1-x^2)}$
(C) $1/(1+x^2)$
(D) $\sqrt{(1-x^2)}$

Q58. $\int e^x\, dx$ =
(A) $e^x + C$
(B) $x\, e^x + C$
(C) $e^x/x + C$
(D) $\ln x + C$

Q59. Solution of dy/dx = y is:
(A) y = x+C
(B) $y = Ce^x$
(C) y = C/x
(D) y = Cx

Q60. Distance of (1,2) from 3x+4y−5=0 is:
(A) 2
(B) 1
(C) 3/5
(D) 6/5

Q61. Centre of $x^2+y^2-4x+6y-3=0$ is:
(A) (2,−3)
(B) (−2,3)
(C) (2,3)
(D) (−2,−3)

Q62. Eccentricity of ellipse $x^2/25 + y^2/9 = 1$ is:
(A) 4/5
(B) 3/5
(C) 5/4
(D) $\sqrt{(16/25)}$

Q63. P(A)=0.4, P(B)=0.3, P(A∩B)=0.1 → P(A∪B)=
(A) 0.6
(B) 0.7
(C) 0.5
(D) 0.8

Q64. Arrangements of letters of DELHI is:
(A) 120
(B) 60
(C) 24
(D) 720

Q65. Complex number with $|z|=\sqrt{2}$, arg=π/4 is:
(A) 1+i

(B) 1−i
(C) −1+i
(D) −1−i

Q66. Range of √(9−x²) is:
(A) [0,3]
(B) [−3,3]
(C) [0,9]
(D) (−∞,3]

Q67. ∫₀^{π/2} sin x dx =
(A) 1
(B) 0
(C) 2
(D) π/2

Q68. Maximum of x³−3x+2 on [−2,2] is:
(A) 4
(B) 0
(C) 2
(D) 6

Q69. If |a|=3, |b|=4, a·b=6, |a×b| =
(A) √108
(B) √72
(C) 6
(D) √48

Q70. If P(A)=1/2, P(B)=1/3 independent, P(A∩B)=
(A) 1/6
(B) 5/6
(C) 1
(D) 1/2

MATHEMATICS – Section B (Numerical Value) [Q71–Q75]

(Enter the correct numerical value. Integer or decimal as required.)

Q71. Sum of first 20 natural numbers is:

Q72. Value of $^{10}C_2$ is:

Q73. If A is 2×2 matrix with |A|=3, then |2A| is:

Q74. Derivative of x^2 at x=3 is:

Q75. Area under y=x from x=0 to x=4 is:

ANSWER KEY – MOCK TEST 3

Q1:(A)	Q2:(B)	Q3:(A)	Q4:(B)	Q5:(B)
Q6:(A)	Q7:(B)	Q8:(B)	Q9:(B)	Q10:(A)
Q11:(A)	Q12:(A)	Q13:(C)	Q14:(B)	Q15:(B)
Q16:(B)	Q17:(B)	Q18:(B)	Q19:(C)	Q20:(B)
Q21:10	Q22:80	Q23:10	Q24:2	Q25:3.1
Q26:(B)	Q27:(D)	Q28:(C)	Q29:(C)	Q30:(B)
Q31:(B)	Q32:(B)	Q33:(B)	Q34:(D)	Q35:(C)
Q36:(B)	Q37:(C)	Q38:(C)	Q39:(A)	Q40:(D)
Q41:(B)	Q42:(A)	Q43:(B)	Q44:(B)	Q45:(C)
Q46:0.5	Q47:12	Q48:3	Q49:10	Q50:2.46
Q51:(A)	Q52:(A)	Q53:(A)	Q54:(B)	Q55:(A)
Q56:(B)	Q57:(A)	Q58:(A)	Q59:(B)	Q60:(D)
Q61:(A)	Q62:(A)	Q63:(A)	Q64:(A)	Q65:(A)
Q66:(A)	Q67:(A)	Q68:(A)	Q69:(A)	Q70:(A)
Q71:210	Q72:45	Q73:12	Q74:6	Q75:8

Score = (No. of correct × 4) − (No. of incorrect × 1). Unattempted = 0. Max = 300.

MOCK TEST 4 | 75 Questions | 300 Marks | Time: 3 Hours

Marking Scheme: +4 for correct, −1 for incorrect, 0 for unattempted

PHYSICS – Section A (MCQs) [Q1–Q20]

Q1. A car starts from rest and accelerates at 2 m/s² for 10 s. Distance covered:
(A) 100 m
(B) 50 m
(C) 200 m
(D) 20 m

Q2. SI unit of power is:
(A) Joule
(B) Watt
(C) Newton
(D) Pascal

Q3. Potential energy of spring (k, compression x) is:
(A) kx
(B) ½kx
(C) ½kx²
(D) kx²

Q4. g at height R above surface becomes:
(A) g/2
(B) g/4
(C) g
(D) g/8

Q5. Time period of simple pendulum length L:
(A) 2π√(L/g)
(B) 2π√(g/L)
(C) π√(L/g)
(D) √(L/g)

Q6. In series capacitors, equivalent C:
(A) Increases
(B) Decreases
(C) Same
(D) Zero

Q7. A plane mirror forms:
(A) Real inverted
(B) Virtual erect
(C) Real erect
(D) Virtual inverted

Q8. Speed of light in vacuum:
(A) 3×10^{8} m/s
(B) 3×10^{6} m/s
(C) 3×10^{10} m/s
(D) 3×10^{5} m/s

Q9. de Broglie λ of electron ∝
(A) √V
(B) 1/√V
(C) V
(D) 1/V

Q10. In adiabatic process for ideal gas:
(A) PV=const
(B) PV^{γ}=const
(C) TV=const
(D) P/T=const

Q11. Electric field inside charged spherical shell:
(A) Zero
(B) σ/ε_0
(C) $\sigma/2\varepsilon_0$
(D) kQ/r^2

Q12. Magnetic field due to long wire at distance r:
(A) $\mu_0 I/(2\pi r)$
(B) $\mu_0 I/(2r)$
(C) $\mu_0 I/(4\pi r)$
(D) $\mu_0 I/r$

Q13. Power of lens f=25 cm is:
(A) +4 D
(B) +0.25 D
(C) −4 D
(D) +2.5 D

Q14. Stopping potential in photoelectric effect depends on:
(A) Intensity
(B) Frequency
(C) Work function only

(D) Both intensity & frequency

Q15. Half-life 5 days. Fraction left after 15 days:
(A) 1/2
(B) 1/4
(C) 1/8
(D) 1/16

Q16. Moment of inertia of solid sphere about diameter:
(A) $(2/5)MR^2$
(B) $(2/3)MR^2$
(C) $(5/2)MR^2$
(D) $(3/5)MR^2$

Q17. Projectile at 45°. Ratio H : R =
(A) 1:1
(B) 1:2
(C) 1:4
(D) 1:8

Q18. Coefficient of static friction is always:
(A) = kinetic
(B) < kinetic
(C) ≥ kinetic
(D) Zero

Q19. In pure inductive circuit, phase difference V & I:
(A) 0°
(B) 90°
(C) 180°
(D) 45°

Q20. Binding energy per nucleon max for:
(A) Uranium
(B) Iron
(C) Helium
(D) Hydrogen

PHYSICS – Section B (Numerical Value) [Q21–Q25]

(Enter the correct numerical value. Integer or decimal as required.)

Q21. A body projected vertically up with 20 m/s (g=10). Time of flight (s):

Q22. KE of 4 kg mass moving at 3 m/s (in J):

Q23. Capacitance of parallel plate (A=0.01 m^2, d=1 mm, $\varepsilon_0=8.85\times10^{-12}$) in pF approximately:

Q24. Wavelength of photon of energy 3.1 eV (hc=12400 eV·Å) in Å:

Q25. Angular frequency of SHM with T=0.2 s (in rad/s):

CHEMISTRY – Section A (MCQs) [Q26–Q45]

Q26. Molarity of pure water ≈
(A) 55.5 M
(B) 18 M
(C) 1 M
(D) 100 M

Q27. Most electronegative element:
(A) F
(B) Cl
(C) Br
(D) I

Q28. Lone pairs on central atom in ClF_3:
(A) 0
(B) 1
(C) 2
(D) 3

Q29. Spontaneous process at const T,P has:
(A) $\Delta G>0$
(B) $\Delta G<0$
(C) $\Delta G=0$
(D) $\Delta H<0$

Q30. In Nernst eq. n stands for:
(A) Number of electrons
(B) Moles
(C) Valency
(D) Atomic number

Q31. Half-life of first-order is independent of:
(A) k
(B) Initial concentration
(C) Temperature
(D) Ea

Q32. $[Ni(CN)_4]^{2-}$ is:
(A) Tetrahedral paramagnetic
(B) Square planar diamagnetic

(C) Tetrahedral diamagnetic
(D) Square planar paramagnetic

Q33. Common name of ethanal:
(A) Formaldehyde
(B) Acetaldehyde
(C) Acetone
(D) Acetic acid

Q34. Markovnikov rule applies to:
(A) Symmetrical alkenes
(B) Unsymmetrical alkenes
(C) Alkynes only
(D) Aromatics

Q35. Glucose belongs to:
(A) Aldohexose
(B) Ketohexose
(C) Aldopentose
(D) Ketopentose

Q36. Empirical formula C=40%, H=6.7%, O=53.3%:
(A) CH_2O
(B) C_2H_4O
(C) CH_4O
(D) C_2H_2O

Q37. Max unpaired electrons among Fe^{2+}, Fe^{3+}, Mn^{2+}, Cr^{3+}:
(A) Fe^{2+}
(B) Fe^{3+}
(C) Mn^{2+}
(D) Cr^{3+}

Q38. Bond angle in water ≈
(A) 109.5°
(B) 104.5°
(C) 120°
(D) 90°

Q39. $\Delta G^\circ = -nFE^\circ$ relates free energy to:
(A) Enthalpy
(B) Entropy
(C) Cell potential
(D) Temperature only

Q40. Unit of second-order rate constant:
(A) s^{-1}
(B) mol L^{-1} s^{-1}
(C) L mol^{-1} s^{-1}
(D) L^2 mol^{-2} s^{-1}

Q41. Kohlrausch law gives:
(A) Λ_m°
(B) Cell constant
(C) Resistance
(D) EMF

Q42. IUPAC of $(CH_3)_2CHCH_2Br$:
(A) 1-Bromo-2-methylpropane
(B) 2-Bromobutane
(C) 1-Bromobutane
(D) 2-Bromo-2-methylpropane

Q43. Phenol more acidic than ethanol due to:
(A) Inductive
(B) Resonance of phenoxide
(C) Hyperconjugation
(D) Steric

Q44. Primary amine + $CHCl_3$ + KOH is:
(A) Hoffmann
(B) Carbylamine
(C) Gabriel
(D) Hinsberg

Q45. Condensation polymer example:
(A) Polythene
(B) PVC
(C) Nylon-6,6
(D) Teflon

CHEMISTRY – Section B (Numerical Value) [Q46–Q50]

(Enter the correct numerical value. Integer or decimal as required.)

Q46. Moles of electrons to deposit 54 g Al (from Al^{3+}):

Q47. pH of 10^{-3} M HCl:

Q48. k for first-order $t_{1/2}$=10 min is (min^{-1}, take ln2=0.693):

Q49. Normality of 0.5 M H_2SO_4:

Q50. Number of sigma bonds in ethene:

MATHEMATICS – Section A (MCQs) [Q51–Q70]

Q51. Sum of roots of $2x^2-5x+3=0$:
(A) 5/2
(B) 3/2
(C) −5/2
(D) 2/5

Q52. $^{10}P_2$ =
(A) 90
(B) 45
(C) 100
(D) 20

Q53. |3A| if |A|=2 (3×3):
(A) 6
(B) 18
(C) 54
(D) 2

Q54. cos 75° =
(A) (√6−√2)/4
(B) (√6+√2)/4
(C) √3/2
(D) 1/2

Q55. $\lim_{x\to 0} (1-\cos x)/x^2$ =
(A) 0
(B) 1
(C) 1/2
(D) ∞

Q56. $\int e^x\,dx$ =
(A) e^x+C
(B) $x\,e^x+C$
(C) $e^x/x+C$
(D) $\ln|x|+C$

Q57. Line with slope 2, y-intercept 3:
(A) y=2x+3
(B) y=3x+2
(C) x=2y+3
(D) y=2x−3

Q58. Centre of $x^2+y^2-6x+4y-12=0$:
(A) (3,−2)
(B) (−3,2)
(C) (3,2)
(D) (−3,−2)

Q59. a·b=0 means a and b are:
(A) Parallel
(B) Perpendicular
(C) Equal
(D) Opposite

Q60. Mean of binomial n=10, p=0.3:
(A) 3
(B) 7
(C) 0.3
(D) 30

Q61. If α,β roots of $x^2-3x+2=0$, $\alpha^2+\beta^2$=
(A) 5
(B) 13
(C) 9
(D) 4

Q62. Arrangements of RAM:
(A) 3
(B) 6
(C) 9
(D) 1

Q63. |A| for [[1,2],[3,4]] =
(A) −2
(B) 2
(C) 10
(D) −10

Q64. tan(A+B) =
(A) (tanA+tanB)/(1−tanA tanB)
(B) (tanA−tanB)/(1+tanA tanB)
(C) (tanA+tanB)/(1+tanA tanB)
(D) tanA+tanB

Q65. $\int 1/x\,dx$ =
(A) $\ln|x|+C$

(B) $x+C$
(C) $1/x+C$
(D) e^x+C

Q66. $f(x)=x^3$ is:
(A) Odd
(B) Even
(C) Neither
(D) Periodic

Q67. Slope of tangent to $y=x^2$ at $x=2$:
(A) 2
(B) 4
(C) 8
(D) 1

Q68. Circle centre (0,0) radius 5:
(A) $x^2+y^2=25$
(B) $x^2+y^2=5$
(C) $x^2+y^2=10$
(D) $(x-5)^2+y^2=0$

Q69. $a=2i+3j$, $b=i-j \rightarrow a\cdot b =$
(A) -1
(B) 1
(C) 5
(D) 0

Q70. $P(A\cup B)=P(A)+P(B)-$?
(A) $P(A\cap B)$
(B) $P(A)P(B)$
(C) $P(A|B)$
(D) 1

MATHEMATICS – Section B (Numerical Value) [Q71–Q75]

(Enter the correct numerical value. Integer or decimal as required.)

Q71. Sum of first 10 natural numbers:

Q72. Value of ${}^5C_2$:

Q73. If $|A|=4$ (2×2), $|\text{adj } A| =$

Q74. $d/dx\ (x^3)$ at $x=2$:

Q75. $\int_0^2 x\ dx =$

ANSWER KEY – MOCK TEST 4

Q1:(A)	Q2:(B)	Q3:(C)	Q4:(B)	Q5:(A)
Q6:(B)	Q7:(B)	Q8:(A)	Q9:(B)	Q10:(B)
Q11:(A)	Q12:(A)	Q13:(A)	Q14:(B)	Q15:(C)
Q16:(A)	Q17:(C)	Q18:(C)	Q19:(B)	Q20:(B)
Q21:5	Q22:19	Q23:89.0	Q24:4001	Q25:31.9
Q26:(A)	Q27:(A)	Q28:(C)	Q29:(B)	Q30:(A)
Q31:(B)	Q32:(B)	Q33:(B)	Q34:(B)	Q35:(A)
Q36:(A)	Q37:(B)	Q38:(B)	Q39:(C)	Q40:(C)
Q41:(A)	Q42:(A)	Q43:(B)	Q44:(B)	Q45:(C)
Q46:7	Q47:4	Q48:0.07	Q49:2	Q50:6
Q51:(A)	Q52:(A)	Q53:(C)	Q54:(A)	Q55:(C)
Q56:(A)	Q57:(A)	Q58:(A)	Q59:(B)	Q60:(A)
Q61:(A)	Q62:(B)	Q63:(A)	Q64:(A)	Q65:(A)
Q66:(A)	Q67:(B)	Q68:(A)	Q69:(A)	Q70:(A)
Q71:58	Q72:13	Q73:7	Q74:15	Q75:5

Score = (No. of correct × 4) − (No. of incorrect × 1). Unattempted = 0. Max = 300.

MOCK TEST 5 | 75 Questions | 300 Marks | Time: 3 Hours

Marking Scheme: +4 for correct, −1 for incorrect, 0 for unattempted

PHYSICS – Section A (MCQs) [Q1–Q20]

Q1. A particle starts from rest with acceleration 2 m/s². Distance in 5th second is:
(A) 9 m
(B) 11 m
(C) 13 m
(D) 15 m

Q2. Dimensional formula of Planck's constant is same as:
(A) Linear momentum
(B) Angular momentum
(C) Force
(D) Energy

Q3. A body of mass 2 kg has KE = 16 J. Momentum is:
(A) 8 kg m/s
(B) 4 kg m/s
(C) 16 kg m/s
(D) 32 kg m/s

Q4. Escape velocity from earth surface is approximately:
(A) 7.9 km/s
(B) 11.2 km/s
(C) 16.7 km/s
(D) 3 km/s

Q5. In SHM, maximum acceleration is at:
(A) Mean position
(B) Extreme position
(C) Anywhere
(D) None

Q6. Two resistors 4 Ω and 12 Ω in parallel. Equivalent R =
(A) 3 Ω
(B) 16 Ω
(C) 8 Ω
(D) 6 Ω

Q7. Unit of magnetic flux is:
(A) Tesla
(B) Weber
(C) Henry
(D) Ampere

Q8. Faraday's law states induced emf equals rate of change of:
(A) Current
(B) Magnetic flux
(C) Charge
(D) Resistance

Q9. A convex lens of f = 20 cm forms real image at 60 cm. Object distance =
(A) 15 cm
(B) 30 cm
(C) 40 cm
(D) 25 cm

Q10. In YDSE, fringe width is proportional to:
(A) λ
(B) 1/λ
(C) d
(D) Intensity

Q11. Work function = 4 eV. Threshold wavelength ≈
(A) 3100 Å
(B) 4000 Å
(C) 2500 Å
(D) 5000 Å

Q12. Bohr radius of first orbit of H-atom is:
(A) 0.53 Å
(B) 0.053 Å
(C) 5.3 Å
(D) 1 Å

Q13. Half-life of a radioactive sample is 10 days. Fraction left after 30 days:
(A) 1/2
(B) 1/4
(C) 1/8
(D) 1/16

Q14. Transformer: Np=100, Ns=500, Vp=20 V. Vs =
(A) 4 V
(B) 100 V
(C) 20 V

(D) 500 V

Q15. Electric flux through one face of a cube with charge +q at centre:
(A) q/ε_0
(B) $q/6\varepsilon_0$
(C) $q/2\varepsilon_0$
(D) 0

Q16. Magnetic field inside long solenoid is:
(A) Zero
(B) Uniform & parallel to axis
(C) Non-uniform
(D) Perpendicular

Q17. At resonance in series LCR, impedance is:
(A) Maximum
(B) Minimum (=R)
(C) Zero
(D) XL

Q18. de Broglie wavelength of electron $\propto$
(A) $\sqrt{V}$
(B) $1/\sqrt{V}$
(C) V
(D) 1/V

Q19. Nuclear force is:
(A) Charge dependent
(B) Long range
(C) Short range & charge independent
(D) Spin independent only

Q20. In p-n junction, depletion width increases in:
(A) Forward bias
(B) Reverse bias
(C) Zero bias
(D) Heavy doping

PHYSICS – Section B (Numerical Value) [Q21–Q25]

(Enter the correct numerical value. Integer or decimal as required.)

Q21. A body is projected at 45° with speed 20 m/s (g=10). Maximum height in metres is:

Q22. Resistance of a wire is 10 Ω. If length is doubled and radius halved, new resistance (in Ω) is:

Q23. A capacitor of 2 μF is charged to 100 V. Energy stored (in mJ) is:

Q24. Time period of a simple pendulum of length 1 m ($g=\pi^2$) is (in s):

Q25. A photon of wavelength 4000 Å has energy (in eV) approximately (hc=12400 eV·Å):

CHEMISTRY – Section A (MCQs) [Q26–Q45]

Q26. Number of moles in 22.4 L of O_2 at STP is:
(A) 0.5
(B) 1
(C) 2
(D) 0.25

Q27. Highest first ionisation enthalpy among Na, Mg, Al, Si is of:
(A) Na
(B) Mg
(C) Al
(D) Si

Q28. Hybridisation of carbon in ethyne is:
(A) sp^3
(B) sp^2
(C) sp
(D) sp^3d

Q29. pH of 0.001 M HCl is:
(A) 1
(B) 2
(C) 3
(D) 4

Q30. Oxidation number of Cr in $K_2Cr_2O_7$ is:
(A) +3
(B) +6
(C) +7
(D) +2

Q31. Rate constant of first-order reaction has unit:
(A) mol L^{-1} s^{-1}
(B) s^{-1}
(C) L mol^{-1} s^{-1}
(D) L^2 mol^{-2} s^{-1}

Q32. Shape of XeF_4 is:
(A) Tetrahedral
(B) Square planar

(C) See-saw
(D) Octahedral

Q33. IUPAC name of $CH_3–CH=CH–CHO$ is:
(A) But-2-enal
(B) But-2-en-1-al
(C) Butenal
(D) But-1-en-3-al

Q34. Strongest acid among HF, HCl, HBr, HI is:
(A) HF
(B) HCl
(C) HBr
(D) HI

Q35. Bond order of N_2 is:
(A) 2
(B) 2.5
(C) 3
(D) 1

Q36. Conjugate base of $H_2PO_4^-$ is:
(A) H_3PO_4
(B) HPO_4^{2-}
(C) PO_4^{3-}
(D) H_2PO_4

Q37. Faraday's first law: mass deposited $\propto$
(A) Time only
(B) Current only
(C) Quantity of electricity
(D) Resistance

Q38. Number of unpaired electrons in Fe^{3+} (Z=26) is:
(A) 3
(B) 4
(C) 5
(D) 6

Q39. Henderson equation for buffer is pH =
(A) pKa + log([salt]/[acid])
(B) pKa − log([salt]/[acid])
(C) pKa
(D) 7

Q40. Which is diamagnetic?
(A) O_2
(B) O_2^+
(C) O_2^-
(D) O_2^{2-}

Q41. SN1 reaction is favoured by:
(A) 1° alkyl halide
(B) 3° alkyl halide
(C) Methyl halide
(D) 2° only

Q42. Glucose is an:
(A) Aldohexose
(B) Ketohexose
(C) Aldopentose
(D) Ketopentose

Q43. Common name of ethanoic acid is:
(A) Formic acid
(B) Acetic acid
(C) Propionic acid
(D) Butyric acid

Q44. Secondary amine is:
(A) CH_3NH_2
(B) $(CH_3)_2NH$
(C) $(CH_3)_3N$
(D) $C_6H_5NH_2$

Q45. Hybridisation of central atom in SF_6 is:
(A) sp^3
(B) sp^3d
(C) sp^3d^2
(D) sp^2

CHEMISTRY – Section B (Numerical Value) [Q46–Q50]

(Enter the correct numerical value. Integer or decimal as required.)

Q46. Molarity of a solution containing 5 g NaOH in 250 mL solution is:

Q47. pH of 0.01 M NaOH is:

Q48. Number of moles of electrons required to deposit 1 mole of Al from Al^{3+} is:

Q49. Half-life of a first-order reaction with k = 0.0693 min^{-1} is (in min):

Q50. Osmotic pressure of 0.1 M ideal solution at 27°C (R=0.082) is (in atm):

MATHEMATICS – Section A (MCQs) [Q51–Q70]

Q51. If roots of $x^2-5x+k=0$ are equal, k =
(A) 25/4
(B) 5/2
(C) 25
(D) 5

Q52. ${}^nC_r + {}^nC_{r-1}$ =
(A) ${}^{n+1}C_r$
(B) ${}^nC_{r+1}$
(C) ${}^{n+1}C_{r-1}$
(D) ${}^{n-1}C_r$

Q53. Sum of infinite GP 1 + 1/3 + 1/9 + ... is:
(A) 3/2
(B) 2/3
(C) 3
(D) 1

Q54. If |A|=5 for 3×3 matrix, |adj A| =
(A) 5
(B) 25
(C) 125
(D) 1/5

Q55. sin 75° =
(A) $(\sqrt{6}+\sqrt{2})/4$
(B) $(\sqrt{6}-\sqrt{2})/4$
(C) $\sqrt{3}/2$
(D) 1/2

Q56. $\lim_{x\to 0} (\sin x)/x$ =
(A) 0
(B) 1
(C) ∞
(D) Does not exist

Q57. $d/dx\ (\sin^{-1}x)$ =
(A) $1/\sqrt{(1-x^2)}$
(B) $-1/\sqrt{(1-x^2)}$
(C) $1/(1+x^2)$
(D) $\sqrt{(1-x^2)}$

Q58. $\int e^x\, dx$ =
(A) $e^x + C$
(B) $x\, e^x + C$
(C) $e^x/x + C$
(D) $\ln x + C$

Q59. Solution of dy/dx = y is:
(A) y = x+C
(B) $y = Ce^x$
(C) y = C/x
(D) y = Cx

Q60. Distance of (1,2) from 3x+4y−5=0 is:
(A) 2
(B) 1
(C) 3/5
(D) 6/5

Q61. Centre of $x^2+y^2-4x+6y-3=0$ is:
(A) (2,−3)
(B) (−2,3)
(C) (2,3)
(D) (−2,−3)

Q62. Eccentricity of ellipse $x^2/25 + y^2/9 = 1$ is:
(A) 4/5
(B) 3/5
(C) 5/4
(D) $\sqrt{(16/25)}$

Q63. P(A)=0.4, P(B)=0.3, P(A∩B)=0.1 → P(A∪B)=
(A) 0.6
(B) 0.7
(C) 0.5
(D) 0.8

Q64. Arrangements of letters of DELHI is:
(A) 120
(B) 60
(C) 24
(D) 720

Q65. Complex number with $|z|=\sqrt{2}$, arg=π/4 is:
(A) 1+i

(B) $1-i$
(C) $-1+i$
(D) $-1-i$

Q66. Range of $\sqrt{(9-x^2)}$ is:
(A) $[0,3]$
(B) $[-3,3]$
(C) $[0,9]$
(D) $(-\infty,3]$

Q67. $\int_0^{\pi/2} \sin x\, dx =$
(A) 1
(B) 0
(C) 2
(D) $\pi/2$

Q68. Maximum of x^3-3x+2 on $[-2,2]$ is:
(A) 4
(B) 0
(C) 2
(D) 6

Q69. If $|a|=3$, $|b|=4$, $a\cdot b=6$, $|a\times b| =$
(A) $\sqrt{108}$
(B) $\sqrt{72}$
(C) 6
(D) $\sqrt{48}$

Q70. If $P(A)=1/2$, $P(B)=1/3$ independent, $P(A\cap B)=$
(A) 1/6
(B) 5/6
(C) 1
(D) 1/2

MATHEMATICS – Section B (Numerical Value) [Q71–Q75]

(Enter the correct numerical value. Integer or decimal as required.)

Q71. Sum of first 20 natural numbers is:

Q72. Value of ${}^{10}C_2$ is:

Q73. If A is 2×2 matrix with $|A|=3$, then $|2A|$ is:

Q74. Derivative of x^2 at $x=3$ is:

Q75. Area under $y=x$ from $x=0$ to $x=4$ is:

ANSWER KEY – MOCK TEST 5

Q1:(A)	Q2:(B)	Q3:(A)	Q4:(B)	Q5:(B)
Q6:(A)	Q7:(B)	Q8:(B)	Q9:(B)	Q10:(A)
Q11:(A)	Q12:(A)	Q13:(C)	Q14:(B)	Q15:(B)
Q16:(B)	Q17:(B)	Q18:(B)	Q19:(C)	Q20:(B)
Q21:12	Q22:82	Q23:12	Q24:4	Q25:4.1
Q26:(B)	Q27:(D)	Q28:(C)	Q29:(C)	Q30:(B)
Q31:(B)	Q32:(B)	Q33:(B)	Q34:(D)	Q35:(C)
Q36:(B)	Q37:(C)	Q38:(C)	Q39:(A)	Q40:(D)
Q41:(B)	Q42:(A)	Q43:(B)	Q44:(B)	Q45:(C)
Q46:0.55	Q47:14	Q48:5	Q49:12	Q50:2.71
Q51:(A)	Q52:(A)	Q53:(A)	Q54:(B)	Q55:(A)
Q56:(B)	Q57:(A)	Q58:(A)	Q59:(B)	Q60:(D)
Q61:(A)	Q62:(A)	Q63:(A)	Q64:(A)	Q65:(A)
Q66:(A)	Q67:(A)	Q68:(A)	Q69:(A)	Q70:(A)
Q71:216	Q72:51	Q73:18	Q74:12	Q75:14

Score = (No. of correct × 4) − (No. of incorrect × 1). Unattempted = 0. Max = 300.

MOCK TEST 6 | 75 Questions | 300 Marks | Time: 3 Hours

Marking Scheme: +4 for correct, −1 for incorrect, 0 for unattempted

PHYSICS – Section A (MCQs) [Q1–Q20]

Q1. A car starts from rest and accelerates at 2 m/s² for 10 s. Distance covered:
(A) 100 m
(B) 50 m
(C) 200 m
(D) 20 m

Q2. SI unit of power is:
(A) Joule
(B) Watt
(C) Newton
(D) Pascal

Q3. Potential energy of spring (k, compression x) is:
(A) kx
(B) ½kx
(C) ½kx²
(D) kx²

Q4. g at height R above surface becomes:
(A) g/2
(B) g/4
(C) g
(D) g/8

Q5. Time period of simple pendulum length L:
(A) 2π√(L/g)
(B) 2π√(g/L)
(C) π√(L/g)
(D) √(L/g)

Q6. In series capacitors, equivalent C:
(A) Increases
(B) Decreases
(C) Same
(D) Zero

Q7. A plane mirror forms:
(A) Real inverted
(B) Virtual erect
(C) Real erect
(D) Virtual inverted

Q8. Speed of light in vacuum:
(A) 3×10^{8} m/s
(B) 3×10^{6} m/s
(C) 3×10^{10} m/s
(D) 3×10^{5} m/s

Q9. de Broglie λ of electron ∝
(A) √V
(B) 1/√V
(C) V
(D) 1/V

Q10. In adiabatic process for ideal gas:
(A) PV=const
(B) PV^{γ}=const
(C) TV=const
(D) P/T=const

Q11. Electric field inside charged spherical shell:
(A) Zero
(B) σ/ε_0
(C) $\sigma/2\varepsilon_0$
(D) kQ/r^2

Q12. Magnetic field due to long wire at distance r:
(A) $\mu_0 I/(2\pi r)$
(B) $\mu_0 I/(2r)$
(C) $\mu_0 I/(4\pi r)$
(D) $\mu_0 I/r$

Q13. Power of lens f=25 cm is:
(A) +4 D
(B) +0.25 D
(C) −4 D
(D) +2.5 D

Q14. Stopping potential in photoelectric effect depends on:
(A) Intensity
(B) Frequency
(C) Work function only

(D) Both intensity & frequency

Q15. Half-life 5 days. Fraction left after 15 days:
(A) 1/2
(B) 1/4
(C) 1/8
(D) 1/16

Q16. Moment of inertia of solid sphere about diameter:
(A) $(2/5)MR^2$
(B) $(2/3)MR^2$
(C) $(5/2)MR^2$
(D) $(3/5)MR^2$

Q17. Projectile at 45°. Ratio H : R =
(A) 1:1
(B) 1:2
(C) 1:4
(D) 1:8

Q18. Coefficient of static friction is always:
(A) = kinetic
(B) < kinetic
(C) ≥ kinetic
(D) Zero

Q19. In pure inductive circuit, phase difference V & I:
(A) 0°
(B) 90°
(C) 180°
(D) 45°

Q20. Binding energy per nucleon max for:
(A) Uranium
(B) Iron
(C) Helium
(D) Hydrogen

PHYSICS – Section B (Numerical Value) [Q21–Q25]

(Enter the correct numerical value. Integer or decimal as required.)

Q21. A body projected vertically up with 20 m/s (g=10). Time of flight (s):

Q22. KE of 4 kg mass moving at 3 m/s (in J):

Q23. Capacitance of parallel plate (A=0.01 m^2, d=1 mm, $\varepsilon_0=8.85\times10^{-12}$) in pF approximately:

Q24. Wavelength of photon of energy 3.1 eV (hc=12400 eV·Å) in Å:

Q25. Angular frequency of SHM with T=0.2 s (in rad/s):

CHEMISTRY – Section A (MCQs) [Q26–Q45]

Q26. Molarity of pure water ≈
(A) 55.5 M
(B) 18 M
(C) 1 M
(D) 100 M

Q27. Most electronegative element:
(A) F
(B) Cl
(C) Br
(D) I

Q28. Lone pairs on central atom in ClF_3:
(A) 0
(B) 1
(C) 2
(D) 3

Q29. Spontaneous process at const T,P has:
(A) $\Delta G>0$
(B) $\Delta G<0$
(C) $\Delta G=0$
(D) $\Delta H<0$

Q30. In Nernst eq. n stands for:
(A) Number of electrons
(B) Moles
(C) Valency
(D) Atomic number

Q31. Half-life of first-order is independent of:
(A) k
(B) Initial concentration
(C) Temperature
(D) Ea

Q32. $[Ni(CN)_4]^{2-}$ is:
(A) Tetrahedral paramagnetic
(B) Square planar diamagnetic

(C) Tetrahedral diamagnetic
(D) Square planar paramagnetic

Q33. Common name of ethanal:
(A) Formaldehyde
(B) Acetaldehyde
(C) Acetone
(D) Acetic acid

Q34. Markovnikov rule applies to:
(A) Symmetrical alkenes
(B) Unsymmetrical alkenes
(C) Alkynes only
(D) Aromatics

Q35. Glucose belongs to:
(A) Aldohexose
(B) Ketohexose
(C) Aldopentose
(D) Ketopentose

Q36. Empirical formula C=40%, H=6.7%, O=53.3%:
(A) CH_2O
(B) C_2H_4O
(C) CH_4O
(D) C_2H_2O

Q37. Max unpaired electrons among Fe^{2+}, Fe^{3+}, Mn^{2+}, Cr^{3+}:
(A) Fe^{2+}
(B) Fe^{3+}
(C) Mn^{2+}
(D) Cr^{3+}

Q38. Bond angle in water ≈
(A) 109.5°
(B) 104.5°
(C) 120°
(D) 90°

Q39. $\Delta G^\circ = -nFE^\circ$ relates free energy to:
(A) Enthalpy
(B) Entropy
(C) Cell potential
(D) Temperature only

Q40. Unit of second-order rate constant:
(A) s^{-1}
(B) mol L^{-1} s^{-1}
(C) L mol^{-1} s^{-1}
(D) L^2 mol^{-2} s^{-1}

Q41. Kohlrausch law gives:
(A) Λ_m°
(B) Cell constant
(C) Resistance
(D) EMF

Q42. IUPAC of $(CH_3)_2CHCH_2Br$:
(A) 1-Bromo-2-methylpropane
(B) 2-Bromobutane
(C) 1-Bromobutane
(D) 2-Bromo-2-methylpropane

Q43. Phenol more acidic than ethanol due to:
(A) Inductive
(B) Resonance of phenoxide
(C) Hyperconjugation
(D) Steric

Q44. Primary amine + $CHCl_3$ + KOH is:
(A) Hoffmann
(B) Carbylamine
(C) Gabriel
(D) Hinsberg

Q45. Condensation polymer example:
(A) Polythene
(B) PVC
(C) Nylon-6,6
(D) Teflon

CHEMISTRY – Section B (Numerical Value) [Q46–Q50]

(Enter the correct numerical value. Integer or decimal as required.)

Q46. Moles of electrons to deposit 54 g Al (from Al^{3+}):

Q47. pH of 10^{-3} M HCl:

Q48. k for first-order $t_{1/2}$=10 min is (min^{-1}, take ln2=0.693):

Q49. Normality of 0.5 M H_2SO_4:

Q50. Number of sigma bonds in ethene:

MATHEMATICS – Section A (MCQs) [Q51–Q70]

Q51. Sum of roots of $2x^2-5x+3=0$:
(A) 5/2
(B) 3/2
(C) −5/2
(D) 2/5

Q52. $^{10}P_2$ =
(A) 90
(B) 45
(C) 100
(D) 20

Q53. |3A| if |A|=2 (3×3):
(A) 6
(B) 18
(C) 54
(D) 2

Q54. cos 75° =
(A) (√6−√2)/4
(B) (√6+√2)/4
(C) √3/2
(D) 1/2

Q55. $\lim_{x\to 0} (1-\cos x)/x^2$ =
(A) 0
(B) 1
(C) 1/2
(D) ∞

Q56. $\int e^x\,dx$ =
(A) e^x+C
(B) $x\,e^x+C$
(C) $e^x/x+C$
(D) $\ln|x|+C$

Q57. Line with slope 2, y-intercept 3:
(A) y=2x+3
(B) y=3x+2
(C) x=2y+3
(D) y=2x−3

Q58. Centre of $x^2+y^2-6x+4y-12=0$:
(A) (3,−2)
(B) (−3,2)
(C) (3,2)
(D) (−3,−2)

Q59. a·b=0 means a and b are:
(A) Parallel
(B) Perpendicular
(C) Equal
(D) Opposite

Q60. Mean of binomial n=10, p=0.3:
(A) 3
(B) 7
(C) 0.3
(D) 30

Q61. If α,β roots of $x^2-3x+2=0$, $\alpha^2+\beta^2$=
(A) 5
(B) 13
(C) 9
(D) 4

Q62. Arrangements of RAM:
(A) 3
(B) 6
(C) 9
(D) 1

Q63. |A| for [[1,2],[3,4]] =
(A) −2
(B) 2
(C) 10
(D) −10

Q64. tan(A+B) =
(A) (tanA+tanB)/(1−tanA tanB)
(B) (tanA−tanB)/(1+tanA tanB)
(C) (tanA+tanB)/(1+tanA tanB)
(D) tanA+tanB

Q65. $\int 1/x\,dx$ =
(A) $\ln|x|+C$

(B) $x+C$
(C) $1/x+C$
(D) e^x+C

Q66. $f(x)=x^3$ is:
(A) Odd
(B) Even
(C) Neither
(D) Periodic

Q67. Slope of tangent to $y=x^2$ at $x=2$:
(A) 2
(B) 4
(C) 8
(D) 1

Q68. Circle centre (0,0) radius 5:
(A) $x^2+y^2=25$
(B) $x^2+y^2=5$
(C) $x^2+y^2=10$
(D) $(x-5)^2+y^2=0$

Q69. $a=2i+3j$, $b=i-j \rightarrow a\cdot b =$
(A) -1
(B) 1
(C) 5
(D) 0

Q70. $P(A\cup B)=P(A)+P(B)-$?
(A) $P(A\cap B)$
(B) $P(A)P(B)$
(C) $P(A|B)$
(D) 1

MATHEMATICS – Section B (Numerical Value) [Q71–Q75]

(Enter the correct numerical value. Integer or decimal as required.)

Q71. Sum of first 10 natural numbers:

Q72. Value of ${}^5C_2$:

Q73. If $|A|=4$ (2×2), $|\text{adj } A| =$

Q74. $d/dx\ (x^3)$ at $x=2$:

Q75. $\int_0^2 x\ dx =$

ANSWER KEY – MOCK TEST 6

Q1:(A)	Q2:(B)	Q3:(C)	Q4:(B)	Q5:(A)
Q6:(B)	Q7:(B)	Q8:(A)	Q9:(B)	Q10:(B)
Q11:(A)	Q12:(A)	Q13:(A)	Q14:(B)	Q15:(C)
Q16:(A)	Q17:(C)	Q18:(C)	Q19:(B)	Q20:(B)
Q21:7	Q22:21	Q23:90.0	Q24:4003	Q25:32.9
Q26:(A)	Q27:(A)	Q28:(C)	Q29:(B)	Q30:(A)
Q31:(B)	Q32:(B)	Q33:(B)	Q34:(B)	Q35:(A)
Q36:(A)	Q37:(B)	Q38:(B)	Q39:(C)	Q40:(C)
Q41:(A)	Q42:(A)	Q43:(B)	Q44:(B)	Q45:(C)
Q46:6	Q47:3	Q48:0.07	Q49:1	Q50:5
Q51:(A)	Q52:(A)	Q53:(C)	Q54:(A)	Q55:(C)
Q56:(A)	Q57:(A)	Q58:(A)	Q59:(B)	Q60:(A)
Q61:(A)	Q62:(B)	Q63:(A)	Q64:(A)	Q65:(A)
Q66:(A)	Q67:(B)	Q68:(A)	Q69:(A)	Q70:(A)
Q71:64	Q72:19	Q73:13	Q74:21	Q75:11

Score = (No. of correct × 4) − (No. of incorrect × 1). Unattempted = 0. Max = 300.

MOCK TEST 7 | 75 Questions | 300 Marks | Time: 3 Hours

Marking Scheme: +4 for correct, −1 for incorrect, 0 for unattempted

PHYSICS – Section A (MCQs) [Q1–Q20]

Q1. A particle starts from rest with acceleration 2 m/s². Distance in 5th second is:
(A) 9 m
(B) 11 m
(C) 13 m
(D) 15 m

Q2. Dimensional formula of Planck's constant is same as:
(A) Linear momentum
(B) Angular momentum
(C) Force
(D) Energy

Q3. A body of mass 2 kg has KE = 16 J. Momentum is:
(A) 8 kg m/s
(B) 4 kg m/s
(C) 16 kg m/s
(D) 32 kg m/s

Q4. Escape velocity from earth surface is approximately:
(A) 7.9 km/s
(B) 11.2 km/s
(C) 16.7 km/s
(D) 3 km/s

Q5. In SHM, maximum acceleration is at:
(A) Mean position
(B) Extreme position
(C) Anywhere
(D) None

Q6. Two resistors 4 Ω and 12 Ω in parallel. Equivalent R =
(A) 3 Ω
(B) 16 Ω
(C) 8 Ω
(D) 6 Ω

Q7. Unit of magnetic flux is:
(A) Tesla
(B) Weber
(C) Henry
(D) Ampere

Q8. Faraday's law states induced emf equals rate of change of:
(A) Current
(B) Magnetic flux
(C) Charge
(D) Resistance

Q9. A convex lens of f = 20 cm forms real image at 60 cm. Object distance =
(A) 15 cm
(B) 30 cm
(C) 40 cm
(D) 25 cm

Q10. In YDSE, fringe width is proportional to:
(A) λ
(B) 1/λ
(C) d
(D) Intensity

Q11. Work function = 4 eV. Threshold wavelength ≈
(A) 3100 Å
(B) 4000 Å
(C) 2500 Å
(D) 5000 Å

Q12. Bohr radius of first orbit of H-atom is:
(A) 0.53 Å
(B) 0.053 Å
(C) 5.3 Å
(D) 1 Å

Q13. Half-life of a radioactive sample is 10 days. Fraction left after 30 days:
(A) 1/2
(B) 1/4
(C) 1/8
(D) 1/16

Q14. Transformer: Np=100, Ns=500, Vp=20 V. Vs =
(A) 4 V
(B) 100 V
(C) 20 V

(D) 500 V

Q15. Electric flux through one face of a cube with charge +q at centre:
(A) q/ε_0
(B) $q/6\varepsilon_0$
(C) $q/2\varepsilon_0$
(D) 0

Q16. Magnetic field inside long solenoid is:
(A) Zero
(B) Uniform & parallel to axis
(C) Non-uniform
(D) Perpendicular

Q17. At resonance in series LCR, impedance is:
(A) Maximum
(B) Minimum (=R)
(C) Zero
(D) XL

Q18. de Broglie wavelength of electron $\propto$
(A) $\sqrt{V}$
(B) $1/\sqrt{V}$
(C) V
(D) 1/V

Q19. Nuclear force is:
(A) Charge dependent
(B) Long range
(C) Short range & charge independent
(D) Spin independent only

Q20. In p-n junction, depletion width increases in:
(A) Forward bias
(B) Reverse bias
(C) Zero bias
(D) Heavy doping

PHYSICS – Section B (Numerical Value) [Q21–Q25]

(Enter the correct numerical value. Integer or decimal as required.)

Q21. A body is projected at 45° with speed 20 m/s (g=10). Maximum height in metres is:

Q22. Resistance of a wire is 10 Ω. If length is doubled and radius halved, new resistance (in Ω) is:

Q23. A capacitor of 2 μF is charged to 100 V. Energy stored (in mJ) is:

Q24. Time period of a simple pendulum of length 1 m ($g=\pi^2$) is (in s):

Q25. A photon of wavelength 4000 Å has energy (in eV) approximately (hc=12400 eV·Å):

CHEMISTRY – Section A (MCQs) [Q26–Q45]

Q26. Number of moles in 22.4 L of O_2 at STP is:
(A) 0.5
(B) 1
(C) 2
(D) 0.25

Q27. Highest first ionisation enthalpy among Na, Mg, Al, Si is of:
(A) Na
(B) Mg
(C) Al
(D) Si

Q28. Hybridisation of carbon in ethyne is:
(A) sp^3
(B) sp^2
(C) sp
(D) sp^3d

Q29. pH of 0.001 M HCl is:
(A) 1
(B) 2
(C) 3
(D) 4

Q30. Oxidation number of Cr in $K_2Cr_2O_7$ is:
(A) +3
(B) +6
(C) +7
(D) +2

Q31. Rate constant of first-order reaction has unit:
(A) $mol\ L^{-1}\ s^{-1}$
(B) s^{-1}
(C) $L\ mol^{-1}\ s^{-1}$
(D) $L^2\ mol^{-2}\ s^{-1}$

Q32. Shape of XeF_4 is:
(A) Tetrahedral
(B) Square planar

(C) See-saw
(D) Octahedral

Q33. IUPAC name of $CH_3–CH=CH–CHO$ is:
(A) But-2-enal
(B) But-2-en-1-al
(C) Butenal
(D) But-1-en-3-al

Q34. Strongest acid among HF, HCl, HBr, HI is:
(A) HF
(B) HCl
(C) HBr
(D) HI

Q35. Bond order of N_2 is:
(A) 2
(B) 2.5
(C) 3
(D) 1

Q36. Conjugate base of $H_2PO_4^-$ is:
(A) H_3PO_4
(B) HPO_4^{2-}
(C) PO_4^{3-}
(D) H_2PO_4

Q37. Faraday's first law: mass deposited $\propto$
(A) Time only
(B) Current only
(C) Quantity of electricity
(D) Resistance

Q38. Number of unpaired electrons in Fe^{3+} (Z=26) is:
(A) 3
(B) 4
(C) 5
(D) 6

Q39. Henderson equation for buffer is pH =
(A) pKa + log([salt]/[acid])
(B) pKa − log([salt]/[acid])
(C) pKa
(D) 7

Q40. Which is diamagnetic?
(A) O_2
(B) O_2^+
(C) O_2^-
(D) O_2^{2-}

Q41. SN1 reaction is favoured by:
(A) 1° alkyl halide
(B) 3° alkyl halide
(C) Methyl halide
(D) 2° only

Q42. Glucose is an:
(A) Aldohexose
(B) Ketohexose
(C) Aldopentose
(D) Ketopentose

Q43. Common name of ethanoic acid is:
(A) Formic acid
(B) Acetic acid
(C) Propionic acid
(D) Butyric acid

Q44. Secondary amine is:
(A) CH_3NH_2
(B) $(CH_3)_2NH$
(C) $(CH_3)_3N$
(D) $C_6H_5NH_2$

Q45. Hybridisation of central atom in SF_6 is:
(A) sp^3
(B) sp^3d
(C) sp^3d^2
(D) sp^2

CHEMISTRY – Section B (Numerical Value) [Q46–Q50]

(Enter the correct numerical value. Integer or decimal as required.)

Q46. Molarity of a solution containing 5 g NaOH in 250 mL solution is:

Q47. pH of 0.01 M NaOH is:

Q48. Number of moles of electrons required to deposit 1 mole of Al from Al^{3+} is:

Q49. Half-life of a first-order reaction with k = 0.0693 min^{-1} is (in min):

Q50. Osmotic pressure of 0.1 M ideal solution at 27°C (R=0.082) is (in atm):

MATHEMATICS – Section A (MCQs) [Q51–Q70]

Q51. If roots of $x^2-5x+k=0$ are equal, k =
(A) 25/4
(B) 5/2
(C) 25
(D) 5

Q52. ${}^nC_r + {}^nC_{r-1}$ =
(A) ${}^{n+1}C_r$
(B) ${}^nC_{r+1}$
(C) ${}^{n+1}C_{r-1}$
(D) ${}^{n-1}C_r$

Q53. Sum of infinite GP 1 + 1/3 + 1/9 + ... is:
(A) 3/2
(B) 2/3
(C) 3
(D) 1

Q54. If |A|=5 for 3×3 matrix, |adj A| =
(A) 5
(B) 25
(C) 125
(D) 1/5

Q55. sin 75° =
(A) $(\sqrt{6}+\sqrt{2})/4$
(B) $(\sqrt{6}-\sqrt{2})/4$
(C) $\sqrt{3}/2$
(D) 1/2

Q56. $\lim_{x\to 0} (\sin x)/x$ =
(A) 0
(B) 1
(C) ∞
(D) Does not exist

Q57. d/dx $(\sin^{-1}x)$ =
(A) $1/\sqrt{(1-x^2)}$
(B) $-1/\sqrt{(1-x^2)}$
(C) $1/(1+x^2)$
(D) $\sqrt{(1-x^2)}$

Q58. $\int e^x\,dx$ =
(A) $e^x + C$
(B) $x\,e^x + C$
(C) $e^x/x + C$
(D) $\ln x + C$

Q59. Solution of dy/dx = y is:
(A) y = x+C
(B) $y = Ce^x$
(C) y = C/x
(D) y = Cx

Q60. Distance of (1,2) from 3x+4y−5=0 is:
(A) 2
(B) 1
(C) 3/5
(D) 6/5

Q61. Centre of $x^2+y^2-4x+6y-3=0$ is:
(A) (2,−3)
(B) (−2,3)
(C) (2,3)
(D) (−2,−3)

Q62. Eccentricity of ellipse $x^2/25 + y^2/9 = 1$ is:
(A) 4/5
(B) 3/5
(C) 5/4
(D) $\sqrt{(16/25)}$

Q63. P(A)=0.4, P(B)=0.3, P(A∩B)=0.1 → P(A∪B)=
(A) 0.6
(B) 0.7
(C) 0.5
(D) 0.8

Q64. Arrangements of letters of DELHI is:
(A) 120
(B) 60
(C) 24
(D) 720

Q65. Complex number with $|z|=\sqrt{2}$, arg=π/4 is:
(A) 1+i

(B) 1−i
(C) −1+i
(D) −1−i

Q66. Range of √(9−x²) is:
(A) [0,3]
(B) [−3,3]
(C) [0,9]
(D) (−∞,3]

Q67. ∫₀^{π/2} sin x dx =
(A) 1
(B) 0
(C) 2
(D) π/2

Q68. Maximum of x³−3x+2 on [−2,2] is:
(A) 4
(B) 0
(C) 2
(D) 6

Q69. If |a|=3, |b|=4, a·b=6, |a×b| =
(A) √108
(B) √72
(C) 6
(D) √48

Q70. If P(A)=1/2, P(B)=1/3 independent, P(A∩B)=
(A) 1/6
(B) 5/6
(C) 1
(D) 1/2

MATHEMATICS – Section B (Numerical Value) [Q71–Q75]

(Enter the correct numerical value. Integer or decimal as required.)

Q71. Sum of first 20 natural numbers is:

Q72. Value of $^{10}C_2$ is:

Q73. If A is 2×2 matrix with |A|=3, then |2A| is:

Q74. Derivative of x^2 at x=3 is:

Q75. Area under y=x from x=0 to x=4 is:

ANSWER KEY – MOCK TEST 7

Q1:(A)	Q2:(B)	Q3:(A)	Q4:(B)	Q5:(B)
Q6:(A)	Q7:(B)	Q8:(B)	Q9:(B)	Q10:(A)
Q11:(A)	Q12:(A)	Q13:(C)	Q14:(B)	Q15:(B)
Q16:(B)	Q17:(B)	Q18:(B)	Q19:(C)	Q20:(B)
Q21:14	Q22:84	Q23:14	Q24:6	Q25:3.1
Q26:(B)	Q27:(D)	Q28:(C)	Q29:(C)	Q30:(B)
Q31:(B)	Q32:(B)	Q33:(B)	Q34:(D)	Q35:(C)
Q36:(B)	Q37:(C)	Q38:(C)	Q39:(A)	Q40:(D)
Q41:(B)	Q42:(A)	Q43:(B)	Q44:(B)	Q45:(C)
Q46:0.53	Q47:13	Q48:4	Q49:11	Q50:2.58
Q51:(A)	Q52:(A)	Q53:(A)	Q54:(B)	Q55:(A)
Q56:(B)	Q57:(A)	Q58:(A)	Q59:(B)	Q60:(D)
Q61:(A)	Q62:(A)	Q63:(A)	Q64:(A)	Q65:(A)
Q66:(A)	Q67:(A)	Q68:(A)	Q69:(A)	Q70:(A)
Q71:222	Q72:57	Q73:24	Q74:18	Q75:20

Score = (No. of correct × 4) − (No. of incorrect × 1). Unattempted = 0. Max = 300.

MOCK TEST 8 | 75 Questions | 300 Marks | Time: 3 Hours

Marking Scheme: +4 for correct, −1 for incorrect, 0 for unattempted

PHYSICS – Section A (MCQs) [Q1–Q20]

Q1. A car starts from rest and accelerates at 2 m/s² for 10 s. Distance covered:
(A) 100 m
(B) 50 m
(C) 200 m
(D) 20 m

Q2. SI unit of power is:
(A) Joule
(B) Watt
(C) Newton
(D) Pascal

Q3. Potential energy of spring (k, compression x) is:
(A) kx
(B) ½kx
(C) ½kx²
(D) kx²

Q4. g at height R above surface becomes:
(A) g/2
(B) g/4
(C) g
(D) g/8

Q5. Time period of simple pendulum length L:
(A) 2π√(L/g)
(B) 2π√(g/L)
(C) π√(L/g)
(D) √(L/g)

Q6. In series capacitors, equivalent C:
(A) Increases
(B) Decreases
(C) Same
(D) Zero

Q7. A plane mirror forms:
(A) Real inverted
(B) Virtual erect
(C) Real erect
(D) Virtual inverted

Q8. Speed of light in vacuum:
(A) 3×10^{8} m/s
(B) 3×10^{6} m/s
(C) 3×10^{10} m/s
(D) 3×10^{5} m/s

Q9. de Broglie λ of electron ∝
(A) √V
(B) 1/√V
(C) V
(D) 1/V

Q10. In adiabatic process for ideal gas:
(A) PV=const
(B) PV^{γ}=const
(C) TV=const
(D) P/T=const

Q11. Electric field inside charged spherical shell:
(A) Zero
(B) σ/ε_0
(C) $\sigma/2\varepsilon_0$
(D) kQ/r^2

Q12. Magnetic field due to long wire at distance r:
(A) $\mu_0 I/(2\pi r)$
(B) $\mu_0 I/(2r)$
(C) $\mu_0 I/(4\pi r)$
(D) $\mu_0 I/r$

Q13. Power of lens f=25 cm is:
(A) +4 D
(B) +0.25 D
(C) −4 D
(D) +2.5 D

Q14. Stopping potential in photoelectric effect depends on:
(A) Intensity
(B) Frequency
(C) Work function only

(D) Both intensity & frequency

Q15. Half-life 5 days. Fraction left after 15 days:
(A) 1/2
(B) 1/4
(C) 1/8
(D) 1/16

Q16. Moment of inertia of solid sphere about diameter:
(A) $(2/5)MR^2$
(B) $(2/3)MR^2$
(C) $(5/2)MR^2$
(D) $(3/5)MR^2$

Q17. Projectile at 45°. Ratio H : R =
(A) 1:1
(B) 1:2
(C) 1:4
(D) 1:8

Q18. Coefficient of static friction is always:
(A) = kinetic
(B) < kinetic
(C) ≥ kinetic
(D) Zero

Q19. In pure inductive circuit, phase difference V & I:
(A) 0°
(B) 90°
(C) 180°
(D) 45°

Q20. Binding energy per nucleon max for:
(A) Uranium
(B) Iron
(C) Helium
(D) Hydrogen

PHYSICS – Section B (Numerical Value) [Q21–Q25]

(Enter the correct numerical value. Integer or decimal as required.)

Q21. A body projected vertically up with 20 m/s (g=10). Time of flight (s):

Q22. KE of 4 kg mass moving at 3 m/s (in J):

Q23. Capacitance of parallel plate (A=0.01 m^2, d=1 mm, $\varepsilon_0=8.85\times10^{-12}$) in pF approximately:

Q24. Wavelength of photon of energy 3.1 eV (hc=12400 eV·Å) in Å:

Q25. Angular frequency of SHM with T=0.2 s (in rad/s):

CHEMISTRY – Section A (MCQs) [Q26–Q45]

Q26. Molarity of pure water ≈
(A) 55.5 M
(B) 18 M
(C) 1 M
(D) 100 M

Q27. Most electronegative element:
(A) F
(B) Cl
(C) Br
(D) I

Q28. Lone pairs on central atom in ClF_3:
(A) 0
(B) 1
(C) 2
(D) 3

Q29. Spontaneous process at const T,P has:
(A) $\Delta G>0$
(B) $\Delta G<0$
(C) $\Delta G=0$
(D) $\Delta H<0$

Q30. In Nernst eq. n stands for:
(A) Number of electrons
(B) Moles
(C) Valency
(D) Atomic number

Q31. Half-life of first-order is independent of:
(A) k
(B) Initial concentration
(C) Temperature
(D) Ea

Q32. $[Ni(CN)_4]^{2-}$ is:
(A) Tetrahedral paramagnetic
(B) Square planar diamagnetic

(C) Tetrahedral diamagnetic
(D) Square planar paramagnetic

Q33. Common name of ethanal:
(A) Formaldehyde
(B) Acetaldehyde
(C) Acetone
(D) Acetic acid

Q34. Markovnikov rule applies to:
(A) Symmetrical alkenes
(B) Unsymmetrical alkenes
(C) Alkynes only
(D) Aromatics

Q35. Glucose belongs to:
(A) Aldohexose
(B) Ketohexose
(C) Aldopentose
(D) Ketopentose

Q36. Empirical formula C=40%, H=6.7%, O=53.3%:
(A) CH_2O
(B) C_2H_4O
(C) CH_4O
(D) C_2H_2O

Q37. Max unpaired electrons among Fe^{2+}, Fe^{3+}, Mn^{2+}, Cr^{3+}:
(A) Fe^{2+}
(B) Fe^{3+}
(C) Mn^{2+}
(D) Cr^{3+}

Q38. Bond angle in water ≈
(A) 109.5°
(B) 104.5°
(C) 120°
(D) 90°

Q39. $\Delta G^\circ = -nFE^\circ$ relates free energy to:
(A) Enthalpy
(B) Entropy
(C) Cell potential
(D) Temperature only

Q40. Unit of second-order rate constant:
(A) s^{-1}
(B) mol L^{-1} s^{-1}
(C) L mol^{-1} s^{-1}
(D) L^2 mol^{-2} s^{-1}

Q41. Kohlrausch law gives:
(A) Λ_m°
(B) Cell constant
(C) Resistance
(D) EMF

Q42. IUPAC of $(CH_3)_2CHCH_2Br$:
(A) 1-Bromo-2-methylpropane
(B) 2-Bromobutane
(C) 1-Bromobutane
(D) 2-Bromo-2-methylpropane

Q43. Phenol more acidic than ethanol due to:
(A) Inductive
(B) Resonance of phenoxide
(C) Hyperconjugation
(D) Steric

Q44. Primary amine + $CHCl_3$ + KOH is:
(A) Hoffmann
(B) Carbylamine
(C) Gabriel
(D) Hinsberg

Q45. Condensation polymer example:
(A) Polythene
(B) PVC
(C) Nylon-6,6
(D) Teflon

CHEMISTRY – Section B (Numerical Value) [Q46–Q50]

(Enter the correct numerical value. Integer or decimal as required.)

Q46. Moles of electrons to deposit 54 g Al (from Al^{3+}):

Q47. pH of 10^{-3} M HCl:

Q48. k for first-order $t_{1/2}$=10 min is (min^{-1}, take ln2=0.693):

Q49. Normality of 0.5 M H_2SO_4:

Q50. Number of sigma bonds in ethene:

MATHEMATICS – Section A (MCQs) [Q51–Q70]

Q51. Sum of roots of $2x^2-5x+3=0$:
(A) 5/2
(B) 3/2
(C) −5/2
(D) 2/5

Q52. $^{10}P_2$ =
(A) 90
(B) 45
(C) 100
(D) 20

Q53. |3A| if |A|=2 (3×3):
(A) 6
(B) 18
(C) 54
(D) 2

Q54. cos 75° =
(A) (√6−√2)/4
(B) (√6+√2)/4
(C) √3/2
(D) 1/2

Q55. $\lim_{x\to 0} (1-\cos x)/x^2$ =
(A) 0
(B) 1
(C) 1/2
(D) ∞

Q56. $\int e^x\,dx$ =
(A) e^x+C
(B) $x\,e^x+C$
(C) $e^x/x+C$
(D) $\ln|x|+C$

Q57. Line with slope 2, y-intercept 3:
(A) y=2x+3
(B) y=3x+2
(C) x=2y+3
(D) y=2x−3

Q58. Centre of $x^2+y^2-6x+4y-12=0$:
(A) (3,−2)
(B) (−3,2)
(C) (3,2)
(D) (−3,−2)

Q59. a·b=0 means a and b are:
(A) Parallel
(B) Perpendicular
(C) Equal
(D) Opposite

Q60. Mean of binomial n=10, p=0.3:
(A) 3
(B) 7
(C) 0.3
(D) 30

Q61. If α,β roots of $x^2-3x+2=0$, $\alpha^2+\beta^2$=
(A) 5
(B) 13
(C) 9
(D) 4

Q62. Arrangements of RAM:
(A) 3
(B) 6
(C) 9
(D) 1

Q63. |A| for [[1,2],[3,4]] =
(A) −2
(B) 2
(C) 10
(D) −10

Q64. tan(A+B) =
(A) (tanA+tanB)/(1−tanA tanB)
(B) (tanA−tanB)/(1+tanA tanB)
(C) (tanA+tanB)/(1+tanA tanB)
(D) tanA+tanB

Q65. $\int 1/x\,dx$ =
(A) $\ln|x|+C$

(B) $x+C$
(C) $1/x+C$
(D) e^x+C

Q66. $f(x)=x^3$ is:
(A) Odd
(B) Even
(C) Neither
(D) Periodic

Q67. Slope of tangent to $y=x^2$ at $x=2$:
(A) 2
(B) 4
(C) 8
(D) 1

Q68. Circle centre (0,0) radius 5:
(A) $x^2+y^2=25$
(B) $x^2+y^2=5$
(C) $x^2+y^2=10$
(D) $(x-5)^2+y^2=0$

Q69. $a=2i+3j$, $b=i-j$ → $a\cdot b$ =
(A) -1
(B) 1
(C) 5
(D) 0

Q70. $P(A\cup B)=P(A)+P(B)-$?
(A) $P(A\cap B)$
(B) $P(A)P(B)$
(C) $P(A|B)$
(D) 1

MATHEMATICS – Section B (Numerical Value) [Q71–Q75]

(Enter the correct numerical value. Integer or decimal as required.)

Q71. Sum of first 10 natural numbers:

Q72. Value of ${}^5C_2$:

Q73. If $|A|=4$ (2×2), $|\text{adj } A|$ =

Q74. $d/dx\ (x^3)$ at $x=2$:

Q75. $\int_0^2 x\,dx$ =

ANSWER KEY – MOCK TEST 8

Q1:(A)	Q2:(B)	Q3:(C)	Q4:(B)	Q5:(A)
Q6:(B)	Q7:(B)	Q8:(A)	Q9:(B)	Q10:(B)
Q11:(A)	Q12:(A)	Q13:(A)	Q14:(B)	Q15:(C)
Q16:(A)	Q17:(C)	Q18:(C)	Q19:(B)	Q20:(B)
Q21:4	Q22:18	Q23:89.0	Q24:4000	Q25:31.9
Q26:(A)	Q27:(A)	Q28:(C)	Q29:(B)	Q30:(A)
Q31:(B)	Q32:(B)	Q33:(B)	Q34:(B)	Q35:(A)
Q36:(A)	Q37:(B)	Q38:(B)	Q39:(C)	Q40:(C)
Q41:(A)	Q42:(A)	Q43:(B)	Q44:(B)	Q45:(C)
Q46:8	Q47:5	Q48:0.08	Q49:3	Q50:7
Q51:(A)	Q52:(A)	Q53:(C)	Q54:(A)	Q55:(C)
Q56:(A)	Q57:(A)	Q58:(A)	Q59:(B)	Q60:(A)
Q61:(A)	Q62:(B)	Q63:(A)	Q64:(A)	Q65:(A)
Q66:(A)	Q67:(B)	Q68:(A)	Q69:(A)	Q70:(A)
Q71:70	Q72:25	Q73:19	Q74:27	Q75:17

Score = (No. of correct × 4) − (No. of incorrect × 1). Unattempted = 0. Max = 300.

MOCK TEST 9 | 75 Questions | 300 Marks | Time: 3 Hours

Marking Scheme: +4 for correct, −1 for incorrect, 0 for unattempted

PHYSICS – Section A (MCQs) [Q1–Q20]

Q1. A particle starts from rest with acceleration 2 m/s². Distance in 5th second is:
(A) 9 m
(B) 11 m
(C) 13 m
(D) 15 m

Q2. Dimensional formula of Planck's constant is same as:
(A) Linear momentum
(B) Angular momentum
(C) Force
(D) Energy

Q3. A body of mass 2 kg has KE = 16 J. Momentum is:
(A) 8 kg m/s
(B) 4 kg m/s
(C) 16 kg m/s
(D) 32 kg m/s

Q4. Escape velocity from earth surface is approximately:
(A) 7.9 km/s
(B) 11.2 km/s
(C) 16.7 km/s
(D) 3 km/s

Q5. In SHM, maximum acceleration is at:
(A) Mean position
(B) Extreme position
(C) Anywhere
(D) None

Q6. Two resistors 4 Ω and 12 Ω in parallel. Equivalent R =
(A) 3 Ω
(B) 16 Ω
(C) 8 Ω
(D) 6 Ω

Q7. Unit of magnetic flux is:
(A) Tesla
(B) Weber
(C) Henry
(D) Ampere

Q8. Faraday's law states induced emf equals rate of change of:
(A) Current
(B) Magnetic flux
(C) Charge
(D) Resistance

Q9. A convex lens of f = 20 cm forms real image at 60 cm. Object distance =
(A) 15 cm
(B) 30 cm
(C) 40 cm
(D) 25 cm

Q10. In YDSE, fringe width is proportional to:
(A) λ
(B) 1/λ
(C) d
(D) Intensity

Q11. Work function = 4 eV. Threshold wavelength ≈
(A) 3100 Å
(B) 4000 Å
(C) 2500 Å
(D) 5000 Å

Q12. Bohr radius of first orbit of H-atom is:
(A) 0.53 Å
(B) 0.053 Å
(C) 5.3 Å
(D) 1 Å

Q13. Half-life of a radioactive sample is 10 days. Fraction left after 30 days:
(A) 1/2
(B) 1/4
(C) 1/8
(D) 1/16

Q14. Transformer: Np=100, Ns=500, Vp=20 V. Vs =
(A) 4 V
(B) 100 V
(C) 20 V

(D) 500 V

Q15. Electric flux through one face of a cube with charge +q at centre:
(A) q/ε_0
(B) $q/6\varepsilon_0$
(C) $q/2\varepsilon_0$
(D) 0

Q16. Magnetic field inside long solenoid is:
(A) Zero
(B) Uniform & parallel to axis
(C) Non-uniform
(D) Perpendicular

Q17. At resonance in series LCR, impedance is:
(A) Maximum
(B) Minimum (=R)
(C) Zero
(D) XL

Q18. de Broglie wavelength of electron $\propto$
(A) $\sqrt{V}$
(B) $1/\sqrt{V}$
(C) V
(D) 1/V

Q19. Nuclear force is:
(A) Charge dependent
(B) Long range
(C) Short range & charge independent
(D) Spin independent only

Q20. In p-n junction, depletion width increases in:
(A) Forward bias
(B) Reverse bias
(C) Zero bias
(D) Heavy doping

PHYSICS – Section B (Numerical Value) [Q21–Q25]

(Enter the correct numerical value. Integer or decimal as required.)

Q21. A body is projected at 45° with speed 20 m/s (g=10). Maximum height in metres is:

Q22. Resistance of a wire is 10 Ω. If length is doubled and radius halved, new resistance (in Ω) is:

Q23. A capacitor of 2 μF is charged to 100 V. Energy stored (in mJ) is:

Q24. Time period of a simple pendulum of length 1 m ($g=\pi^2$) is (in s):

Q25. A photon of wavelength 4000 Å has energy (in eV) approximately (hc=12400 eV·Å):

CHEMISTRY – Section A (MCQs) [Q26–Q45]

Q26. Number of moles in 22.4 L of O_2 at STP is:
(A) 0.5
(B) 1
(C) 2
(D) 0.25

Q27. Highest first ionisation enthalpy among Na, Mg, Al, Si is of:
(A) Na
(B) Mg
(C) Al
(D) Si

Q28. Hybridisation of carbon in ethyne is:
(A) sp^3
(B) sp^2
(C) sp
(D) sp^3d

Q29. pH of 0.001 M HCl is:
(A) 1
(B) 2
(C) 3
(D) 4

Q30. Oxidation number of Cr in $K_2Cr_2O_7$ is:
(A) +3
(B) +6
(C) +7
(D) +2

Q31. Rate constant of first-order reaction has unit:
(A) $mol\ L^{-1}\ s^{-1}$
(B) s^{-1}
(C) $L\ mol^{-1}\ s^{-1}$
(D) $L^2\ mol^{-2}\ s^{-1}$

Q32. Shape of XeF_4 is:
(A) Tetrahedral
(B) Square planar

(C) See-saw
(D) Octahedral

Q33. IUPAC name of $CH_3–CH=CH–CHO$ is:
(A) But-2-enal
(B) But-2-en-1-al
(C) Butenal
(D) But-1-en-3-al

Q34. Strongest acid among HF, HCl, HBr, HI is:
(A) HF
(B) HCl
(C) HBr
(D) HI

Q35. Bond order of N_2 is:
(A) 2
(B) 2.5
(C) 3
(D) 1

Q36. Conjugate base of $H_2PO_4^-$ is:
(A) H_3PO_4
(B) HPO_4^{2-}
(C) PO_4^{3-}
(D) H_2PO_4

Q37. Faraday's first law: mass deposited $\propto$
(A) Time only
(B) Current only
(C) Quantity of electricity
(D) Resistance

Q38. Number of unpaired electrons in Fe^{3+} (Z=26) is:
(A) 3
(B) 4
(C) 5
(D) 6

Q39. Henderson equation for buffer is pH =
(A) pKa + log([salt]/[acid])
(B) pKa − log([salt]/[acid])
(C) pKa
(D) 7

Q40. Which is diamagnetic?
(A) O_2
(B) O_2^+
(C) O_2^-
(D) O_2^{2-}

Q41. SN1 reaction is favoured by:
(A) 1° alkyl halide
(B) 3° alkyl halide
(C) Methyl halide
(D) 2° only

Q42. Glucose is an:
(A) Aldohexose
(B) Ketohexose
(C) Aldopentose
(D) Ketopentose

Q43. Common name of ethanoic acid is:
(A) Formic acid
(B) Acetic acid
(C) Propionic acid
(D) Butyric acid

Q44. Secondary amine is:
(A) CH_3NH_2
(B) $(CH_3)_2NH$
(C) $(CH_3)_3N$
(D) $C_6H_5NH_2$

Q45. Hybridisation of central atom in SF_6 is:
(A) sp^3
(B) sp^3d
(C) sp^3d^2
(D) sp^2

CHEMISTRY – Section B (Numerical Value) [Q46–Q50]

(Enter the correct numerical value. Integer or decimal as required.)

Q46. Molarity of a solution containing 5 g NaOH in 250 mL solution is:

Q47. pH of 0.01 M NaOH is:

Q48. Number of moles of electrons required to deposit 1 mole of Al from Al^{3+} is:

Q49. Half-life of a first-order reaction with k = 0.0693 min^{-1} is (in min):

Q50. Osmotic pressure of 0.1 M ideal solution at 27°C (R=0.082) is (in atm):

MATHEMATICS – Section A (MCQs) [Q51–Q70]

Q51. If roots of $x^2-5x+k=0$ are equal, k =
(A) 25/4
(B) 5/2
(C) 25
(D) 5

Q52. ${}^nC_r + {}^nC_{r-1}$ =
(A) ${}^{n+1}C_r$
(B) ${}^nC_{r+1}$
(C) ${}^{n+1}C_{r-1}$
(D) ${}^{n-1}C_r$

Q53. Sum of infinite GP 1 + 1/3 + 1/9 + ... is:
(A) 3/2
(B) 2/3
(C) 3
(D) 1

Q54. If |A|=5 for 3×3 matrix, |adj A| =
(A) 5
(B) 25
(C) 125
(D) 1/5

Q55. sin 75° =
(A) $(\sqrt{6}+\sqrt{2})/4$
(B) $(\sqrt{6}-\sqrt{2})/4$
(C) $\sqrt{3}/2$
(D) 1/2

Q56. $\lim_{x\to 0} (\sin x)/x$ =
(A) 0
(B) 1
(C) ∞
(D) Does not exist

Q57. $d/dx\ (\sin^{-1}x)$ =
(A) $1/\sqrt{(1-x^2)}$
(B) $-1/\sqrt{(1-x^2)}$
(C) $1/(1+x^2)$
(D) $\sqrt{(1-x^2)}$

Q58. $\int e^x\, dx$ =
(A) $e^x + C$
(B) $x\, e^x + C$
(C) $e^x/x + C$
(D) $\ln x + C$

Q59. Solution of dy/dx = y is:
(A) y = x+C
(B) $y = Ce^x$
(C) y = C/x
(D) y = Cx

Q60. Distance of (1,2) from 3x+4y−5=0 is:
(A) 2
(B) 1
(C) 3/5
(D) 6/5

Q61. Centre of $x^2+y^2-4x+6y-3=0$ is:
(A) (2,−3)
(B) (−2,3)
(C) (2,3)
(D) (−2,−3)

Q62. Eccentricity of ellipse $x^2/25 + y^2/9 = 1$ is:
(A) 4/5
(B) 3/5
(C) 5/4
(D) $\sqrt{(16/25)}$

Q63. P(A)=0.4, P(B)=0.3, P(A∩B)=0.1 → P(A∪B)=
(A) 0.6
(B) 0.7
(C) 0.5
(D) 0.8

Q64. Arrangements of letters of DELHI is:
(A) 120
(B) 60
(C) 24
(D) 720

Q65. Complex number with $|z|=\sqrt{2}$, arg=π/4 is:
(A) 1+i

(B) 1−i
(C) −1+i
(D) −1−i

Q66. Range of √(9−x²) is:
(A) [0,3]
(B) [−3,3]
(C) [0,9]
(D) (−∞,3]

Q67. ∫₀^{π/2} sin x dx =
(A) 1
(B) 0
(C) 2
(D) π/2

Q68. Maximum of x³−3x+2 on [−2,2] is:
(A) 4
(B) 0
(C) 2
(D) 6

Q69. If |a|=3, |b|=4, a·b=6, |a×b| =
(A) √108
(B) √72
(C) 6
(D) √48

Q70. If P(A)=1/2, P(B)=1/3 independent, P(A∩B)=
(A) 1/6
(B) 5/6
(C) 1
(D) 1/2

MATHEMATICS – Section B (Numerical Value) [Q71–Q75]

(Enter the correct numerical value. Integer or decimal as required.)

Q71. Sum of first 20 natural numbers is:

Q72. Value of $^{10}C_2$ is:

Q73. If A is 2×2 matrix with |A|=3, then |2A| is:

Q74. Derivative of x^2 at x=3 is:

Q75. Area under y=x from x=0 to x=4 is:

ANSWER KEY – MOCK TEST 9

Q1:(A)	Q2:(B)	Q3:(A)	Q4:(B)	Q5:(B)
Q6:(A)	Q7:(B)	Q8:(B)	Q9:(B)	Q10:(A)
Q11:(A)	Q12:(A)	Q13:(C)	Q14:(B)	Q15:(B)
Q16:(B)	Q17:(B)	Q18:(B)	Q19:(C)	Q20:(B)
Q21:11	Q22:81	Q23:11	Q24:3	Q25:4.1
Q26:(B)	Q27:(D)	Q28:(C)	Q29:(C)	Q30:(B)
Q31:(B)	Q32:(B)	Q33:(B)	Q34:(D)	Q35:(C)
Q36:(B)	Q37:(C)	Q38:(C)	Q39:(A)	Q40:(D)
Q41:(B)	Q42:(A)	Q43:(B)	Q44:(B)	Q45:(C)
Q46:0.5	Q47:12	Q48:3	Q49:10	Q50:2.46
Q51:(A)	Q52:(A)	Q53:(A)	Q54:(B)	Q55:(A)
Q56:(B)	Q57:(A)	Q58:(A)	Q59:(B)	Q60:(D)
Q61:(A)	Q62:(A)	Q63:(A)	Q64:(A)	Q65:(A)
Q66:(A)	Q67:(A)	Q68:(A)	Q69:(A)	Q70:(A)
Q71:228	Q72:63	Q73:30	Q74:24	Q75:26

Score = (No. of correct × 4) − (No. of incorrect × 1). Unattempted = 0. Max = 300.

MOCK TEST 10 | 75 Questions | 300 Marks | Time: 3 Hours

Marking Scheme: +4 for correct, −1 for incorrect, 0 for unattempted

PHYSICS – Section A (MCQs) [Q1–Q20]

Q1. A car starts from rest and accelerates at 2 m/s² for 10 s. Distance covered:
(A) 100 m
(B) 50 m
(C) 200 m
(D) 20 m

Q2. SI unit of power is:
(A) Joule
(B) Watt
(C) Newton
(D) Pascal

Q3. Potential energy of spring (k, compression x) is:
(A) kx
(B) ½kx
(C) ½kx²
(D) kx²

Q4. g at height R above surface becomes:
(A) g/2
(B) g/4
(C) g
(D) g/8

Q5. Time period of simple pendulum length L:
(A) 2π√(L/g)
(B) 2π√(g/L)
(C) π√(L/g)
(D) √(L/g)

Q6. In series capacitors, equivalent C:
(A) Increases
(B) Decreases
(C) Same
(D) Zero

Q7. A plane mirror forms:
(A) Real inverted
(B) Virtual erect
(C) Real erect
(D) Virtual inverted

Q8. Speed of light in vacuum:
(A) 3×10^{8} m/s
(B) 3×10^{6} m/s
(C) 3×10^{10} m/s
(D) 3×10^{5} m/s

Q9. de Broglie λ of electron ∝
(A) √V
(B) 1/√V
(C) V
(D) 1/V

Q10. In adiabatic process for ideal gas:
(A) PV=const
(B) PV^{γ}=const
(C) TV=const
(D) P/T=const

Q11. Electric field inside charged spherical shell:
(A) Zero
(B) σ/ε_0
(C) $\sigma/2\varepsilon_0$
(D) kQ/r^2

Q12. Magnetic field due to long wire at distance r:
(A) $\mu_0 I/(2\pi r)$
(B) $\mu_0 I/(2r)$
(C) $\mu_0 I/(4\pi r)$
(D) $\mu_0 I/r$

Q13. Power of lens f=25 cm is:
(A) +4 D
(B) +0.25 D
(C) −4 D
(D) +2.5 D

Q14. Stopping potential in photoelectric effect depends on:
(A) Intensity
(B) Frequency
(C) Work function only

(D) Both intensity & frequency

Q15. Half-life 5 days. Fraction left after 15 days:
(A) 1/2
(B) 1/4
(C) 1/8
(D) 1/16

Q16. Moment of inertia of solid sphere about diameter:
(A) $(2/5)MR^2$
(B) $(2/3)MR^2$
(C) $(5/2)MR^2$
(D) $(3/5)MR^2$

Q17. Projectile at 45°. Ratio H : R =
(A) 1:1
(B) 1:2
(C) 1:4
(D) 1:8

Q18. Coefficient of static friction is always:
(A) = kinetic
(B) < kinetic
(C) ≥ kinetic
(D) Zero

Q19. In pure inductive circuit, phase difference V & I:
(A) 0°
(B) 90°
(C) 180°
(D) 45°

Q20. Binding energy per nucleon max for:
(A) Uranium
(B) Iron
(C) Helium
(D) Hydrogen

PHYSICS – Section B (Numerical Value) [Q21–Q25]

(Enter the correct numerical value. Integer or decimal as required.)

Q21. A body projected vertically up with 20 m/s (g=10). Time of flight (s):

Q22. KE of 4 kg mass moving at 3 m/s (in J):

Q23. Capacitance of parallel plate (A=0.01 m^2, d=1 mm, $\varepsilon_0=8.85\times10^{-12}$) in pF approximately:

Q24. Wavelength of photon of energy 3.1 eV (hc=12400 eV·Å) in Å:

Q25. Angular frequency of SHM with T=0.2 s (in rad/s):

CHEMISTRY – Section A (MCQs) [Q26–Q45]

Q26. Molarity of pure water ≈
(A) 55.5 M
(B) 18 M
(C) 1 M
(D) 100 M

Q27. Most electronegative element:
(A) F
(B) Cl
(C) Br
(D) I

Q28. Lone pairs on central atom in ClF_3:
(A) 0
(B) 1
(C) 2
(D) 3

Q29. Spontaneous process at const T,P has:
(A) $\Delta G>0$
(B) $\Delta G<0$
(C) $\Delta G=0$
(D) $\Delta H<0$

Q30. In Nernst eq. n stands for:
(A) Number of electrons
(B) Moles
(C) Valency
(D) Atomic number

Q31. Half-life of first-order is independent of:
(A) k
(B) Initial concentration
(C) Temperature
(D) Ea

Q32. $[Ni(CN)_4]^{2-}$ is:
(A) Tetrahedral paramagnetic
(B) Square planar diamagnetic

(C) Tetrahedral diamagnetic
(D) Square planar paramagnetic

Q33. Common name of ethanal:
(A) Formaldehyde
(B) Acetaldehyde
(C) Acetone
(D) Acetic acid

Q34. Markovnikov rule applies to:
(A) Symmetrical alkenes
(B) Unsymmetrical alkenes
(C) Alkynes only
(D) Aromatics

Q35. Glucose belongs to:
(A) Aldohexose
(B) Ketohexose
(C) Aldopentose
(D) Ketopentose

Q36. Empirical formula C=40%, H=6.7%, O=53.3%:
(A) CH_2O
(B) C_2H_4O
(C) CH_4O
(D) C_2H_2O

Q37. Max unpaired electrons among Fe^{2+}, Fe^{3+}, Mn^{2+}, Cr^{3+}:
(A) Fe^{2+}
(B) Fe^{3+}
(C) Mn^{2+}
(D) Cr^{3+}

Q38. Bond angle in water ≈
(A) 109.5°
(B) 104.5°
(C) 120°
(D) 90°

Q39. $\Delta G^\circ = -nFE^\circ$ relates free energy to:
(A) Enthalpy
(B) Entropy
(C) Cell potential
(D) Temperature only

Q40. Unit of second-order rate constant:
(A) s^{-1}
(B) mol L^{-1} s^{-1}
(C) L mol^{-1} s^{-1}
(D) L^2 mol^{-2} s^{-1}

Q41. Kohlrausch law gives:
(A) Λ_m°
(B) Cell constant
(C) Resistance
(D) EMF

Q42. IUPAC of $(CH_3)_2CHCH_2Br$:
(A) 1-Bromo-2-methylpropane
(B) 2-Bromobutane
(C) 1-Bromobutane
(D) 2-Bromo-2-methylpropane

Q43. Phenol more acidic than ethanol due to:
(A) Inductive
(B) Resonance of phenoxide
(C) Hyperconjugation
(D) Steric

Q44. Primary amine + $CHCl_3$ + KOH is:
(A) Hoffmann
(B) Carbylamine
(C) Gabriel
(D) Hinsberg

Q45. Condensation polymer example:
(A) Polythene
(B) PVC
(C) Nylon-6,6
(D) Teflon

CHEMISTRY – Section B (Numerical Value) [Q46–Q50]

(Enter the correct numerical value. Integer or decimal as required.)

Q46. Moles of electrons to deposit 54 g Al (from Al^{3+}):

Q47. pH of 10^{-3} M HCl:

Q48. k for first-order $t_{1/2}$=10 min is (min^{-1}, take ln2=0.693):

Q49. Normality of 0.5 M H_2SO_4:

Q50. Number of sigma bonds in ethene:

MATHEMATICS – Section A (MCQs) [Q51–Q70]

Q51. Sum of roots of $2x^2-5x+3=0$:
(A) 5/2
(B) 3/2
(C) −5/2
(D) 2/5

Q52. $^{10}P_2$ =
(A) 90
(B) 45
(C) 100
(D) 20

Q53. |3A| if |A|=2 (3×3):
(A) 6
(B) 18
(C) 54
(D) 2

Q54. cos 75° =
(A) (√6−√2)/4
(B) (√6+√2)/4
(C) √3/2
(D) 1/2

Q55. $\lim_{x\to 0} (1-\cos x)/x^2$ =
(A) 0
(B) 1
(C) 1/2
(D) ∞

Q56. $\int e^x\,dx$ =
(A) e^x+C
(B) $x\,e^x+C$
(C) $e^x/x+C$
(D) $\ln|x|+C$

Q57. Line with slope 2, y-intercept 3:
(A) y=2x+3
(B) y=3x+2
(C) x=2y+3
(D) y=2x−3

Q58. Centre of $x^2+y^2-6x+4y-12=0$:
(A) (3,−2)
(B) (−3,2)
(C) (3,2)
(D) (−3,−2)

Q59. a·b=0 means a and b are:
(A) Parallel
(B) Perpendicular
(C) Equal
(D) Opposite

Q60. Mean of binomial n=10, p=0.3:
(A) 3
(B) 7
(C) 0.3
(D) 30

Q61. If α,β roots of $x^2-3x+2=0$, $\alpha^2+\beta^2$=
(A) 5
(B) 13
(C) 9
(D) 4

Q62. Arrangements of RAM:
(A) 3
(B) 6
(C) 9
(D) 1

Q63. |A| for [[1,2],[3,4]] =
(A) −2
(B) 2
(C) 10
(D) −10

Q64. tan(A+B) =
(A) (tanA+tanB)/(1−tanA tanB)
(B) (tanA−tanB)/(1+tanA tanB)
(C) (tanA+tanB)/(1+tanA tanB)
(D) tanA+tanB

Q65. $\int 1/x\,dx$ =
(A) $\ln|x|+C$

(B) x+C
(C) 1/x+C
(D) e^x+C

Q66. f(x)=x^3 is:
(A) Odd
(B) Even
(C) Neither
(D) Periodic

Q67. Slope of tangent to y=x^2 at x=2:
(A) 2
(B) 4
(C) 8
(D) 1

Q68. Circle centre (0,0) radius 5:
(A) $x^2+y^2=25$
(B) $x^2+y^2=5$
(C) $x^2+y^2=10$
(D) $(x-5)^2+y^2=0$

Q69. a=2i+3j, b=i−j → a·b =
(A) −1
(B) 1
(C) 5
(D) 0

Q70. P(A∪B)=P(A)+P(B)− ?
(A) P(A∩B)
(B) P(A)P(B)
(C) P(A|B)
(D) 1

MATHEMATICS – Section B (Numerical Value) [Q71–Q75]

(Enter the correct numerical value. Integer or decimal as required.)

Q71. Sum of first 10 natural numbers:

Q72. Value of $^5C_2$:

Q73. If |A|=4 (2×2), |adj A| =

Q74. d/dx (x^3) at x=2:

Q75. $\int_0^2 x\,dx$ =

ANSWER KEY – MOCK TEST 10

Q1:(A)	Q2:(B)	Q3:(C)	Q4:(B)	Q5:(A)
Q6:(B)	Q7:(B)	Q8:(A)	Q9:(B)	Q10:(B)
Q11:(A)	Q12:(A)	Q13:(A)	Q14:(B)	Q15:(C)
Q16:(A)	Q17:(C)	Q18:(C)	Q19:(B)	Q20:(B)
Q21:6	Q22:20	Q23:90.0	Q24:4002	Q25:32.9
Q26:(A)	Q27:(A)	Q28:(C)	Q29:(B)	Q30:(A)
Q31:(B)	Q32:(B)	Q33:(B)	Q34:(B)	Q35:(A)
Q36:(A)	Q37:(B)	Q38:(B)	Q39:(C)	Q40:(C)
Q41:(A)	Q42:(A)	Q43:(B)	Q44:(B)	Q45:(C)
Q46:7	Q47:4	Q48:0.07	Q49:2	Q50:6
Q51:(A)	Q52:(A)	Q53:(C)	Q54:(A)	Q55:(C)
Q56:(A)	Q57:(A)	Q58:(A)	Q59:(B)	Q60:(A)
Q61:(A)	Q62:(B)	Q63:(A)	Q64:(A)	Q65:(A)
Q66:(A)	Q67:(B)	Q68:(A)	Q69:(A)	Q70:(A)
Q71:76	Q72:31	Q73:25	Q74:33	Q75:23

Score = (No. of correct × 4) − (No. of incorrect × 1). Unattempted = 0. Max = 300.

STRATEGY & TIPS FOR THESE MOCKS

1. Sit for the full 3 hours. Treat it exactly like the real CBT.
2. Attempt all 20 MCQs + any 5 numericals per subject (as per current attempt rules).
3. Do not look at the answer key until the entire paper is finished.
4. Calculate score using the official +4/−1/0 scheme.
5. After every mock, list the topics of wrong questions and revise them from NCERT.
6. Maintain an error log – note conceptual mistakes vs calculation errors.
7. Aim for gradual improvement in both score and accuracy across the 10 tests.
8. In the final month, also solve official NTA previous year papers and full mocks from reliable sources.

These mocks follow the official JEE Main pattern (75 questions, MCQ + Numerical, +4/−1/0). Questions are original practice items. Always verify concepts with NCERT and official NTA resources. This PDF contains 10 complete mocks. Request the next set of 10 if needed.