JEE Main Practice Paper

Based on JEE Main Pattern

Generated: December 01, 2025 | Difficulty: Easy

Instructions:
- This paper contains 90 questions (30 per subject).
- Each subject has 20 MCQs and 10 Integer Type questions.
- MCQ: +4 for correct, -1 for incorrect.
- Integer: +4 for correct, 0 for incorrect.
- Time: 3 hours | Maximum Marks: 360

Physics

Section A: Multiple Choice Questions (MCQ)

Q1. A particle with charge $-q$ and mass m travels in a circular path of radius r around a straight line charge that has a linear density of $+\lambda$. The expression for the time period is given by: (Assume k represents Coulomb's constant)

(A) $T^2 = 4\pi^2 \mathbb{R}^2 \mathbb{MKEF} 3 T = 2\pi r \sqrt{\mathbb{M}} \; \frac{2}{k\lambda q}$

(B) $T = \frac{1}{2\pi r} \sqrt{\mathbb{M}} \; \frac{2}{k\lambda q}$

(D) $T = \frac{1}{2\pi} \sqrt{2\mathbb{K}} \; E \; M$

Q2. A coin is situated on a disc. The friction coefficient between the coin and the disc is μ. If the distance from the center of the disc to the coin is r, the highest angular velocity that can be imparted to the disc without causing the coin to slip off is:

(A) $\sqrt{\mu g}$

(B) $\sqrt{g\mu}$

(C) $\sqrt{\mu g r}$

(D) $\mu\sqrt{gr}$

Q3. A beam of unpolarised light with an intensity of I_0 passes through a polaroid A and subsequently through another polaroid B, which is positioned such that its principal plane forms an angle of $45°$ with respect to that of A. What is the intensity of the light that emerges?

(A) $\frac{I_0}{4}$

(B) I_0

(C) $\frac{I_0}{2}$

(D) $\frac{I_0}{8}$

Q4. A proton traveling at a steady velocity enters a region of space where its velocity remains unchanged. If $\vec{E}$ and $\vec{B}$ denote the electric and magnetic fields respectively, then this region of space could potentially have:

(A) (A), (B) and (C) only

(B) (A), (C) and (D) only

(C) (A), (B) and (D) only

(D) (B), (C) and (D) only

Q5. What is the mass number of a nucleus that has a radius equal to half the radius of a nucleus with a mass number of 192?

(A) 24

(B) 32

(C) 40

(D) 20

Q6. The length of a simple pendulum was measured to be 20 cm with an accuracy of 2 mm. The duration for 50 oscillations was recorded as 40 seconds with a resolution of 1 second. Based on these measurements, the accuracy in determining the acceleration due to gravity is N

4 8 6 5

An iron bar weighing 12 kg is positioned with one end resting on the ground and the other end supported by a man's shoulder. The rod is inclined at an angle of 60° to the horizontal. The normal force exerted by the man on the bar is:

(A) 6 kg - wt

(B) 12 kg - wt

(C) 3 kg - wt

(D) $6\sqrt{3}$ kg - wt

When a polaroid sheet is turned between two perpendicular polaroids, the intensity of the transmitted light will reach its peak at a rotation of:

(A) 60°30°

(B) 90°45°

In a straight co-axial cable, the inner conductor and the outer conductor carry equal currents flowing in opposite directions. The magnetic field is nonexistent:

(A) outside the cable

(B) inside the outer conductor

(C) inside the inner conductor

(D) in between the two conductors

An electric dipole is situated at a distance of 2 cm from an infinite plane sheet that possesses a positive charge density. Select the appropriate option from the choices below.

(A) Potential energy and torque both are maximum.

(B) Torque on dipole is zero and net force is directed away from the sheet.

(C) Torque on dipole is zero and net force acts towards the sheet.

(D) Potential energy of dipole is minimum and torque is zero.

Which pair of physical quantities does not share the same dimensions?

(A) Pressure and Young's modulus

(B) Surface tension and impulse

(C) Torque and energy

(D) Angular momentum and Planck's constant

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If R is the radius of the earth and the acceleration due to gravity on the surface of earth is g= $9\pi^2 ms^{-2}$, then the length of the second's pendulum at a height $= 3R$ from the surface of earth will be :

2/27 m 1/27 m 4/27 m 8/27 m

10 divisions on the main scale of a Vernier calliper coincide with 12 divisions on the Vernier scale. If each division on the main scale is of 6 units, the least count of the instrument is:

(A) 1/2

(B) 12/11

(C) 72/11

(D) 6/11

The accurate form of Bernoulli's equation is (symbols are used in their standard context):

(A) constant

(B) constant

(C) constant

(D) constant

When light exits a convex lens with a light source positioned at its focal point, what is the shape of the light's wavefront?

(A) both spherical and cylindrical

(B) plane

(C) spherical

(D) cylindrical

Electromagnetic waves propagate through a medium at a speed of . The medium's relative permeability is 2.0. What is the relative permittivity of this medium?

(A) 2

(B) 4

(C) 5

(D) 1

What will be the percentage reduction in the brightness of the lamp if the current decreases by 20%?

(A) 46%

(B) 26%

(C) 36%

(D) 56%

A small spherical ball of radius r, falling through a viscous medium of negligible density has terminal velocity v. Another ball of the same mass but of radius $2r$, falling through the same viscous medium will have terminal velocity:

(A) $2v$

(B) $4v$

(C) $\frac{4}{3}v$

(D) $\frac{1}{2}v$

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If a satellite that is orbiting the Earth is situated 9 times closer to the Earth compared to the Moon, what is the satellite's rotational time period? The time period of the Moon is given in days, and the gravitational influence between the satellite and the Moon is disregarded.

   (A) 27 days

   (B) 1 day

   (C) 81 days

   (D) 3 days

Below are two statements, one referred to as Assertion (A) and the other as Reason (R). Assertion (A): In Young's double slit experiment, the fringes created by red light are closer together compared to those created by blue light. Reason (R): The width of the fringe is directly proportional to the wavelength of the light. Based on the statements provided, select the appropriate answer from the options listed below:

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

   (B) (A) is true but (R) is false

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

   (D) (A) is false but (R) is true

Section B: Integer Type Questions

Q21. Two soap bubbles of radius 3 cm and 5 cm, respectively, are in contact with each other. The radius of curvature of the common surface, in cm, is _ _ _ _ _ _ .

Q22. A body falling under gravity covers two points A and B separated by 100 m in 3 s. The distance of upper point A from the starting point is _ _ _ _ _ m. Use g = 10 m s^{-2}

Q23. Two open organ pipes of specific lengths resonate at different harmonics. The frequency difference for the specified modes is _ _ _ _ _ _ _ . (Velocity of sound in air)

Q24. A liquid column of height h balances the excess pressure of a soap bubble of radius r. If the density of the liquid is ρ and the surface tension of the soap solution is γ, then the diameter of the soap bubble is given by the formula $d = 2r = \frac{2\rho gh}{\gamma}$. Calculate the diameter of the soap bubble if $h = 10\,\text{m}$, $\rho = 1000\,\text{kg m}^{-3}$, and $\gamma = 0.072\,\text{N m}^{-1}$.

Q25. A time varying potential difference is applied between the plates of a parallel plate capacitor of capacitance C. The dielectric constant of the medium between the capacitor plates is $K = 1$. It produces an instantaneous displacement current of $I_d = 0.25\,\text{mA}$ in the intervening space between the capacitor plates. The magnitude of the rate of change of the potential difference will be .

Q26. A string is wrapped around the rim of a wheel of moment of inertia I and radius R. The wheel is free to rotate about its axis. Initially, the wheel is at rest. The string is now pulled by a force of F. The angular velocity of the wheel after a time t is ω, where $\omega = \frac{FR}{I}t$.

Q27. A sonometer wire of resonating length L_1 has a fundamental frequency of f_1 when kept under some tension. The resonating length of the wire with a fundamental frequency of f_2 under the same tension is given by the relationship $f_1 L_1 = f_2 L_2$. If the fundamental frequency f_1 is 120 Hz and f_2 is 60 Hz, what is the resonating length L_2 of the wire?

Q28. A nucleus has mass number A_1 and volume V_1. Another nucleus has mass number A_2 and volume V_2. If the relation between mass numbers is $A_2 = 4A_1$, then what is the ratio of the volumes, $\frac{V_2}{V_1}$?

Q29. A solid circular disc of mass 60 kg rolls along a horizontal floor so that its center of mass has a speed of 0.5 m s^{-1}. The absolute value of work done on the disc to stop it is _ _ _ _ _ _ J.

Chemistry

Section A: Multiple Choice Questions (MCQ)

Q30. If the root mean square velocity of hydrogen molecule at a given temperature and pressure is 1.5 km s^{-1}, $the root mean square velocity of oxygen at the same condition in$ km s$^{-1} is$:

      1.0 0.3 0.9 0.5

The metal atom found in the complex MABXL (where A, B, X, and L represent unidentate ligands and is a metal) undergoes hybridization. The total number of geometrical isomers that the complex can display is:

    (A) 2

    (B) 0

    (C) 4

    (D) 3

The number of elements from the following list that do not belong to the lanthanoids is: Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb, Lu, and La.

    (A) 3

    (B) 4

    (C) 1

    (D) 5

A quantity of ice with a certain mass and temperature is converted into vapor at a specific temperature through the addition of heat. The total work needed for this transformation is, (Consider, specific heat of ice, specific heat of water, specific heat of steam, latent heat of ice, and latent heat of steam)

    (A) 3043 J

    (B) 3024 J

    (C) 3003 J

    (D) 3022 J

A phenolic group can be detected through a positive result in which of the following tests?

    (A) Phthalein dye test

    (B) Lucas test

    (C) Tollen's test

(D) Carbylamine test

Which of the following species cannot act as an oxidizing agent?

    (A) N_3^-

    (B) SO_4^{2-}

    (C) BrO_3^-

    (D) MnO_4^-

Which of the following groups are considered meta directing functional groups?

    (A) -CN, - NH_2, - NHR, - OCH_3

    (B) -NO_2, - NH_2, - COOH, - COOR

    (C) -NO_2, - CHO, - SO_3H, - COR

    (D) -CN, - CHO, - $NHCOCH_3$, - COOR

For the reaction $A\,g \rightleftharpoons B\,g + C_2\,g$, what is the correct expression relating K_P, α, and the equilibrium pressure P?

    (A) $K_P = \alpha^{1/2}P^{1/2} + \alpha^{1/2} K_P = \alpha^{3/2}P^{1/2} + \alpha^{1/2}(1-\alpha)$

(B) $K_P = \alpha^{1/2}P^{3/2} + \alpha^{3/2} K_P = \alpha^{1/2}P^{1/2} + \alpha^{3/2}$

Presented below are two statements: one is designated as Assertion (A) and the other as Reason (R).

    (A) (A) is false but (R) is true

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

The following two statements are presented: Statement (I): The formation of Ce^{4+} in the Lanthanoids is favored due to its noble gas configuration. Statement (II): Ce^{4+} acts as a strong oxidizing agent, reverting to the more common +3 oxidation state. Based on the above statements, select the most suitable answer from the options provided below:

    (A) Statement I is false but Statement II is true

    (B) Both Statement I and Statement II are true

    (C) Statement I is true but Statement II is false

    (D) Both Statement I and Statement II are false

The scent of blossoms is attributed to the existence of certain steam volatile organic compounds known as essential oils. Typically, these compounds are insoluble in water at ambient temperature but can mix with water vapour in the gaseous state. An appropriate technique for extracting these oils from the flowers is:

    (A) crystallisation

    (B) distillation under reduced pressure

    (C) distillation

    (D) steam distillation

The following two statements are provided: Statement (I): The viscosity of gases is higher than that of liquids. Statement (II): The surface tension of a liquid is reduced in the presence of insoluble impurities. Based on these statements, select the most suitable answer from the options listed below:

(A) Statement I is correct but statement II is incorrect

(B) Statement I is incorrect but Statement II is correct

(C) Both Statement I and Statement II are incorrect

(D) Both Statement I and Statement II are correct

The metals utilized in the battery manufacturing sector include A. Fe, B. Mn, C. Ni, D. Cr, and E. Cd. Select the correct answer from the options provided below:

(A) B, C and E only

(B) A, B, C, D and E

(C) A, B, C and D only

(D) B, D and E only

The IUPAC designation for the hydrocarbon provided is:

(A) 2-Ethyl-3,6-dimethylheptane

(B) 2,5,6-Trimethyloctane

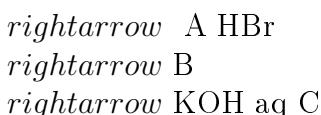(C) 3,4,7-Trimethyloctane

(D) 2-Ethyl-2,6-diethylheptane

Below are two assertions: Assertion I: The nitration process of benzene consists of the following step - Assertion II: The application of a Lewis base facilitates the electrophilic substitution reaction of benzene. Based on the above assertions, select the most suitable answer from the options provided below:

(A) Statement I is correct but Statement II is incorrect

(B) Statement I is incorrect but Statement II is correct

(C) Both Statement I and Statement II are correct

(D) Both Statement I and Statement II are incorrect

Which of the following products is not generated when Lead Sulphide reacts with dilute nitric acid?

(A) Nitric oxide

(B) Nitrous oxide

(C) Lead nitrate

(D) Sulphur

The compound (C) formed in the reaction detailed below is: $CH_3 - CH_2 - CH_2 - Br$
KOH alc
$rightarrow$ A HBr
$rightarrow$ B
$rightarrow$ KOH aq C

(A) Propan-1-ol

(B) Propene

(C) Propyne

(D) Propan-2-ol

The type of sugar that does not produce a reddish brown precipitate when reacted with Fehling's reagent is:

(A) Sucrose

(B) Lactose

(C) Glucose

(D) Maltose

During the qualitative analysis for the precipitation of iron group (III), ammonium chloride is introduced prior to the addition of ammonium hydroxide in order to:

(A) increase concentration of ions

(B) increase concentration of ions

(C) prevent interference by phosphate ions

(D) decrease concentration of ions

Combustion of glucose produces carbon dioxide and water. The amount of oxygen (in g) required for the complete combustion of 180 g of glucose is : [Molar mass of glucose in g]

(A) 720

(B) 960

(C) 540

(D) 480

Section B: Integer Type Questions

Q50. Total number of essential amino acids among the given list of amino acids is how many? Arginine, Phenylalanine, Aspartic acid, Cysteine, Histidine, Valine, Proline.

Q51. Consider the given reaction: $2H_2 + O_2 \rightarrow 2H_2O$. The total number of oxygen atoms present per mo

Q52. Quantitative analysis of an organic compound (X) shows the following % composition: C: 64.46%, H: 1.8%, and Cl: 33.74%. Calculate the empirical formula mass of the compound (Given molar mass in grams is _ _ _ _ _ _ _ _ _ _).

Q53. Consider the following sequence of reactions: A + B
$rightarrow$ C; C + D
$rightarrow$ E. If the molar mass of reactant A is 78 g/mol, reactant B is 76 g/mol, and reactant D is 32 g/mol, what is the molar mass of the product E formed in the final reaction?

Q54. The overall count of accurate statements concerning nucleic acids is _ _ _ _ _ _ _ _ _ _. A. RNA is considered the reservoir of genetic information. B. The DNA molecule replicates itself during cell division. C. DNA is responsible for protein synthesis within the cell. D. The instructions for the creation of specific proteins are encoded in DNA. E. Identical DNA strands are passed on to daughter cells.

Q55. Vanillin compound obtained from vanilla beans, has total sum of oxygen atoms and electrons is _ _ _ _ _ _

Q56. The combustion of 1 mole of benzene (C_6H_6) is expressed as: $C_6H_6 + \frac{15}{2}O_2 \rightarrow 6CO_2 + 3H_2O$. The standard enthalpy of combustion of benzene is -x kJ/mol. Given: 1. The standard enthalpy of formation of C_6H_6 (graphite) is 82.9 kJ/mol. 2. The standard enthalpy of formation of CO_2 (graphite) is -393.5 kJ/mol. 3. The standard enthalpy of formation of H_2O (liquid) is -285.8 kJ/mol. Calculate the standard enthalpy of combustion of benzene.

Q57. The major product of the following reaction between ethene and bromine has a C=C bond.

Q58. 0.1 mole of compound 'S' will weigh _ _ _ _ _ _ _ g. (Given molar mass in g/mol is 130 g/mol)

Q59. A thick coating of silver is deposited on a plate with an area of 1 m^2. The number of silver atoms deposited on the plate is calculated using the mass of silver deposited, which is 11 g. Given that the atomic mass of silver (Ag) is approximately 107.87 g/mol, the number of silver atoms deposited on the plate is
$$_{(Round off to the nearest integer.)}$$

Mathematics

Section A: Multiple Choice Questions (MCQ)

Q60. Let $f(x) = \frac{x+5}{2x-\frac{1}{2}}$, $x \in [-5, 5]$. If M and m are the maximum and minimum values of f, respectively in $[-5, 5]$, then the value of $M - m$ is:

    (A) 700

    (B) 492

    (C) 708

    (D) 208

Q61. Two marbles are drawn in succession from a box containing 12 red, 24 white, 18 blue and 10 orange marbles, with replacement being made after each drawing. Then the probability, that first drawn marble is red and second drawn marble is white, is

    (A) 1/10

    (B) 3/20

    (C) 1/5

    (D) 3/25

Q62. Let $x = 4$ and $y = 2$. If $x^2 + y^2$, then what is the value of $x^2 + y^2$?

    (A) 36

    (B) 16

    (C) 1

    (D) 49

Q63. Let N be the set of integers from 1 to 1000. Determine the number of elements in N that are neither a multiple of 3 nor a multiple of 4.

    (A) 290

    (B) 280

    (C) 300

    (D) 310

Q64. Let a be the first term and d be the common difference of an arithmetic progression (A.P.). If for some integers n and m, the nth term is given by $a_n = a + (n-1)d$ and the mth term is given by $a_m = a + (m-1)d$, then what is the value of the nth term when $a = 2$, $d = 4$, and $n = 32$?

(A) 98

(B) 126

(C) 142

(D) 112

Q65. If the set has elements $a = 4$ and $b = 8$, where $a < b$, then the value of $a + b$ is

(A) 12

(B) 4

(C) 8

(D) 5

Q66. Consider the system of linear equations $x + y + z = 5$, $x + 2y + \lambda\, 2\, z = 9$ and $x + 3y + \lambda z = \mu$, where $\lambda, \mu R$. Then, which of the following statement is NOT correct ?

(A) System has infinite number of solution if $\lambda = 1$ and $\mu = 13$

(B) System is inconsistent if $\lambda = 1$ and $\mu \neq 13$

(C) System has unique solution if $\lambda \neq 1$ and $\mu \neq 13$

(D) System is consistent if $\lambda \neq 1$ and $\mu = 13$

Q67. Consider the region R which is enclosed by the lines $3x - y + 1 = 0$ and $x + 2y - 5 = 0$, and which includes the origin. Determine the complete set of values for a such that the points a^2 and $a + 1$ are located within R.

(A) $(-3, -1) \cup -1\frac{}{3}$, 1

(B) $(-3, 0) \cup 1\frac{}{3}$, 1

(C) $(-3, 0) \cup 2\frac{}{3}$, 1

(D) $(-3, -1) \cup 1\frac{}{3}$, 1

Q68. Let x be such that $x + 10 = 61$ and $y = 2x - 1$. Then y is equal to:

(A) 73

(B) 62

(C) 51

(D) 54

Q69. A bag contains 10 balls, whose colours are either white or black. 5 balls are drawn at random without replacement and it was found that 3 balls are white and 2 balls are black. The probability that the bag contains equal number of white and black balls is:

(A) 3/14

(B) 3/11

(C) 1/7

(D) 1/5

Q70. Let $\vec{A}$ and $\vec{B}$ be vectors such that $\vec{A} = 1200\hat{i} + 300\hat{j}$. If $\vec{B} = 400\hat{i} + 800\hat{j}$, then $|\vec{A} + \vec{B}|$ is equal to:

(A) 1600

(B) 1620

(C) 1610

(D) 1590

Q71. Among the two statements provided: Statement I: Let A and B. Then the vector that fulfills the conditions A and B has a magnitude of C. Statement II: In a triangle, the sum of the interior angles is $180°$.

(A) Statement I is incorrect but Statement II is correct.

(B) Both Statement I and Statement II are correct.

(C) Statement I is correct but Statement II is incorrect.

(D) Both Statement I and Statement II are incorrect.

Q72. Consider the image of the point $(1, 0, 7)$ on the line given by $x_1 = y - 1 = z - 2$. Let this image be represented by the point (α, β, γ). Which of the following points lies on the line that passes through (α, β, γ) and forms angles of $\frac{2\pi}{3}$ and $\frac{3\pi}{4}$ with the y-axis and z-axis, respectively, while making an acute angle with the x-axis?

(A) $(1, - 2, 1 + \sqrt{2})$

(B) $(1, 2, 1 - \sqrt{2})$

(C) $(3, 4, 3 - 2\sqrt{2})$

(D) $(3, - 4, 3 + 2\sqrt{2})$

Q73. Given the function $f : (-\infty, -1) \to (a, b)$ defined by $f(x) = e^{x^3} - 3x + 1$, if this function is both one-to-one and onto, then the distance from the point $P(2b+4, a+2)$ to the line $x + e^{-3}y = 4$ is:

(A) $2\sqrt{1} + e\ 6$

(B) $4\sqrt{1} + e\ 6$

(C) $3\sqrt{1} + e\ 6$

(D) $\sqrt{1} + e\ 6$

Q74. For x, the least value of y, for which x, y, and $x + 4$ are three consecutive terms of an A.P., is equal to:

(A) 6

(B) 3

(C) 12

(D) 18

Q75. If $x = 5$ and $y = 2$, then $x - 3y$ is equal to:

(A) -1

(B) 0

(C) 1

(D) 2

Q76. Consider e_1 as the eccentricity of the hyperbola $x^2 \cdot 16 - y^2 \cdot 9 = 1$ and e_2 as the eccentricity of the ellipse $x^2 \cdot a^2 + y^2 \cdot b^2 = 1$, where $a > b$, which intersects the foci of the hyperbola. If the product $e_1 e_2 = 1$, then the length of the chord of the ellipse that is parallel to the x-axis and passes through the point $(0, 2)$ is:

(A) $4\sqrt{5}$

(B) $\frac{8\sqrt{5}}{3}$

(C) $\frac{10\sqrt{5}}{3}$

(D) $3\sqrt{5}$

Q77. If the value of $x = 5$, where x and y are natural numbers and $y = 10$, then $x + y$ is equal to :

(A) 15

(B) 20

(C) 25

(D) 30

Q78. Let $x = 3$, where C is the constant of integration. Then y is equal to :

(A) 9

(B) 6

(C) 2

(D) 5

Q79. If the variance of the frequency distribution is 144, then the value of is 12.

(A) 12

(B) 10

(C) 9

(D) 11

Section B: Integer Type Questions

Q80. Consider a function $f : \mathbb{R} \to \mathbb{R}$ defined by $f(x) = \frac{4x}{4x+2}$ and let $M = f(1 - a)\int f(a)\sin(4)x(1 - x)\,dx$, $N = f(1 - a)\int f(a)\sin(4)x(1 - x)\,dx$; where $a \neq \frac{1}{2}$. If $\alpha M = \beta N$, where $\alpha, \beta \in \mathbb{N}$, then what is the minimum value of $\alpha^2 + \beta^2$?

Q81. Consider the function defined by $f(x) = 2^x$. If the composition of f with itself, denoted as $f(f(x))$, is evaluated at $x = 5$, then the value of $f(f(5))$ is equal to .

Q82. Let the set $S = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20\}$. Then the sum of all the elements in the set is equal to .

Q83. If $x = 4$, then x^3 is equal to

Q84. Let r_1 and r_2 be the roots of the equation $x^2 - 10x + 24 = 0$ such that $r_1 + r_2 = 10$ and $r_1 r_2 = 24$. Let a and b be integers not divisible by 2 and let n be a natural number such that $n = a + b$. Then n is equal to .

Q85. Let Q and R be the feet of perpendiculars from the point P(a, a, a) on the lines x = y, z = 1 and x = -y, z = -1 respectively. If QPR is a right angle, then $12a^2$ is equal to .

Q86. Let the area of the region be $A = \frac{p}{q}$, where p and q are coprime numbers. If the area is equal to 119, then $p + q$ is equal to .

Q87. Let the region be enclosed by the parabola $y = 4 - x^2$ and the line $y = 0$. Then the maximum area of the rectangle inscribed in the region is

$\quad\quad\quad\quad\quad\quad$.

Q88. If the second, third and fourth terms in the expansion of $(a + b)^n$ are 135, 30 and 6, respectively, then n is equal to

Q89. What is the remainder when $x^3 + 2x^2 + 3x + 4$ is divided by $x + 1$?

Answer Key

Physics

Section A (MCQ):

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
(2)	(3)	(1)	(3)	(1)	(3)	(3)	(4)	(1)	(4)
Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20
(2)	(3)	(3)	(1)	(2)	(1)	(3)	(2)	(2)	(4)

Section B (Integer):

Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28	Q29
4	45	740	7	100	100	60	4	6

Chemistry

Section A (MCQ):

Q31	Q32	Q33	Q34	Q35	Q36	Q37	Q38	Q39	Q40
(2)	(1)	(1)	(1)	(1)	(1)	(3)	(2)	(2)	(2)
Q41	Q42	Q43	Q44	Q45	Q46	Q47	Q48	Q49	Q50
(3)	(2)	(1)	(2)	(1)	(2)	(4)	(1)	(4)	(2)

Section B (Integer):

Q51	Q52	Q53	Q54	Q55	Q56	Q57	Q58	Q59	Q60
4	1	1655	154	3	11	-6535	5	13	11

Mathematics

Section A (MCQ):

Q61	Q62	Q63	Q64	Q65	Q66	Q67	Q68	Q69	Q70
(3)	(2)	(2)	(3)	(2)	(1)	(3)	(2)	(3)	(1)
Q71	Q72	Q73	Q74	Q75	Q76	Q77	Q78	Q79	Q80
(1)	(1)	(3)	(1)	(1)	(1)	(3)	(1)	(1)	(1)

Section B (Integer):

Q81	Q82	Q83	Q84	Q85	Q86	Q87	Q88	Q89	Q90
5	1024	46	64	49	12	120	128	806	1