

JEE Main Practice Paper

Based on JEE Main Pattern

Generated: December 01, 2025 | Difficulty: Medium

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
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Physics

Section A: Multiple Choice Questions (MCQ)

- Q1.** (M points) Given below are two statements: Statement I: In an LCR series circuit, current is maximum at resonance. Statement II: Current in a purely resistive circuit can never be less than that in a series LCR circuit when connected to same voltage source. In the light of the above statements, choose the correct from the options given below:
- (A) Statement I is false but Statement II is true
(B) Statement I is true but Statement II is false
(C) **Both Statement I and Statement II are true**
(D) Both Statement I and Statement II are false
- Q2.** (M points) Given below are two statements: Statement (I) : Planck's constant and angular momentum have the same dimensions. Statement (II) : Linear momentum and moment of force have the same dimensions. In light of the above statements, choose the correct answer from the options given below :
- (A) **Statement I is true but Statement II is false**
(B) Both Statement I and Statement II are false
(C) Both Statement I and Statement II are true
(D) Statement I is false but Statement II is true
- Q3.** (E points) The mass number of nucleus having radius equal to half of the radius of nucleus with mass number 192 is:
- (A) **24**
(B) 32
(C) 40
(D) 20
- Q4.** (H points) A transparent film of refractive index, 2.0 is coated on a glass slab of refractive index, 1.45. What is the minimum thickness of transparent film to be coated for the maximum transmission of Green light of wavelength 550 nm . [Assume that the light is incident nearly perpendicular to the glass surface.]

(A) **137.5 nm**

(B) 275 nm

(C) 94.8 nm

(D) 68.7 nm

Q5. (M points) A uniform magnetic field of 2×10^{-3} T acts along positive Y-direction. A rectangular loop of sides 20 cm and 10 cm with current of 5 A is in Y-Z plane. The current is in anticlockwise sense with reference to negative X axis. Magnitude and direction of the torque is :

(A) 2×10^{-4} N m along positive Z -direction

(B) **2×10^{-4} N m along negative Z-direction**

(C) 2×10^{-4} N m along positive X-direction

(D) 2×10^{-4} N m along positive Y-direction

Q6. (M points) Two charges are placed at and respectively. Given, , the electrostatic potential energy of the charge configuration is :

(A) **-1.8 J**

(B) -2.0 J

(C) -1.5 J

(D) -1.2 J

Q7. (H points) A coil is placed perpendicular to a magnetic field of 5000 T . When the field is changed to 3000 T in 2 s , an induced emf of 22 V is produced in the coil. If the diameter of the coil is 0.02 m , then the number of turns in the coil is:

(A) 7

(B) **70**

(C) 35

(D) 140

Q8. (M points) From the statements given below : (A) The angular momentum of an electron in n th orbit is an integral multiple of \hbar . (B) Nuclear forces do not obey inverse square law.

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

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

(C) **(A), (B), (C), (E) only**

(D) (B), (C), (D), (E) only

Q9. (E points) The minimum energy required by a hydrogen atom in ground state to emit radiation in Balmer series is nearly :

(A) 1.5 eV

(B) 13.6 eV

(C) 1.9 eV

(D) **12.1 eV**

Q10. (M points) An electron is projected with uniform velocity along the axis inside a current carrying long solenoid. Then :

- (A) the electron will continue to move with uniform velocity along the axis of the solenoid.
- (B) the electron will be accelerated along the axis.
- (C) the electron path will be circular about the axis.
- (D) the electron will experience a force at to the axis and execute a helical path.

Q11. (M points) The measured value of the length of a simple pendulum is 20 cm with 2 mm accuracy. The time for 50 oscillations was measured to be 40 seconds with 1 second resolution. From these measurements, the accuracy in the measurement of acceleration due to gravity is % . The value of is:

- (A) 4
- (B) 8
- (C) 6**
- (D) 5

Q12. (M points) The relation between time ' t ' and distance ' ' is $t = 2 + \frac{x}{v}$, where and are constants. The relation between acceleration and velocity is:

- (A) $a = -2v$**
- (B) $a = -5v$
- (C) $a = -3v$
- (D) $a = -4v$

Q13. (H points) Match List I with List II
 List I List II
 A. Gauss's law of magnetostatics i. $\oint \vec{B} \cdot d\vec{l} = \mu_0 \int \vec{J} \cdot d\vec{A}$
 B. Faraday's law of electro magnetic induction ii. $\oint \vec{E} \cdot d\vec{l} = -\frac{d\Phi_B}{dt}$
 C. Ampere's law iii. $\oint \vec{B} \cdot d\vec{l} = \mu_0 \int \vec{J} \cdot d\vec{A}$
 D. Gauss's law of electrostatics iv. $\oint \vec{E} \cdot d\vec{l} = \frac{q}{\epsilon_0}$
 Choose the correct answer from the options given below:

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

Q14. (M points) Consider following statements: A. Surface tension arises due to extra energy of the molecules at the interior as compared to the molecules at the surface, of a liquid. B. As the temperature of liquid rises, the coefficient of viscosity increases. C. As the temperature of gas increases, the coefficient of viscosity increases D. The onset of turbulence is determined by Reynold's number. E. In a steady flow two stream lines never intersect. Choose the correct answer from the options given below: 2025 (28 Jan Shift 1)

- (A) C, D, E Only**
- (B) A, D, E Only
- (C) B, C, D Only
- (D) A, B, C Only

Q15. (E points) Which of the following circuits represents a forward biased diode? Choose the correct answer from the options given below :

- (A) (A) and (D) only
- (B) (B), (D) and (E) only

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

Q16. (E points) With rise in temperature, the Young's modulus of elasticity

- (A) changes erratically
(B) decreases
(C) increases
(D) remains unchanged

Q17. (M points) Three infinitely long wires with linear charge density are placed along the x -axis and axis respectively. Which of the following denotes an equipotential surface?

- (A) constant
(B) constant
(C) constant
(D) constant

Q18. (H points) A thin plano convex lens made of glass of refractive index 1.5 is immersed in a liquid of refractive index 1.2. When the plane side of the lens is silver coated for complete reflection, the lens immersed in the liquid 2025 (24 Jan Shift 1)

- (A) 0.20 m
(B) 0.25 m
(C) 0.15 m
(D) 0.10 m

Q19. (M points) A ball of mass 100 g is projected with velocity at with horizontal. The decrease in kinetic energy of the ball during the motion from point of projection to highest point is

- (A) 5 J
(B) 15 J
(C) 20 J
(D) zero

Q20. (M points) If the total energy transferred to a surface in time t is $6.48 \times 10^5 \text{ J}$, then the magnitude of the total momentum delivered to this surface for complete absorption will be :

- (A) $2.46 \times 10^{-3} \text{ kg m s}^{-1}$
(B) $2.16 \times 10^{-3} \text{ kg m s}^{-1}$
(C) $1.58 \times 10^{-3} \text{ kg m s}^{-1}$
(D) $4.32 \times 10^{-3} \text{ kg m s}^{-1}$

Section B: Integer Type Questions

Q21. (M points) Two iron solid discs of negligible thickness have radii and and moment of inertia and , respectively. For , the ratio of and would be , where _____ - **Answer type: Integer**

Q22. (M points) Two circular coils and of 100 turns each have same radius of cm . The currents in and R are 1 A and 2 A respectively. and are placed with their planes mutually perpendicular with their centers coincide. The resultant magnetic field induction at the center of the coils is mT , where = _____. [Use $\mu_0 = 4 \times 10^{-7} \text{ T m A}^{-1}$] **Answer type: Integer**

_____ **20** _____

Q23. (M points) Suppose a uniformly charged wall provides a uniform electric field of $2 \times 10^4 \text{ N C}^{-1}$ normally. A charged particle of mass 2 g being suspended through a silk thread of length 20 cm and remain stayed at a distance of 10 cm from the wall. Then the charge on the particle will be $1 \times C$ where = _____ [use $g = 10 \text{ m s}^{-2}$] **Answer type: Integer**

_____ **3** _____

Q24. (M points) Two wires and are made up of the same material and have the same mass. Wire has radius of and wire has radius of . The resistance of wire is . The resistance of wire is _____. **Answer type: Integer**

_____ **32** _____

Q25. (E points) In an electrical circuit drawn below the amount of charge stored in the capacitor is _____ C . **Answer type: Integer**

_____ **60** _____

Q26. (E points) A body falling under gravity covers two points A and B separated by 80 m in 2 s . The distance of upper point A from the starting point is _____ m . Use $g = 10 \text{ m s}^{-2}$ **Answer type: Integer**

_____ **45** _____

Q27. (H points) A small square loop of wire of side is placed inside a large square loop of wire of side $LL = 2$. The loops are coplanar and their centers coincide. The value of the mutual inductance of the system is $\times 10^{-7} \text{ H}$, where = _____. **Answer type: Integer**

_____ **128** _____

Q28. (H points) The depth below the surface of sea to which a rubber ball be taken so as to decrease its volume by 0.02% is _____ m . (Take density of sea water = 10^3 kg m^{-3} , Bulk modulus of rubber = $9 \times 10^8 \text{ N m}^{-2}$, and $g = 10 \text{ m s}^{-2}$) **Answer type: Integer**

_____ **18** _____

Q29. (M points) In a measurement, it is asked to find modulus of elasticity per unit torque applied on the system. The measured quantity has dimension of . If , the value of is _____ **Answer type: Integer**

_____ **0** _____

Q30. (M points) The position, velocity and acceleration of a particle executing simple harmonic motion are found to have magnitudes of and at a certain instant. The amplitude of the motion is where is _____ **Answer type: Integer**

_____ **17** _____

Section A: Multiple Choice Questions (MCQ)

- Q31.** (H points) The metal atom present in the complex MABXL (where A, B, X and L are unidentate ligands and M is metal) involves hybridization. The number of geometrical isomers exhibited by the complex is:
- (A) 2
(B) 0
(C) 4
(D) 3
- Q32.** (M points) The incorrect statement regarding the geometrical isomers of 2-butene is :
- (A) cis-2-butene and trans-2-butene are not interconvertible at room temperature.
(B) cis-2-butene and trans-2-butene are stereoisomers.
(C) **cis-2-butene has less dipole moment than trans-2-butene.**
(D) trans-2-butene is more stable than cis-2-butene.
- Q33.** (E points) The purification method based on the following physical transformation is :
- (A) Distillation
(B) Extraction
(C) **Sublimation**
(D) Crystallization
- Q34.** (M points) The ascending acidity order of the following H atoms is
- (A) **$\text{C} < \text{D} < \text{B} < \text{A}$**
(B) $\text{A} < \text{B} < \text{C} < \text{D}$
(C) $\text{A} < \text{B} < \text{D} < \text{C}$
(D) $\text{D} < \text{C} < \text{B} < \text{A}$
- Q35.** (M points) Given below are two statements: One is labelled as Assertion A and the other is labelled as Reason R. Assertion A : H_2Te is more acidic than H_2S . Reason R: Bond dissociation enthalpy of H_2Te is lower than H_2S . In the light of the above statements. Choose the most appropriate from the options given below.
- (A) Both A and R are true but R is NOT the correct explanation of A.
(B) **Both A and R are true and R is the correct explanation of A.**
(C) A is false but R is true.
(D) A is true but R is false.
- Q36.** (M points) Given below are two statements : one is labelled as Assertion (A) and the other is labelled as Reason (R). Assertion (A) : Both rhombic and monoclinic sulphur exist as while oxygen exists as . Reason (R) : Oxygen forms multiple bonds with itself and other elements having small size and high electronegativity like , which is not possible for sulphur. In the light of the above statements, choose the most appropriate answer from the options given below :
- (A) **(A) is correct but (R) is not correct**
(B) (A) is not correct but (R) is correct
(C) Both (A) and (R) are correct and (R) is the correct explanation of (A)

(D) Both (A) and (R) are correct but (R) is not the correct explanation of (A)

Q37. (E points) Total number of nucleophiles from the following is :

(A) 7

(B) 4

(C) 6

(D) 5

Q38. (M points) When a non-volatile solute is added to the solvent, the vapour pressure of the solvent decreases by 10 mm of Hg . The mole fraction of the solute in the solution is 0.2 . What would be the mole fraction of the solvent if decrease in vapour pressure is 20 mm of Hg ?

(A) 0.8

(B) 0.4

(C) 0.2

(D) 0.6

Q39. (H points) Identify the homoleptic complexes with odd number of d electrons in the central metal : (A) (B) (C) (D) (E) Choose the correct answer from the options given below :

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

(B) (C) and (E) only

(C) (B) and (D) only

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

Q40. (E points) The fragrance of flowers is due to the presence of some steam volatile organic compounds called essential oils. These are generally insoluble in water at room temperature but are miscible with water vapour in the vapour phase. A suitable method for the extraction of these oils from the flowers is:

(A) crystallisation

(B) distillation under reduced pressure

(C) distillation

(D) steam distillation

Q41. (M points) Number of Complexes with even number of electrons in orbitals is -

(A) 2

(B) 3

(C) 1

(D) 5

Q42. (M points) Given below are two statements : Statement (I) : reactions are 'stereospecific', indicating that they result in the formation of only one stereo-isomer as the product. Statement (II) : reactions generally result in formation of product as racemic mixtures. In the light of the above statements, choose the correct answer from the options given below :

(A) Both Statement I and Statement II are false

- (B) Statement I is false but Statement II is true
- (C) Statement I is true but Statement II is false
- (D) Both Statement I and Statement II are true**

Q43. (M points) Given below are two statements : Statement (I) : Both metal and non-metal exist in p and d-block elements. Statement (II) : Non-metals have higher ionisation enthalpy and higher electronegativity than the metals. In the light of the above statements, choose the most appropriate answer from the option given below:

- (A) Both Statement I and Statement II are false
- (B) Statement I is false but Statement II is true**
- (C) Statement I is true but Statement II is false
- (D) Both Statement I and Statement II are true

Q44. (E points) The alkane from below having two secondary hydrogens is :

- (A) 4-Ethyl-3,4-dimethyloctane
- (B) 2,2,3,3-Tetramethylpentane**
- (C) 2,2,4,5-Tetramethylheptane
- (D) 2,2,4,4-Tetramethylhexane

Q45. (H points) Number of complexes from the following with even number of unpaired " " electrons is [Given atomic numbers :]

- (A) 2**
- (B) 1
- (C) 4
- (D) 5

Q46. (M points) The major product of the following reaction is :

- (A) 2-Phenylhepta-2,5-diene
- (B) 6-Phenylhepta-2,4-diene
- (C) 6-Phenylhepta-3,5-diene
- (D) 2-Phenylhepta-2,4-diene**

Q47. (H points) Given below are two statements : one is labelled as Assertion (A) and the other is labelled as Reason (R). Assertion (A): reaction of occurs more readily than the reaction of . Reason (R) : The partially bonded unhybridized p-orbital that develops in the trigonal bipyramidal transition state is stabilized by conjugation with the phenyl ring. In the light of the above statements, choose the most appropriate answer from the options given below :

- (A) (A) is correct but (R) is not correct
- (B) (A) is not correct but (R) is correct
- (C) Both (A) and (R) are correct but (R) is not the correct explanation of (A)
- (D) Both (A) and (R) are correct and (R) is the correct explanation of**

Q48. (M points) Identify the correct set of reagents or reaction conditions ' ' and ' ' in the following set of transformation

- (A) dil.aq.

- (B) conc.alc.
(C) dil.aq. /acetic acid
(D) conc.alc. acetic acid

Q49. (M points) Which of the following linear combination of atomic orbitals will lead to formation of molecular orbitals in homonuclear diatomic molecules [internuclear axis in -direction] ? A. and B. 2 s and C. 2025 (24 Jan Shift 1)

- (A) A and B Only
(B) D Only
(C) E Only
(D) C and D Only

Q50. (M points) Density of 3 M NaCl solution is . The molality of the solution is :

- (A) 1.79 m
(B) 2.79 m
(C) 2 m
(D) 3 m

Section B: Integer Type Questions

Q51. (M points) The compound formed by the reaction of ethanal with semicarbazide contains _____ number of nitrogen atoms. **Answer type: Integer**

3

Q52. (H points) A star has helium composition. It starts to convert three into one via triple alpha process as . The mass of the star is and it generates energy at the rate of . The rate of converting these to is , where is _____ [Take, mass of , mass of] **Answer type: Integer**

15

Q53. (M points) The heat of combustion of solid benzoic acid at constant volume is at . The heat of combustion at constant pressure is , the value of is _____. **Answer type: Integer**

150

Q54. (M points) Total number of aromatic compounds among the following compounds is _____. **Answer type: Integer**

1

Q55. (M points) One Faraday of electricity liberates $x \times 10^{-1}$ gram atom of copper from copper sulphate, x is _____. **Answer type: Integer**

5

Q56. (H points) The molarity of a (mass mass) aqueous solution of a monobasic acid is _____ M(Nearest integer) [Given: Density of aqueous solution of (X) is Molar mass of the acid is] 2025 (28 Jan Shift 1) **Answer type: Integer**

125

- Q57.** (E points) The total number of carbon atoms present in tyrosine, an amino acid, is _____ **Answer type: Integer**
 _____ **9** _____
- Q58.** (E points) In the reaction of potassium dichromate, potassium chloride and sulfuric acid (conc.), the oxidation state of the chromium in the product is + _____. **Answer type: Integer**
 _____ **6** _____
- Q59.** (M points) Among the following cations, the number of cations which will give characteristic precipitate in their identification tests with is _____. **Answer type: Integer**
 _____ **3** _____
- Q60.** (M points) 0.01 mole of an organic compound containing hydrogen, on complete combustion produced . Molar mass of is _____. **Answer type: Integer**
 _____ **100** _____

Mathematics

Section A: Multiple Choice Questions (MCQ)

- Q61.** (E points) For , the least value of , for which are three consecutive terms of an A.P., is equal to :
 (A) 8
 (B) 4
(C) 10
 (D) 16
- Q62.** (E points) Let for some function and . Then is equal to
(A) 1
 (B) 3
 (C) 6
 (D) 2
- Q63.** (H points) Let the image of the point (1, 0, 7) in the line $x - 1 = y - 2 = z - 3$ be the point (, ,) . Then which one of the following points lies on the line passing through (, ,) and making angles $2/3$ and $3/4$ with y - axis and z - axis respectively and an acute angle with x - axis?
 (A) (1, - 2, 1 + 2)
 (B) (1, 2, 1 - 2)
(C) (3, 4, 3 - 22)
 (D) (3, - 4, 3 + 22)
- Q64.** (M points) Consider the system of linear equation , where . Which one of the following statements is NOT correct?
 (A) The system has unique solution if and

(B) The system is inconsistent if and

(C) The system has infinite number of solutions if and

(D) The system is consistent if

Q65. (M points) The number of triangles whose vertices are at the vertices of a regular octagon but none of whose sides is a side of the octagon is

(A) 48

(B) 56

(C) 24

(D) 16

Q66. (E points) Let and . Then is equal to :

(A) 1

(B) 6

(C) 4

(D) 2

Q67. (M points) Two parabolas have the same focus and their directrices are the y -axis and the x -axis, respectively. If these parabolas intersect at the points P and Q , then PQ is equal to :

(A) 392

(B) 384

(C) 192

(D) 96

Q68. (M points) The number of different 5 digit numbers greater than 50000 that can be formed using the digits 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, such that the sum of their first and last digits should not be more than 8, is

(A) 4608

(B) 5720

(C) 5719

(D) 4607

Q69. (H points) For $x, y, z \in \mathbb{R}$, $0 < x, y, z < \pi$. If $\sin(x) + \sin(y) + \sin(z) = 3$ and $x + y + z = 3\pi$, then $\cos(x) + \cos(y) + \cos(z)$ is equal to

(A) $3/2$

(B) $1/2$

(C) $3 - 1/2$

(D) 3

Q70. (M points) Let P be a point in xy -plane, which is equidistant from three points $A(1, 0)$, $B(0, 1)$ and $C(0, 0)$. Then among the statements (S1) : $\triangle ABC$ is an isosceles right angled triangle, and (S2) : the area of $\triangle ABC$ is $1/2$,

(A) both are true

(B) only (S2) is true

(C) only (S1) is true

(D) both are false

Q71. (H points) The shortest distance between lines L_1 and L_2 , where $L_1 : -12x + 13y = 42$ and L_2 is the line passing through the points $(-4, 3)$, $(-1, 6)$ and perpendicular to the line $-3x - 2y = 3$, is

- (A) $\frac{121}{221}$
- (B) $\frac{24}{117}$
- (C) $\frac{141}{221}$**
- (D) $\frac{42}{117}$

Q72. (M points) If $\sin \theta = \frac{1}{2}$, where θ is acute, then $\cos \theta$ is equal to

- (A) $\frac{108}{187}$
- (B) $\frac{109}{187}$**
- (C) $\frac{18}{19}$
- (D) $\frac{19}{18}$

Q73. (M points) Consider 10 observations x_1, x_2, \dots, x_{10} , such that $\sum_{i=1}^{10} x_i = 10$ and $\sum_{i=1}^{10} x_i^2 = 40$, where x_i are positive integers. Let the mean and the variance of the observations be μ and σ^2 respectively. The value of $\frac{\sigma^2}{\mu}$ is equal to:

- (A) $\frac{2}{5}$**
- (B) $\frac{3}{2}$
- (C) $\frac{5}{2}$
- (D) $\frac{1}{2}$

Q74. (M points) The relation R on the set S is even is:

- (A) reflexive and symmetric but not transitive
- (B) an equivalence relation**
- (C) symmetric and transitive but not reflexive
- (D) reflexive and transitive but not symmetric

Q75. (E points) If the domain of the function $f(x) = \frac{1}{x^2 - 4}$ is $\mathbb{R} \setminus \{-2, 2\}$, then $f(x)$ is equal to :

- (A) $\frac{1}{x^2 - 4}$**
- (B) $\frac{1}{x^2 + 4}$
- (C) $\frac{1}{x^2 - 2}$
- (D) $\frac{1}{x^2 + 2}$

Q76. (M points) If the function $f : \mathbb{R} \rightarrow \mathbb{R}$, defined by $f(x) = 3x^2 + 1$ is one-one and onto, then the distance of the point $(2, 13)$ from the line $x - 3y = 4$ is:

- (A) $\frac{21}{5} + \frac{6}{5}$**
- (B) $\frac{41}{5} + \frac{6}{5}$
- (C) $\frac{31}{5} + \frac{6}{5}$
- (D) $\frac{1}{5} + \frac{6}{5}$

Q77. (M points) Let the area of the region enclosed by the curves $y = \sin x$ and $y = \cos x$ be A . Then A is equal to

- (A) $\frac{172}{5}$
- (B) $\frac{162}{5}$**

(C) 154

(D) 184

Q78. (M points) If the domain of the function is , then is equal to:

(A) 100

(B) 95

(C) 97

(D) 98

Q79. (M points) If the system of linear equations $-2x + y = -4$, $2x + y + 3 = 5$, $3x + y = 3$ has infinitely many solutions, then $12x + 13y$ is equal to

(A) 60

(B) 64

(C) 54

(D) 58

Q80. (H points) Let $f : \mathbb{R} \rightarrow \mathbb{R}$ be defined as $f(x) = -\cos 2x$; $x < 0$; $f(x) = 2x + 2$; $0 \leq x \leq 1$; $f(x) = 2x + 1$; $x > 1$. If f is continuous everywhere in \mathbb{R} and n is the number of points where f is NOT differentiable then $n + 1 + 2 + 3$ equals:

(A) 1

(B) 4

(C) 3

(D) 2

Section B: Integer Type Questions

Q81. (H points) If the solution of the given differential equation passes through the point , then the value of is equal to _____ **Answer type: Integer**

3

Q82. (M points) The square of the distance of the image of the point in the line , from the origin is _____ **Answer type: Integer**

62

Q83. (M points) Let \vec{a} and \vec{b} be two vectors such that $|\vec{a}| = 1$, $|\vec{b}| = 4$ and $|\vec{a} - \vec{b}| = 2$. If $|\vec{a} + 2\vec{b} \times \vec{a}| = 3$ and the angle between \vec{a} and \vec{b} is θ , then $192 \sin^2 \theta$ is equal to _____ **Answer type: Integer**

48

Q84. (H points) Let the solution of the differential equation satisfy . Then is equal to _____ **Answer type: Integer**

7

Q85. (M points) There are 4 men and 5 women in Group A, and 5 men and 4 women in Group B. If 4 persons are selected from each group, then the number of ways of selecting 4 men and 4 women is _____ **Answer type: Integer**

5626

Q86. (M points) Let 3, 7, 11, 15, . . . , 403 and 2, 5, 8, 11, . . . , 404 be two arithmetic progressions. Then the sum, of the common terms in them, is equal to _____

Answer type: Integer

6699

Q87. (M points) Suppose is a focal chord of the parabola of length and slope . If the distance of the chord from the origin is , then is equal to _____ **Answer type: Integer**

108

Q88. (E points) Remainder when is divided by is equal to _____. **Answer type: Integer**

1

Q89. (E points) If and are the roots of the quadratic equation , then is equal to _____

Answer type: Integer

6

Q90. (M points) Let and , where is the origin. If is the parallelogram with adjacent sides and , then is equal to _____ **Answer type: Integer**

4

Answer Key

Physics**Chemistry****Mathematics**

Q1: (3) Q2: 16 Q3: 20	Q31: 3 Q32: (2) Q33: 15	Q61: (3) Q62: (1) Q63: 3
Q4: 3 Q5: (1)	Q34: (3) Q35: 150	Q64: 62 Q65: (3)
Q6: (1) Q7: (1) Q8: 32	Q36: (3) Q37: (1) Q38:	Q66: (2) Q67: (4) Q68:
Q9: (2) Q10: (1)	(2) Q39: (1) Q40: (4)	(4) Q69: (3) Q70: (4)
Q11: (2) Q12: 60 Q13: 45	Q41: 1 Q42: (4) Q43: (3)	Q71: (1) Q72: 48 Q73: (3)
Q14: (3) Q15: (4)	Q44: 5 Q45: (4)	Q74: 7 Q75: (3)
Q16: 128 Q17: (1) Q18:	Q46: 125 Q47: 9 Q48: 6	Q76: (2) Q77: 5626 Q78:
(3) Q19: (1) Q20: 18	Q49: (2) Q50: (4)	(1) Q79: 6699 Q80: (2)
Q21: (4) Q22: (1) Q23:	Q51: 3 Q52: (2) Q53: (2)	Q81: (1) Q82: 108 Q83: 1
(4) Q24: 0 Q25: (2)	Q54: (1) Q55: (4)	Q84: (1) Q85: 6
Q26: (3) Q27: (4) Q28:	Q56: 100 Q57: (4) Q58:	Q86: (2) Q87: (3) Q88:
(2) Q29: (2) Q30: 17	(4) Q59: (2) Q60: (2)	(4) Q89: 4 Q90: (4)