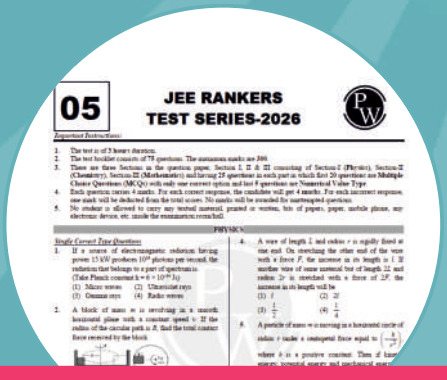
NTA

JEE MAIN 2026

RANKERS TEST SERIES

As Per LATEST NTA Pattern



14 TEST PAPERS

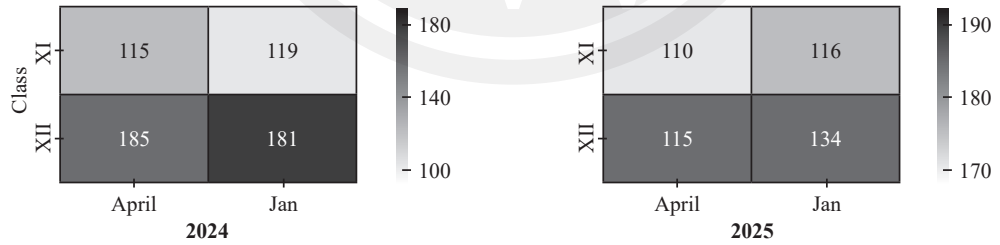
Meticulously Curated and Verified by Expert PW Faculties for JEE-Level Accuracy and Authentic Exam Experience

- PAST YEAR ANALYSIS
- RANK PREDICTOR SHEET
- 1 JEE MAIN COMPUTER-BASED MOCK TEST FREE
- OPENING AND CLOSING RANK OF TOP NITS

Chapter-wise Weightage Analysis

	Chapters Name	Jan	April
50% Questions Asked from these 10 chapter	Three Dimensional Geometry	18	17
	Matrices and Determinants	18	15
	Sequence and Series	13	13
	Differential Equations	15	9
	Binomial Theorem	11	13
	Vector Algebra	12	10
	Application of Integrals	13	9
	Functions	10	11
	Probability	12	9
	Permutations and Combinations	12	9
	Definite Integration	11	9
	Straight Lines	11	9
	Set Theory and Relations	11	9
	Limits of Functions	10	9
	Complex Numbers	8	8
	Quadratic Equations	8	8
	Parabola	10	6
	Ellipse	7	9
	Application of Derivatives	4	9
	Hyperbola	5	7
	Inverse Trigonometric Functions	7	4
	Circle	5	4
	Statistics	4	5
	Indefinite Integration	5	3
	Trigonometric Equations	2	5
	Trigonometric Ratios and Identities	3	2
	Differentiability and Method of Differentiation	2	2
	Continuity	2	2
	Solutions of Triangles	0	0
	Basic Mathematics and Logarithm	1	0

Class-wise Distribution of Question



Gender/Category-wise distribution of candidates registered and appeared in Session-2 (April 2025), Paper 1 (B.E/ B. Tech)

Category	Male		Female		Total	
	Registered	Appeared	Registered	Appeared	Registered	Appeared
General	2,68,418	2,50,849	1,32,278	1,21,826	4,00,696	3,72,675
EWS	83,492	80,200	34,090	32,590	1,17,582	1,12,790
SC	74,793	68,872	32,083	29,015	1,06,876	97,887
ST	25,918	23,676	11,766	10,462	37,684	34,138
OBC	2,73,584	2,58,274	1,25,418	1,16,586	3,99,002	3,74,860
Total	**726205**	**6,81,871**	**3,35,635**	**3,10,479**	**10,61,840**	**9,92,350**

CONTENTS

01

JEE RANKERS TEST SERIES-2026

SYLLABUS:

Physics:	Units and Measurements, Motion in a Straight Line, Motion in a Plane, Laws of Motion, Work, Energy and Power, System of Particles and Rotational Motion, Gravitation
Chemistry:	Some basic Concepts of Chemistry, Atomic Structure, Classication of Elements, and Periodicity in Properties, Chemical bonding and Molecular Structure, Thermodynamics, Equilibrium, Redox Reactions
Mathematics:	Basic Maths, Logarithm, Sets, Trigonometric Functions, Quadratic Equations, Linear Inequalities, Permutations and Combinations, Binomial Theorem, Sequences and Series

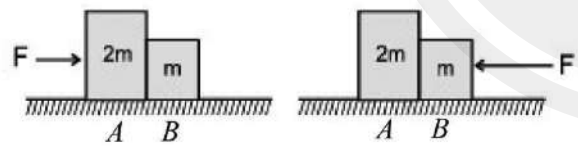
Important Instructions:

1. The test is of **3 hours** duration.
2. The test booklet consists of **75** questions. The maximum marks are **300**.
3. There are three Sections in the question paper, Section I, II & III consisting of Section-I **(Physics)**, Section-II **(Chemistry)**, Section-III **(Mathematics)** and having **25 questions** in each part in which first **20 questions** are **Multiple Choice Questions (MCQs)** with **only one correct** option and last **5 questions** are **Numerical Value Type**.
4. Each question carries 4 marks. For each correct response, the candidate will get **4 marks**. For each incorrect response, **one** mark will be deducted from the total scores. No marks will be awarded for unattempted questions.
5. No student is allowed to carry any textual material, printed or written, bits of papers, paper, mobile phone, any electronic device, etc. inside the examination room/hall.

PHYSICS

Single Correct Type Questions

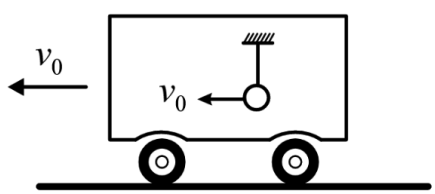
1. Two blocks are in contact on a frictionless table. One has mass m and the other 2m. A force F is applied on 2m as shown in the figure. Now the same force F is applied from the right on m. In the two cases respectively, the ratio of force of contact between the two blocks will be:



(1) 1 : 1 (2) 1 : 2

(3) 2 : 1 (4) 1 : 3

2. A pendulum with massless string of length l and bob of mass m is attached inside a railway carriage which is moving with speed v_0 as shown. Carriage is brought to rest uniformly by applying brakes. When carriage comes to rest pendulum string is horizontal. Minimum magnitude of retardation of carriage such that bob completes vertical circular motion is $(3k - 2)$ ms^{-2}. Find k. ($g = 10$ ms^{-2})



(1) 3
(2) 6
(3) 9
(4) 2

3. Assume that maximum mass m_1 of a boulder swept along by a river, depends on the speed V of the river, the acceleration due to gravity g, and the density d of the boulder. Calculate the percentage change in maximum mass of the boulder that can be swept by the river, when speed of the river increases by 1%.

(1) 1%
(2) 6%
(3) 2%
(4) 4%

4. A body of mass m is projected from ground for horizontal range R. At the highest point it is fragmented into two identical parts. If one parts returns back to the point of projection, then other part will have the horizontal range

(1) R
(2) $\frac{3R}{2}$
(3) $2R$
(4) $\frac{5}{2}R$

5. A particle travels along the arc of a circle of radius r. Its speed depends on the distance travelled l as $v = a\sqrt{l}$, where 'a' is a constant. The angle α between the vectors of total acceleration and the velocity of the particle is

(1) $\alpha = \tan^{-1}(2l/r)$

(2) $\alpha = \cos^{-1}(2l/r)$

(3) $\alpha = \sin^{-1}(2l/r)$

(4) $\alpha = \cot^{-1}(2l/r)$

6. Twelve persons are initially at the twelve corners of a regular polygon of twelve sides of side a. Each person now moves with uniform speed V in such a manner that 1 is always directed towards 2, 2 towards 3, 3 towards 4 and so on. The distance travelled by each person before they meet is

(1) $\frac{2a}{2+\sqrt{3}}$ (2) $\frac{2a}{2-\sqrt{3}}$

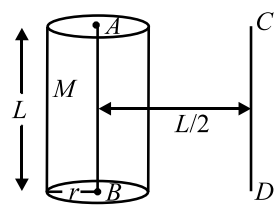
(3) $\frac{2a}{\sqrt{3}}$ (4) $\frac{a}{2+\sqrt{3}}$

7. A body starts from rest and moves for n seconds with uniform acceleration a, its velocity after n seconds is v. The displacement of the body in last 3 seconds is:

(1) $\frac{v(6n-9)}{2n}$ (2) $\frac{2v(6n-9)}{n}$

(3) $\frac{2v(2n+1)}{n}$ (4) $\frac{2v(n-1)}{n}$

8. The solid cylinder of length 80 cm and mass M has a radius of 20 cm. The moment of inertia of the cylinder about an axis CD parallel to AB as shown in figure is 2.7 kg m^2. The density of the material used is



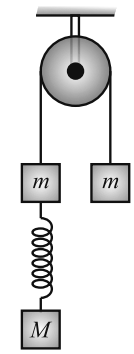
(1) 7.5×10^1 kg/m^3

(2) 1.49×10^2 kg/m^3

(3) 14.9 kg/m^3

(4) 7.5×10^2 kg/m^3

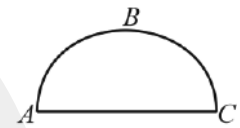
9. The system shown in figure is released from rest. The spring gets elongated (Neglect the friction and masses of pulley, string, and spring.)



(1) If $M > m$ (2) If $M > 2m$

(3) If $M > m/2$ (4) For any value of M

10. If a particle starts from A along the curved circular path shown in figure with tangential acceleration 'a'. Then acceleration at B in magnitude is



(1) $2a\sqrt{1+\pi^2}$ (2) $a\sqrt{1+\pi^2}$

(3) $a\sqrt{\pi^2-1}$ (4) $a\pi\sqrt{1+\pi^2}$

11. A skater of mass m standing on ice throws a stone of mass M with a velocity of v in a horizontal direction. The distance over which the skater will move back (the coefficient of friction between the skater and the ice is μ):

(1) $\frac{M^2v^2}{2m\mu g}$ (2) $\frac{Mv^2}{2m^2\mu g}$

(3) $\frac{M^2v^2}{2m^2\mu g}$ (4) $\frac{M^2v^2}{2m^2\mu^2 g}$

12. A ladder 5 m in length is resting against vertical wall. The bottom of the ladder is pulled along the ground away from the wall at the rate of 1.5 m/sec. When the foot of the ladder is 4.0 m away from the wall, the length of the highest point of the ladder decreases at the rate of

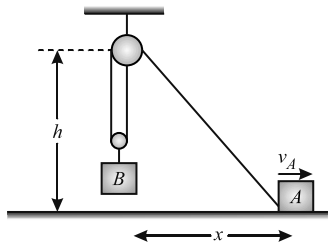
(1) 2 m/sec

(2) 3 m/sec

(3) 2.5 m/sec

(4) 1.5 m/sec

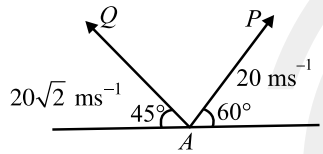
13. If block A is moving horizontally with velocity v_A, then find the velocity of block B at the instant as shown in Figure.



(1) $\frac{hv_A}{2\sqrt{x^2+h^2}}$ (2) $\frac{xv_A}{\sqrt{x^2+h^2}}$

(3) $\frac{xv_A}{2\sqrt{x^2+h^2}}$ (4) $\frac{hv_A}{\sqrt{x^2+h^2}}$

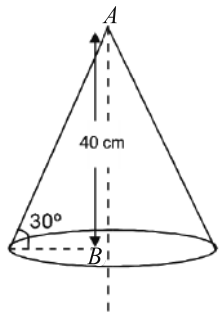
14. Two particles P and Q are projected simultaneously away from each other from a point A as shown in figure. The magnitude of velocity of P relative to Q in ms^{-1} at the instant when the motion of P is horizontal is



(1) $10\sqrt{4-\sqrt{3}}$ (2) $20\sqrt{4-\sqrt{3}}$

(3) $10\sqrt{4+\sqrt{3}}$ (4) $20\sqrt{4+\sqrt{3}}$

15. A uniform solid cone of height 40 cm is shown in figure. The distance of centre of mass of the cone from point B (centre of the base) is



(1) 20 cm (2) 10/3 cm

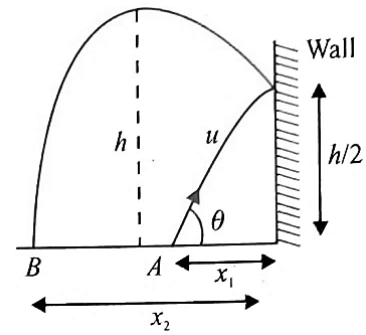
(3) 20/3 cm (4) 10 cm

16. The relation between the time t and position x for a particle moving on x-axis is given by $t = px^2 + qx$, where p and q are constants. The relation between velocity v and acceleration a is as

(1) $a \propto v^3$ (2) $a \propto v^2$

(3) $a \propto v^4$ (4) $a \propto v$

17. A particle is projected with a speed u at an angle θ with horizontal from point A. It strikes elastically with a vertical wall at height $h/2$. It rebounds and reaches maximum height h and falls back on the ground at point B as shown in figure. Distances from A to wall and from wall to B are x_1 and x_2, respectively, and time to cover x_1 and x_2 are t_1 and t_2, respectively. Match the values in column I with the expressions in column II



Column-I		Column-II	
I	$\sqrt{2}$	P	$\frac{x_2-x_1}{x_2+x_1}$ or $\frac{x_2+x_1}{x_2-x_1}$
II	$\frac{1}{\sqrt{2}}$	Q	$\frac{t_2-t_1}{t_2+t_1}$ or $\frac{t_2+t_1}{t_2-t_1}$
III	1	R	$\frac{u\sin\theta}{g(t_1+t_2)}$
IV	$\frac{1}{2}$	S	$\frac{u\cos\theta(t_1+t_2)}{(x_1+x_2)}$

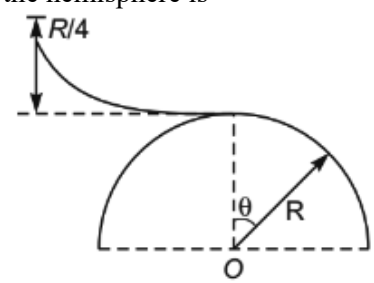
(1) I→P, Q; II→P, Q; III→S; IV→R

(2) I→P, Q; II→P, Q; III→R; IV→S

(3) I→P, Q; II→P, Q; III→P; IV→R

(4) I→P, Q; II→P, Q; III→Q; IV→R

18. A skier plans to ski a smooth fixed hemisphere of radius R. He starts from rest from a curved smooth surface of height $\left(\frac{R}{4}\right)$. The angle θ at which he leaves the hemisphere is



(1) $\cos^{-1}\left(\frac{2}{3}\right)$ (2) $\cos^{-1}\frac{5}{\sqrt{3}}$

(3) $\cos^{-1}\left(\frac{5}{6}\right)$ (4) $\cos^{-1}\left[\frac{5}{2\sqrt{3}}\right]$

Test Paper-01

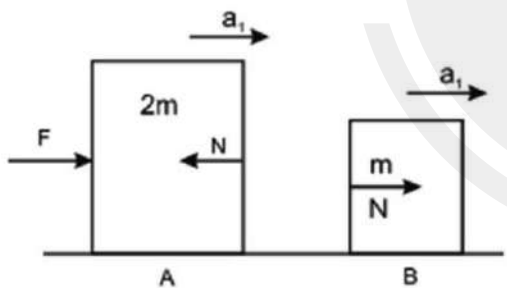
ANSWER KEY

1.	(2)	16.	(1)	31.	(2)	46.	(1)	61.	(2)
2.	(3)	17.	(1)	32.	(3)	47.	(7)	62.	(2)
3.	(2)	18.	(3)	33.	(2)	48.	(16)	63.	(2)
4.	(3)	19.	(2)	34.	(4)	49.	(4)	64.	(2)
5.	(1)	20.	(4)	35.	(4)	50.	(30)	65.	(1)
6.	(2)	21.	(53)	36.	(2)	51.	(4)	66.	(3)
7.	(1)	22.	(4)	37.	(1)	52.	(2)	67.	(2)
8.	(2)	23.	(2)	38.	(3)	53.	(4)	68.	(4)
9.	(4)	24.	(20)	39.	(2)	54.	(2)	69.	(2)
10.	(2)	25.	(5)	40.	(4)	55.	(2)	70.	(1)
11.	(3)	26.	(4)	41.	(2)	56.	(1)	71.	(16)
12.	(1)	27.s	(1)	42.	(1)	57.	(3)	72.	(2)
13.	(3)	28.	(1)	43.	(3)	58.	(2)	73.	(45)
14.	(2)	29.	(1)	44.	(2)	59.	(3)	74.	(201)
15.	(4)	30.	(2)	45.	(4)	60.	(3)	75.	(685)

SOLUTIONS

PHYSICS

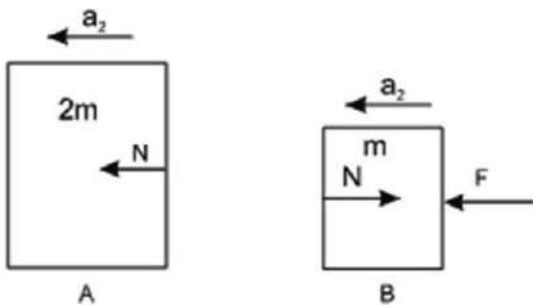
1. (2)



$F - N = 2ma_1$ [Newton`s II law for block A]

$N = ma_1$ [Newton`s II law for block B]

$\Rightarrow N = \frac{F}{3}$

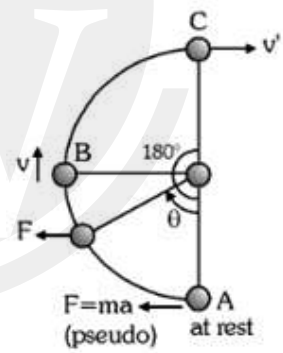


$N = 2\ ma_2$ [Newtons II law for block A]

$F - N = m \times a_2$ [Newtons II law for block B]

$\Rightarrow N = 2F/3$ so the ratio is 1 : 2

2. (3)



Acceleration of train = $a \rightarrow$

Motion of bob w.r.t. train:

Initially $\vec{V}_{\text{bob / train}} = 0$

From $A \rightarrow B$, pseudo force $F = ma \leftarrow$ acts on bob.

Let bob turns through 180° and has speed v' at highest position

W/E theorem $A \rightarrow B$:

$$FR = \frac{1}{2}mv^2 + mgh$$

$$\frac{mv^2}{R} = 2(ma - mg)$$

$B \rightarrow C$: Now train has stopped, $a = 0$, no pseudo force acts on bob.

Conservation of energy

$$mgR + \frac{1}{2}mv^2 = \frac{1}{2}mv^2$$

$$\frac{mv^2}{R} = \frac{mv^2}{R} - 2mg$$

$T + mg = 2(ma - mg) - 2mg$ from (1)

$T = 2\,ma - 5\,mg \geq 0$

(to complete vertical circular motion)

$$\Rightarrow a \geq \frac{5g}{2} \text{ or } a \geq 25 \text{ms}^{-2}$$

$$\therefore 3K - 2 = 25; K = 9$$

3. **(2)**

Let mass of the boulder that can be swept by the river be given by

$m = kV^x g^y d^z$

$[m] = [V]^x [g]^y [d]^z$

$\left[M^1 L^0 T^0\right] = \left[L^1 T^{-1}\right]^x \left[L^1 T^{-2}\right]^y \left[M^1 L^{-3}\right]^z$

$= \left[M^z L^{x+y-3z} T^{-x-2y}\right]$

$z = 1; x + y - 3z = 0; -x - 2y = 0$

Solving; $x = 6$; $y = -3$, $z = 1$

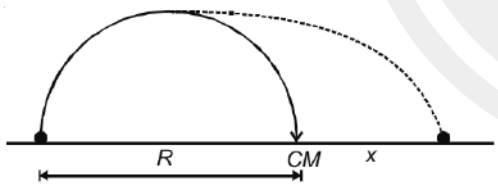
$\therefore m = k\,\text{V}^6 g^{-3} d$

$$\therefore \frac{\Delta m}{m} \times 100 = 6\frac{\Delta V}{V} \times 100$$

The percentage change in mass is 6% when speed changes by 1%

4. **(3)**

See figure



$m \cdot R = m \cdot x \Rightarrow \text{x} = R$

From point of projection $2R$

5. **(1)**

Let, when particle is at angular position θ, then distance travelled = l

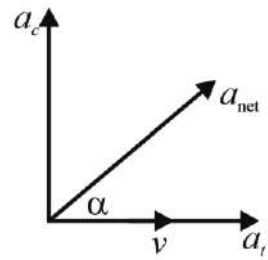
$v = a\sqrt{l}$

But $a_t = \frac{dv}{dt} = \frac{a}{2\sqrt{l}}\frac{dl}{dt} = \frac{av}{2\sqrt{l}} = \frac{a^2}{2}$

And $a_c = \frac{v^2}{r} = \left(\frac{a^2 l}{r}\right)$

Angle between a_{net} and v is same as angle between a_{net} & a_t:

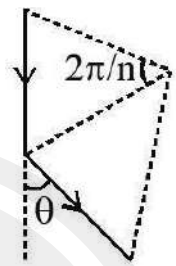
$$\tan\alpha = \frac{a_c}{a_t}$$



$$\alpha = \tan^{-1}\left(\frac{2l}{r}\right)$$

6. **(2)**

Sides are shown



$$\theta = \pi - 2\left(\frac{\pi - \frac{2\pi}{n}}{2}\right)$$

$$= \frac{2\pi}{n}$$

Here, $n = 12$

$$\Rightarrow \theta = \frac{2\pi}{12} = \frac{\pi}{6}$$

Velocity of approach

$$= V - V\cos\frac{\pi}{6} = V - \frac{\sqrt{3}}{2}V$$

Time of approach

$$= \frac{a}{V\left(1 - \frac{\sqrt{3}}{2}\right)}$$

Distance travelled

$$= \left(\frac{2a}{2 - \sqrt{3}}\right)$$

7. **(1)**

Using $v = u + at$

$v = 0 + an$

$v = an$

$$\Rightarrow \quad a = \frac{v}{n}. \qquad \ldots(1)$$

Distance travelled in n seconds,

HOW TO PREPARE FOR JEE MAIN 2025?

1 Smart Study Strategy

Divide the syllabus into manageable sections. Utilize the Heatmap of Chapter Occurrences Across Different Paper Sessions provided in the book to prioritize key topics effectively.

2 Start with part tests

Begin your preparation by attempting the Part Tests based on the 11th and 12th class syllabus.

3 Analyze and Learn from Solutions

After completing each test, carefully analyze the solutions provided in the booklet to understand the correct answers and learn from your mistakes.

4 Gradually Attempt Full Syllabus Tests

Progress to taking the Full Syllabus Tests, to thoroughly analyze your preparation

5 Opt for FREE CBT Mock Test

Scan the QR code provided to access the free JEE Main computer-based mock test and experience a real exam-like environment.

6 Fine-Tune Your Strategy

Adjust your study plan and focus on areas that need improvement based on the provided insights.

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