



# JEE (MAIN) 2026

## MEMORY BASED QUESTIONS & TEXT SOLUTION

**SHIFT-2**

**DATE & DAY:** 21<sup>st</sup> January 2026 & Wednesday

**PAPER-1**

**Duration:** 3 Hrs.

**Time:** 03:00 PM – 06:00 PM

**SUBJECT: PHYSICS**

Selections in JEE (Advanced)/  
IIT-JEE Since 2002

**52979**

Classroom: 35901 | Distance: 17078

Selections in JEE (Main)/  
AIEEE Since 2009

**262693**

Classroom: 194471 | Distance: 68222

Selections in NEET (UG)/  
AIPMT/AIIMS Since 2012

**22733**

Classroom: 15409 | Distance: 7324

**Admission Open for 2026-27**

**Target:** JEE (Advanced) | JEE (Main) | NEET (UG) | PCCP (Class V to X)

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**PART : PHYSICS**

1. In a circuit there is a battery with internal resistance  $r$  and EMF  $E$ , which is connected to external load resistance  $R$  as shown. Find value of  $R$  so that maximum power dissipates across  $R$ .



(1)  $R = r$

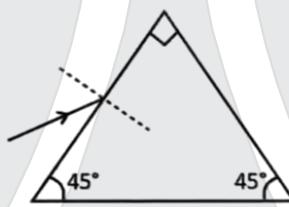
(2)  $R = r/2$

(3)  $R = \sqrt{2}r$

(4)  $R = 2r$

**Ans. (1)**

2. Refractive index of prism is  $\sqrt{2}$ . What should be angle of incidence for a light ray such that the emerging ray grazes out the surface.



(1)  $90^\circ$

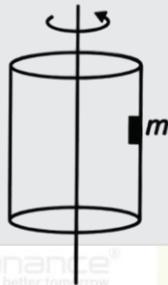
(2)  $60^\circ$

(3)  $30^\circ$

(4)  $45^\circ$

**Ans. (1)**

3. A block of mass  $m$  is at rest w.r.t. hollow cylinder which is rotating with angular speed  $\omega$ . Radius of cylinder is  $R$ . Find minimum coefficient of friction between block and cylinder.



(1)  $\frac{3g}{2\omega^2 R}$

(2)  $\frac{g}{\omega^2 R}$

(3)  $\frac{g}{4\omega^2 R}$

(4)  $\frac{2g}{\omega^2 R}$

**Ans. (2)**

4. Keeping the significant figures in view the sum of the physical quantities 52.0 m, 153.2 m and 0.123 m is

(1) 205.3 m

(2) 205 m

(3) 205.33 m

(4) 205.33 m

**Ans. (1)****Resonance Eduventures Ltd.**

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5. The energy of an electron in orbit of Bohr's atom is  $-0.04\epsilon_0$  eV where  $\epsilon_0$  is (G – state<sup>2</sup>) energy.

If L is the angular momentum of e in this orbit and h is plank's constant then  $\frac{2\pi L}{h}$  is...

(1) 5

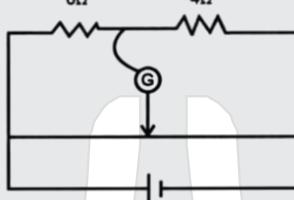
(2) 6

(3) 2

(4) 4

Ans. (1)

6. The total length of potentiometer wire AB is 50 cm in the arrangement so in the in fig. If 'P' is the point where the galvanometer shows zero reading Then the length AP is \_\_\_ cm .



(1) 15

(2) 20

(3) 30

(4) 25

Ans. (3)

7. The rms speed of oxygen molecules at 47°C is equal to that of hydrogen molecules kept at \_\_\_

$$C \left( \frac{M(O)}{M(H)} \right) = \frac{32}{2}$$

(1) -100

(2) -253

(3) -20

(4) -235

Ans. (2)

8. The Kinetic energy of a simple harmonic oscillator with angular frequency of 176 rad/s. The frequency of the simple harmonic oscillator is \_\_\_ Hz  $(\pi = \frac{22}{7})$

(1) 176

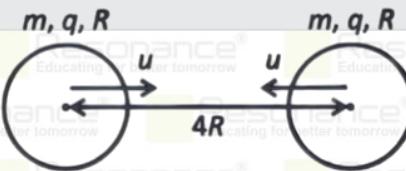
(2) 14

(3) 28

(4) 88

Ans. (4)

9. Two spheres having equal mass m, charge q and radius R, are moving towards each other. Both have speed u at an instant when distance between their centers is 4R. Minimum value of u so that they touch each other is



$$(1) \sqrt{\frac{q^2}{4\pi\epsilon_0 m R}}$$

$$(2) \sqrt{\frac{q^2}{16\pi\epsilon_0 m R}}$$

$$(3) \sqrt{\frac{q^2}{\pi\epsilon_0 m R}}$$

$$(4) \sqrt{\frac{q^2}{8\pi\epsilon_0 m R}}$$

Ans. (2)

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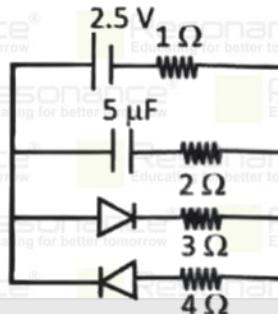
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10. For the given circuit arrangement, find the charge on the capacitor in steady state.



(1)  $15 \mu\text{F}$

(2)  $\frac{75}{8} \mu\text{C}$

(3)  $\frac{15}{2} \mu\text{F}$

(4)  $\frac{55}{4} \mu\text{C}$

Ans. (2)

11. Position  $x$  of the particle of mass 2 kg function of time as  $x = t^2 + t + 1$ . Find out work done on the particle from  $t_1 = 2\text{ sec}$  to  $t_2 = 3\text{ sec}$ .

(1) 18 joule

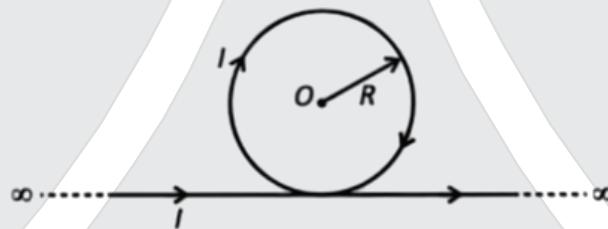
(2) 30 joule

(3) 34 joule

(4) 24 joule

Ans. (4)

12. Find magnetic field at point 'O' in the given figure shown.



(1)  $\frac{\mu_0 I}{R} \left( 2 + \frac{1}{\pi} \right)$

(2)  $\frac{\mu_0 I}{2R} \left( 1 + \frac{1}{\pi} \right)$

(3)  $\frac{\mu_0 I}{2R} \left( 1 - \frac{1}{\pi} \right)$

(4)  $\frac{\mu_0 I}{4R} \left( 2 + \frac{1}{\pi} \right)$

Ans. (3)

13. Consider two statements given below :

Statement-I: In YDSE, if distance between slits & screen increases, fringe width also increases.

Statement-II: If wavelength of light used in YDSE increases, fringe width also increases. Which of the following options is correct?

(1) Both statements I & II are correct

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

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

(4) Both statements I & II are incorrect

Ans. (1)

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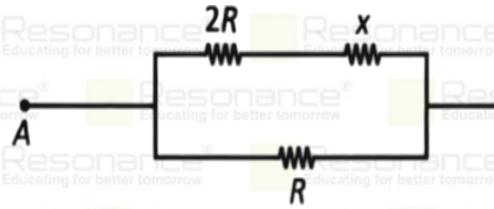
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14. For the given resistive network, the net resistance across  $AB = x$ . Then find the value of  $x$ .



(1)  $x = R(\sqrt{2} - 1)$  (2)  $x = R(\sqrt{3} + 1)$   
 (3)  $x = R(\sqrt{2} + 1)$  (4)  $x = R(\sqrt{3} - 1)$

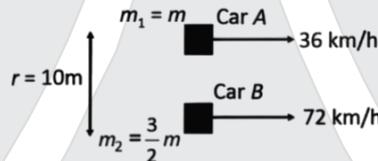
**Ans. (4)**

15. A diatomic gas ( $\gamma = 1.4$ ) does 100 J of work in an isobaric expansion. The heat given to the gas is:

(1) 350 J (2) 490 J (3) 150 J (4) 250 J

**Ans. (1)**

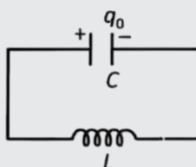
16. Two cars moving parallelly to each other with the velocities shown. Initial separation between cars is  $r = 10$  m. Find angular momentum of car A w.r.t. car B.



(1) 100 m (2) 200 m (3) 150 m (4) 75 m

**Ans. (1)**

17. In the given L-C circuit, charge on the capacitor is maximum at  $t = 0$ , find time at which charge becomes 25% of its initial value first time.



(1)  $\sqrt{LC} \cos^{-1}\left(\frac{1}{4}\right)$  (2)  $\frac{L}{R} \ln 2$  (3)  $\sqrt{LC} \sin^{-1}\left(\frac{1}{4}\right)$  (4)  $\sqrt{LC} \cos^{-1}\left(\frac{1}{2}\right)$

**Ans. (1)**

18. A boat crosses a river, 200 m wide, in minimum possible time. If velocity of river is 5 m/s and velocity of boat is still water is 10 m/s. Then, find time taken to cross the river and displacement of the boat.

(1) 20 sec. and  $100\sqrt{5}$  m (2) 10 sec. and  $100\sqrt{5}$  m  
 (3) 20 sec. and  $200\sqrt{5}$  m (4) 20 sec. and 200 m

**Ans. (1)**

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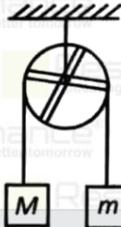
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19. In diagram given below, pulley is a ring of mass  $M$  and radius  $R$  filled with two rods each of mass  $m$  and length  $2R$  along diameter such that if pulley rotates, rods also rotate with same angular velocity. Find magnitude of acceleration of  $m$  when system is released.



(1)  $\frac{3(M-m)g}{(6M+5m)}$

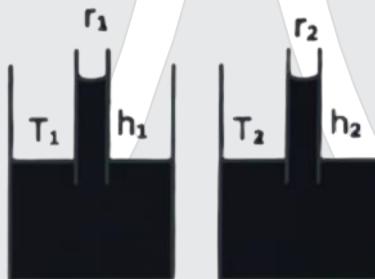
(2)  $\frac{6(M-m)g}{(6M+5m)}$

(3)  $\frac{3(M-m)g}{(M+m)}$

(4)  $\frac{6(M-m)g}{(M+m)}$

Ans. (1)

20. Two capillaries are dipped in two different liquids having meniscus radius  $R_1, R_2$  ( $R_1 > R_2$ ) and surface Tension  $T_1$  &  $T_2$ . If density of liquids are same :



(1)  $h_1 = h_2$  then  $T_1 = T_2$   
 (3)  $h_1 > h_2$  then  $T_1 < T_2$

(2)  $h_1 > h_2$  then  $T_1 = T_2$   
 (4)  $h_1 < h_2$  then  $T_1 = T_2$

Ans. (4)

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