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JEE (MAIN) 2026

MEMORY BASED QUESTIONS & TEXT SOLUTION

SHIFT-2

DATE & DAY: 22nd January 2026 & Thursday

PAPER-1

Duration: 3 Hrs.
Time: 03:00 PM – 06:00 PM

SUBJECT: PHYSICS

PART : PHYSICS

1. Find the dimensions of the expression $\frac{\varepsilon_0 E}{T}$, where ε_0, E and T are permittivity, electric field and time.

(1) AL (2) AL^{-2} (3) $MA^{-1}L$ (4) MLA^2

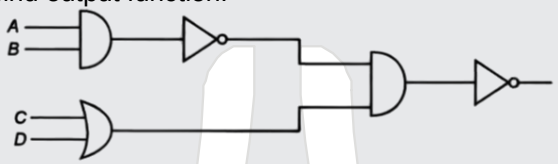
Ans. **(2)**

2. In an open organ pipe 3rd and 6th harmonic frequency differ by 3200 Hz . Find the length of organ pipe (speed of sound = 320 m/s)

(1) 5 cm (2) 10 cm (3) 15 cm (4) 20 cm

Ans. **(3)**

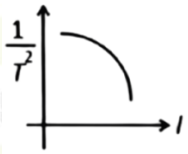
3. For the given logic gate find output function.

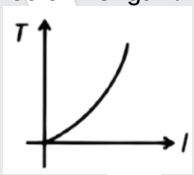


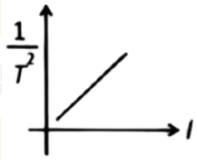
(1) $\bar{A}\cdot\bar{B}+C+D$ (2) $\bar{A}+\bar{B}+\bar{C}\cdot\bar{D}$ (3) $AB+CD$ (4) $AB+\bar{C}\cdot\bar{D}$

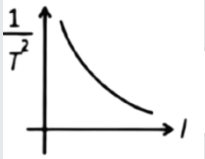
Ans. **(4)**

4. Using a simple pendulum experiment g is determined by measuring its time period T. Which of the following plots represent correct relation b/w the pendulum length ℓ & time period T.

(1) 

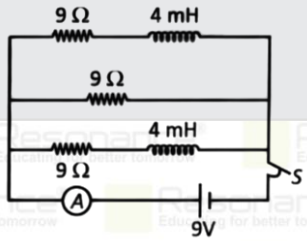
(2) 

(3) 

(4) 

Ans. **(4)**

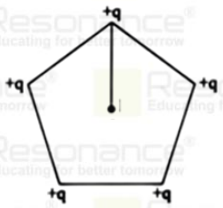
5. For the given circuit, find reading of ammeter just after key(s) is closed.



(1) 1A (2) 3 A (3) $\frac{3}{2}$A (4) $\frac{1}{2}$A

Ans. **(1)**

6. Five positive charges each having charge q are placed at the vertices of a pentagon as shown in the figure. The electric potential (V) & the electric field ($\vec{E}$) at the center O of the pentagon due to the 5 positive charges are:-



(1) $V = 0, E = 0$

(2) $V = \frac{5q}{4\pi\varepsilon_0 r}$ $E = \frac{5q}{4\pi\varepsilon_0 r^2}$

(3) $V = \frac{5q}{4\pi\varepsilon_0 r} \vec{E} = 0$

(4) $V = \frac{5q}{4\pi\varepsilon_0 r}$ $E = \frac{5\sqrt{3}q}{8\pi\varepsilon_0 r^2}\hat{r}$

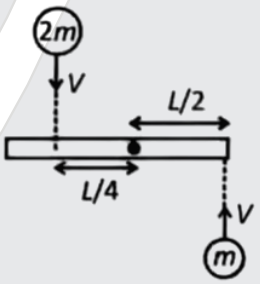
Ans. **(3)**

7. 3 small identical bubbles of water having same charge on each coalesce to forma biggen bubbe, Then the ratio of the potentials on one initial bubble & that on the resultant bigger bubble is:

(1) $1:3^{2/3}$ (2) $3^{2/3}:1$ (3) $1:2^{2/3}$ (4) $1:3^{1/3}$

Ans. **(1)**

8. Two balls of mass $2m$ and m collides with rod of mass m and length L as shown balls stick to the rod after collision. Find $\frac{V}{\omega}$ if rod is hinged at centre. ($L = 8\,m$)



(1) 11/2 (2) 11/3 (3) 11/4 (4) 9/4

Ans. **(2)**

9. A gas undergoes a process in which state variable changes from $(1\text{ atm}, 60\text{ ml}, 27^\circ\text{C})$ to $(\text{atm}, 30\text{ml}, 77^\circ\text{C})$ then P is

(1) 3 atm (2) $\frac{5}{4}$atm (3) $\frac{7}{3}$atm (4) $\frac{4}{3}$atm

Ans. **(3)**

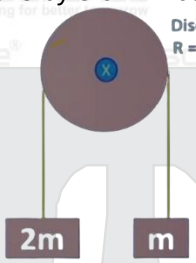
10. A light ray incident on a slab of refractive index $\frac{3}{2}$. If wavelength of refracted ray is 520 nm . Find wavelength of incident ray.

(1) 460 nm (2)780 nm (3)360 nm (4)560 nm

Ans. **(1)**

11. Which of the following is/are true for YDSE experiment?
i. Fringe width increases if slit width is constant & wavelength increased
ii. Fringe width increases if slit width is constant & wavelength decreased
iii. Fringe width increases if slit width is increased & wavelength constant
iv. Fringe width increases if slit width is decreased & wavelength constant.
(1) i, iii (2) i, iv (3) ii, iii (4) ii, iv
Ans. **(4)**

12. Find speed of blocks when 2 m has move by 3.6 m initially system is at rest.



Ans. **(2 m/s)**

13. In a photoelectric effect experiment, the maximum possible kinetic energy of the emitted photoelectrons is zero. The work function of the metal is $= 20 \times 10^{-19}$ J. Find the frequency of the incident photon.
(1) 3.0×10^{14} Hz (2) 3.02×10^{15} Hz (3) 1.5×10^{15} Hz (4) 6.6×10^{14} Hz
Ans. **(2)**

14. In hydrogen type atom, shortest wavelength in Lyman series is given as 91 nm . Then longest wavelength in Panchen series of this atom shall be
(1) 31.82 nm (2) 113.3 nm (3) 1.87μ m (4) 2.31μ m
Ans. **(3)**

15. Find the percentage change in height risen by liquid if density of fluid, radius of capillary and surface tension of liquid are decreased by 1%. Assume contact angle doesn't change and capillary is of sufficient length.
(1) +1% (2) -1% (3) + 3% (4) − 3%
Ans. **(2)**

16. **Statement-1:** Kinetic energy of system $= \frac{1}{2}m_1v_1^2 + \frac{1}{2}m_2v_2^2 \ldots \frac{1}{2}m_nv_n^2$.
Statement-2: Kinetic energy of system = Kinetic energy of center of mass + kinetic energy with respect to center of mass.
(1) Statement I is true. Statement II is true. (2) Statement I is true Statement II is false
(3) Statement I is false Statement II is true (4) Statement I Is false Statement II is false
Ans. **(1)**

17. A capacitor of capacitance 10μ F is connected with a battery 6 V . Now battery is disconnected and another uncharged capacitor of capacitance 20μ F is connected to the capacitor. Find charge on 20μ F capacitor.
(1) $\frac{30}{4}\mu$C (2) 10μC (3) $\frac{20}{3}\mu C$ (4) 40μC
Ans. **(4)**