13) From a circular ring of mass M and radius R, an arc corresponding to a 45° sector is removed. The moment of inertia of the remaining portion of the ring about an axis passing through the center of the ring and perpendicular to the plane of the ring is K times MR^2. The value of K will be

a) $\frac{3}{4}$ b) $\frac{3}{5}$

c) $\frac{7}{8}$ d) $\frac{3}{7}$

14) The length of a metallic rod is 5 m at 0°C and become 5.01 m on heating till 100°C. The coefficient of linear expansion of the metal will be

a) $2.33 \times 10^{-5}/°C$ b) $6.0 \times 10^{-5}/°C$

c) $4.0 \times 10^{-5}/°C$ d) $2.0 \times 10^{-5}/°C$

15) The wavelength of light travelling in vacuum is 8000 Å and in a medium is 4000 Å. The refractive index of the medium is

(a) 1 (b) 2

(c) 3 (d) 4

16) In the given branch *PQ* of a main circuit, electric current $i = (5t + 2)$ A is flowing, where *t* is time in second. At *t* = 1 s, the potential difference between point *P* and *Q* is

a) Zero b) 20 V

c) 10 V d) 55 V

17) Magnitude of magnetic field near the end of long solenoid is B_1 and at its mid-point is B_2. The ratio $\frac{B_1}{B_2}$ is:

a) $\frac{1}{2}$ b) 2

c) $\frac{1}{4}$ d) 4

18) A cube of a substance of coefficient of volume expansion γ_1 is floating in a liquid of coefficient of volume expansion $\gamma_2 (\gamma_2 < \gamma_1)$, such that 50% of its volume is inside the liquid. If temperature of the system is now increased, then percentage of volume of cube inside the liquid may be

a) 50% b) 52%

c) 45% d) 55%

19) The speed of electromagnetic wave in a medium which has relative permeability 2 and relative permittivity 8, is

a) $1.5 \times 10^8 \, m/s$ b) $1 \times 10^8 \, m/s$

c) $2.5 \times 10^8 \, m/s$ d) $7.5 \times 10^7 \, m/s$

20) 1 Ampere is the amount of current that is flowing through each of two parallel long straight wires which is placed 1 m apart will give rise to a force per unit length between them is equal to

a) 1 N/m b) $2 \times 10^7 N/m$

c) $4\pi \times 10^7 \, N/m$ d) $2 \times 10^{-7} N/m$

21) A short bar magnet placed with its axis at 30° with a uniform external magnetic field of 0.25T experiences a torque of magnitude equal to 0.05 N m. The magnitude of the magnetic moment of the bar magnet is;

a) 0.2 JT⁻¹ b) 0.4 JT⁻¹

c) 4.0 JT⁻¹ d) 0.64J T⁻¹

22) The impedance of a circuit containing a resistance of 30 Ω and an inductance of $\frac{0.4}{\pi} H$ which are connected in series, for A.C. source of 50 Hz frequency is

a) 100 Ω b) 70 Ω

c) $50\sqrt{2}$ Ω d) 50 Ω

23) An open and a closed organ pipe have the same length and are placed in same medium. The ratio of frequency of their 4th overtone is

a) $\frac{10}{9}$ b) 2

c) $\frac{8}{7}$ d) $\frac{2}{7}$

24) A ray of light incident on an equilateral prism at grazing incidence and emerges grazingly from the prism at other surface. The refractive index of the prism is

a) 1.5 b) 1.8

c) 1.33 d) 2

Answer Key for 18-04-2025 NEET MODEL QUESTION PAPER - PHYSICS

Q	1	2	3	4	5	6
A	B	C	C	A	B	C
Q	7	8	9	10	11	12
A	C	A	C	D	A	C