Navik GD Physics Paper 22 March 2021 Shift 3

20 Questions

Que. 1 The energy radiated by a black body is directly proportional to

1. T^2
2. T^{-2}
3. T^4
4. T

Solution Correct Option - **3**

Que. 2 A charge Q is enclosed by a Gaussian spherical surface of radius R. If the radius is doubled, then the outward electric flux will

1. Be doubled
2. Increase four times
3. Be reduced to half
4. Remain the same

Solution Correct Option - **4**

Que. 3 The Young's modulus of a wire of length L and radius r is Y N/m^2. If the length and radius are reduced to L/3 and r/4, then its Young's modulus will be

1. Y
2. Y/3
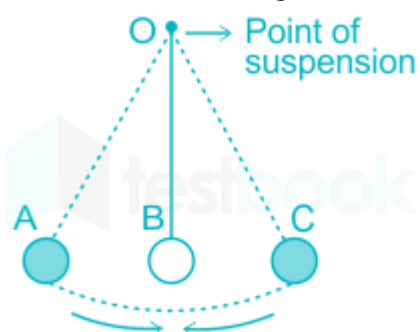3. Y/4
4. Y/12

Solution Correct Option - **1**

Que. 4 The acceleration due to gravity is

1. maximum at the centre of the earth
2. negative at the centre of the earth
3. positive at the centre of the earth
4. zero at the centre of the earth

Solution Correct Option - **4**

Que. 5 Which of the following statement is CORRECT?

1. The Minimum Velocity and Maximum Acceleration will be at Point A only
2. The Minimum Velocity and Maximum Acceleration will be at Point A and C
3. The Maximum Velocity and Minimum Acceleration will be at Point A and B
4. The maximum Acceleration and Minimum Velocity will be at Point B only

Solution Correct Option - **2**

Que. 6 In a magnetic field, a charge does not experience any force, then which of the following is not possible?

1. Charge is at rest
2. Motion of charge is perpendicular to a non-zero magnetic field
3. Motion of charge ls parallel to a non-zero magnetic field
4. Motion of charge is parellel to a zero magnetic field

Solution Correct Option - **2**

Que. 7 Curie temperature is the temperature above which

1. A paramagnetic material becomes ferromagnetic
2. A ferromagnetic material becomes paramagnetic
3. A paramagnetic material becomes diamagnetic
4. A ferromagnetic material becomes diamagnetic

Solution Correct Option - **2**

Que. 8 The direction of **electric field intensity (E)** at a point on the equatorial line of an electric dipole of **dipole moment (p)** is

1. along the equatorial line towards the dipole
2. along the equatorial line away from the dipole
3. perpendicular to the equatorial line and the opposite to p
4. perpendicular to the equatorial line and parallel to p along the axial line in the direction of p

Solution Correct Option - **3**

Que. 9 The terminal velocity of a copper ball of radius 2 mm falling through a tank of honey is 30 mm/s. What will be the drag force exerted by the oil on the copper ball if the viscosity of the oil is 1 N-s/m².

1. 1.13×10^{-4} N
2. 1.13×10^{-6} N
3. 36×10^{-4} N
4. 36×10^{-6} N

Solution Correct Option - **1**

Que. 10 A body is falling freely in a viscous liquid. If the radius of the body is doubled, its terminal velocity will become:

1. Doubled
2. Four times
3. One fourth
4. Half

Que. 11 An object of mass m follows a circular path of radius r with a constant speed v in uniform circular motion. Then, the work done by the centripetal force for the object to move once in a full circle is

1. $(MV^2/r).2r$
2. Zero
3. $(Mv^2/r).2\pi r$
4. $(MV^2/r).2\pi r$

    Solution Correct Option - **2**

Que. 12 An observer is moving towards a stationary source of frequency 250 Hz with a velocity of 40 m/s. If the velocity of sound is 330 m/s, the apparent frequency heard by the observer will be:

1. 320 Hz
2. 300 Hz
3. 280 Hz
4. None of these

    Solution Correct Option - **3**

Que. 13 The temperature which has same numerical value on Celsius and Fahrenheit scale is

1. 273
2. -40
3. -273
4. 40

    Solution Correct Option - **2**

Que. 14 What is the dimensional formula of strain?

1. $M^0L^0T^0$
2. $M^1L^{-1}T^{-2}$
3. $M^0L^0T^{-1}$
4. None of the above

    Solution Correct Option - **1**

Que. 15 Two masses are placed in x-y plane. 1 kg mass is at (6, 6) and 2 kg is placed at (x, y). Find the value of (x, y) if the centre of mass of two masses is at origin.

1. (-6, -6)
2. (0, 0)
3. (-3, -3)
4. (2, 2)

    Solution Correct Option - **3**

Que. 16

If ΔU is the increase in internal energy and W is the work done by a system, then which of the following statements is true?

1. ΔU = W in an adiabatic process
2. ΔU = -W in an isothermal process
3. ΔU = -W in an adiabatic process
4. ΔU = W in an isothermal process

Solution Correct Option - **3**

Que. 17 What will be the photon energy in Joule if it has wavelength 2000 Å?

1. 4.97×10^{-19} J
2. 2.48×10^{-19} J
3. 5.28×10^{-19} J
4. 9.94×10^{-19} J

Solution Correct Option - **4**

Que. 18 If a wire in the circuit is replaced with a wire of resistivity four times and the length and cross-sectional area is the same. Then the current in the circuit will become:

1. One fourth
2. Four times
3. Half
4. Double

Solution Correct Option - **1**

Que. 19 An ideal gas heat engine is operating at Carnot cycle between 200°C and 125°C. If it absorbs 1000 J of heat at 200°C, the amount of heat converted into work is-

1. 160 J
2. 325 J
3. 560 J
4. 454 J

Solution Correct Option - **1**

Que. 20 Assuming that the coefficient of friction between the road and the tyre of a car is 0.4, the maximum speed of the car on a turn of radius 100 m on a level road will be: (g = 10 m/s²)

1. 10 m/s
2. 20 m/s
3. 30 m/s
4. 40 m/s

Solution Correct Option - **2**