An ISO 9001:2015 Certified Organization

**GLOBAL COMPETITION SOCIETY**

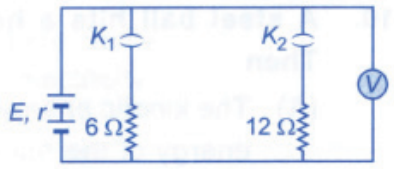
**Duration : 60 Min.**
**Total Ques. : 50**
**Paper Type : S 1**

**12 CLASS**

# SAMPLE Q.P : GLOBAL SCIENCE OLYMPIAD (GSO)

1. The Actual Question Paper Contains 50 Questions.
2. Each question carry an equal marks of 2 against 50 question
3. The Duration of the Test Paper is 60 Minutes

**1. A current 0.1 A flows through the 25 Ω resistor as shown in the figure. Then**

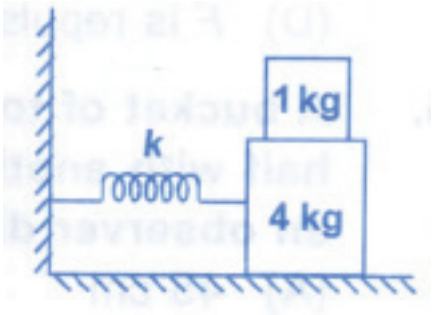



(A) Current through the 80Ω resistor is 0.4 A
(B) Current through the 60Ω resistor is 0.025A
(C) Emf of the battery is 26 V
(D) Emf of the battery is 24 V
(E) None of these

**2. A uniform electric field and a uniform magnetic field are produced, and are pointed in the same direction. An electron is projected with its velocity pointed in the same direction**

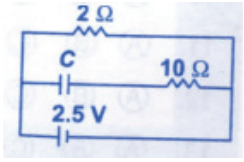
(A) The electron will turn to its left
(B) The electron velocity will decrease in magnitude
(C) The electron will turn to its right
(D) The electron velocity will increase in magnitude.
(E) None of these

**3. The coefficient of friction between two blocks of masses 1 kg and 4 kg as shown in figure is μ and the horizontal plane is smooth. If the system is slightly displaced and released it will execute S.H.M. The maximum amplitude if the upper block does not slip relative to lower block will be (k is spring constant)**




(A) $\frac{5\mu g}{k}$ (B) $\frac{\mu g}{k}$
(C) $\frac{3\mu g}{k}$ (D) $\frac{2\mu g}{k}$
(E) None of these

**4. A capacitor of capacitance C = 2μF is connected as shown in figure. If internal resistance of the cell is 0.5. The charge on the capacitor plates is**




(A) Zero (B) 2 μC
(C) 4 μC (D) 6 μC
(E) None of these

**5. A radioactive isotop is being produced at a constant rate A. The isotop has a half-life T. Initially there are**

**no nuclei. After a time t > > T, the number of nuclei becomes constant. The value of this constant is**

(A) $\frac{AT}{In(2)}$ (B) In(2)AT

(C) $\frac{A}{T}In(2)$ (D) AT

(E) None of these

**6. A thin rod is bent in the shape of a small circle of radius r. If the charge per unit length of the rod is σ, and if the circle is rotated about its axis at a rate of n rotations per second, the magnetic induction at a point on the axis at a large distance y from the center is**

(A) $\mu_0 \pi r^3 n \frac{\sigma}{y^3}$ (B) $2\mu_0 \pi r^3 n \frac{\sigma}{y^3}$

(C) $\left(\frac{\mu_0}{4\pi}\right) r^3 n \frac{\sigma}{y^3}$ (D) $\left(\frac{\mu_0}{2\pi}\right) r^3 n \frac{\sigma}{y^3}$

(E) None of these

**7. While light may be considered to be a mixture of waves with λ ranging between 3900 Å and 7800 Å. An oil film thickness 10,000 Å is examined normally by the reflected light. If μ = 1.4, then the film appears bright for**

(A) 4308 Å, 5091 Å, 6222 Å

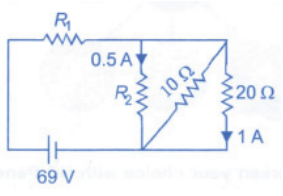
(B) 4000 Å, 5091 Å, 5600 Å

(C) 4667 Å, 6222 Å, 7000 Å

(D) 4000 Å, 4667 Å, 5600 Å

(E) None of these

**8. In the circuit shown in the given figure, the resistances $R_1$ and $R_2$ are respectively**




(A) 14 Ω and 40 Ω (B) 40 Ω and 14 Ω

(C) 40 Ω and 30 Ω (D) 14 Ω and 30 Ω

(E) None of these

**9. Monochromatic light of wavelengths 400 nm and 560 nm are incident simultaneously and normally on double slit apparatus whose slit separation is 0.1 mm and screen distance is 1 m. Distance between areas of total darkness will be**

(A) 4 mm (B) 5.6 mm

(C) 14 mm (D) 28 mm

(E) None of these

**10. Two radioactive substances X and Y emit α and β particles respectively. Their disintegration constants are in the ratio 2 : 3. To have equal probabilities of getting emission of α and β particles,the ratio of number of atoms of X to that of Y at any time instant is**

(A) 2 : 3 (B) 3 : 2

(C) e : 3 (D) (e − 1) : 1

(E) None of these

**11. Uniform magnetic field B is directed vertically upwards and 3 wires of equal length L, carrying equal current I are lying in a horizontal plane such that the first one is along north, second one along north-east and the third one at 60° north of east. Force exerted by magnetic field B on them is**

(A) zero on the first

(B) $\frac{BIL}{\sqrt{2}}$ on the second

(C) $\sqrt{3}\frac{BIL}{\sqrt{2}}$ on the third

(D) BIL on all of them

(E) None of these

**12. A galvanometer has a resistance of 30 Ω and a current of 2.0 mA gives full scale deflection. How will you convert this galvanometer into a volmeter of 0.2 volt range?**

(A) 700 Ω resistance should be connected parallel to the galvanometer.

(B) 70 Ω resistance should be connected parallel to the galvanometer.

(C) 700 Ω resistance should be connected in series with the galvanometer.

(D) 70 Ω resistance should be connected in series with the galvanometer.

(E) None of these