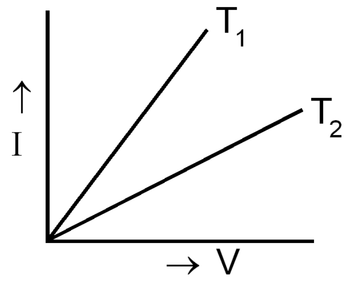
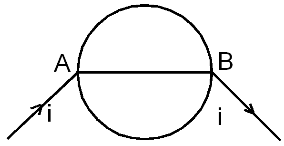
319. The current (I) and voltage (V) graphs for a given metallic wire at two different temperature (T_1) and (T_2) are shown in fig. It is concluded that



(A) $T_1 > T_2$ (B) $T_1 < T_2$
(C) $T_1 = T_2$ (D) $T_1 = 2T_2$

320. A 3^0C rise in temperature is observed in a conductor by passing a certain current. When the current is doubled, the rise in temp -
(A) 15^0C (B) 12^0C (C) 9^0C (D) 3^0C

321. A wire of resistance $0.5\Omega\ m^{-1}$ is bent into a circle of radius 1m. The same wire is connected across a diameter AB as shown in fig. The equivalent resistance is -

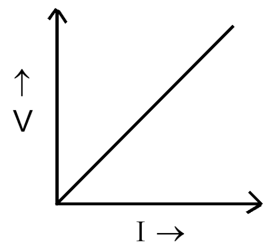


(A) π ohm (B) $\frac{\pi}{(\pi+2)}$ ohm

(C) $\frac{\pi}{(\pi+4)}$ ohm (D) $(\pi + 1)$ ohm

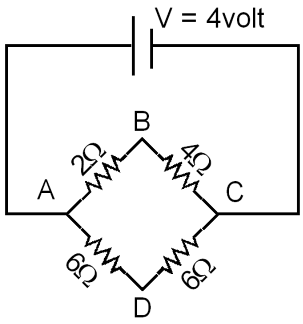
322. In Wheat stone's bridge P = 9 ohm , Q = 11 ohms, R = 4 ohm and S = 6 ohms. How much resistance must be put in parallel to the resistance (S) to balance the bridge
(A) 24 ohms (B) (44/9) ohm (C) 26.4 ohms (D) 18.7 ohms

323. The current -voltage - variation for a wire of copper of length (L) and area (A) is shown in fig. The slope of the line will be



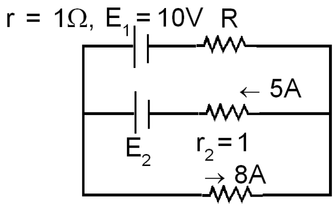
(A) less if experiment is done at a heigher temperature
(B) more if a wire of silver of same dimensions is used
(C) will be doubled if the lengths of the wire is doubled
(D) will be halved if the length is doubled

324 If fig. the difference of potential between (B) and (D) is -



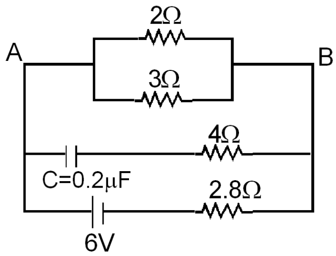
(A) + 0.67V (B) −0.67V
(C) 2V (D) 1.33V

325. In fig the current through resistance (R) is



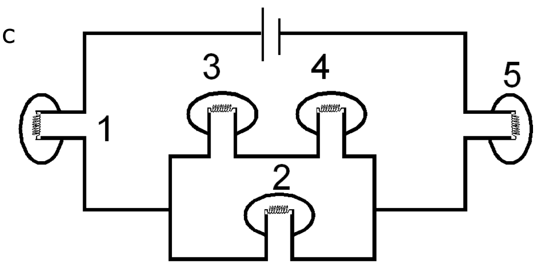
(A) 3A (B) 13A
(C) 6.5 A (D) 9A

326 In fig the steady state current in 2Ω resistance is



(A) 0.3 A (B) 0.9 A (C) 0.6 A (D) zero

327. All bulbs in figure below are identical whic bulbs light most brightly

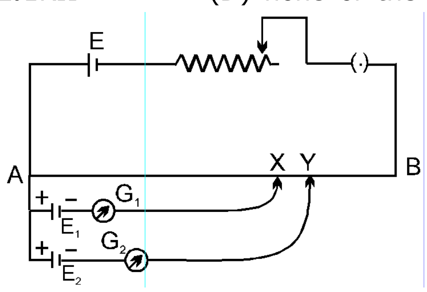


(A) 1 only (B) 2 only (C) 3 and 4 only (D) 1 and 5

328. A resistance coil of 60 Ω is immersed in 42 kg of water. A current of 7 A is passed through it. The rise in temperature of water per minutes is :
(A) 4ºC (B) 8ºC (C) 1ºC (D) 12ºC

329. The resistance of a galvanometer coil is 100Ω. The value of current for full scale deflection in it is 1mA. What should be the value of series resistance to be used to convert it into a voltmeter of 12volt range
(A) 11.9KΩ (B) 12KΩ (C) 12.1KΩ (D) none of the above

330. A potentiometer experiment is setup as shown in fig. If both the galvanometer shows null deflections for the sliding contacts at x and y as shown then-



(A) $E_1 = E_2$ (B) $E_1 > E_2$ (C) $E_1 < E_2$ (D) none of the above

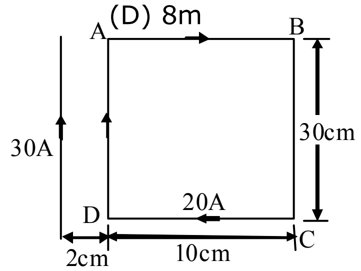
331. A potentiometer, wire of length 10m and resistance 21.8ohm is connected in series with a cell of emf 22 volt internal resistance 0.2Ω and a Rheostate with maximum resistance of 22 ohm , then the minimum & maximum Potential gradient that can be obtained (V/m) are -
(A) 1.09, 2.18 (B) 0.109, 0.218 (C) 0.109, 0.220 (D) 0.218 , 0.220

332. To send 10% of the main current through a moving coil galvanometer of resistance 99Ω, the shunt required is –
(A) 9.9Ω (B) 10Ω (C) 11Ω (D) 9Ω

333. A cell of two volt and 1.5 ohm internal resistance is connected to two ends of a 100metre wire. The resistance of wire is 0.005 ohm/m. The potential gradient of the wire is
(A) 5 v/m (B) 5×10^{-2} v/m (C) 5×10^{-3} v/m (D) 5×10^{-4} v/m

334. A ten meter long potentiometer wire is connected to accumulator of emf 2volts and negligible internal resistance. A lechlanche cell gives null point at 4 meter. If the diameter of the wire is doubled keeping the length same. The position of new null point will be
(A) 2m (B) 4m (C) 6m (D) 8m

335. The resultant force due to a current carrying long wire on a current loop ABCD in Newton will be:
(Direction of current is clockwise)



(A) 1.8×10^{-3} (B) 0.36×10^{-3}
(C) 1.5×10^{-3} (D) zero

336. Out of two identical straight conducting wires of length 20 cm and mass 1.2 gm each, one wire is horizontally clamped below the other wire and in series with both the wires a current source is connected. The second wire can be in equilibrium in air at a height of 0.75 cm from first wire if the current flowing in the wires is-
(A) 47 A (B) 4.7 A
(C) 0.47 A (D) 0.047 A

337. Current I is flowing through a circular coil of radius r. It is placed in a magnetic field B_0 in such a way that the plane of the circular coil is perpendicular to B_0. The force acting in it will be -
(A) πIrB_0 (B) IrB_0
(C) zero (D) $2\pi IrB_0$

338. A direct current is sent through a helical spring. The spring -
(A) tends to get shorter (B) tends to get longer
(C) tends to rotate about the axis (D) tends to move northward

339. Two long, thin wires distant a apart exert a force F on one another when current through each wire is i. The distance between the wires is doubled and the current is decreased to i/3. The force they exert on one another now-
(A) F/6 (B) F/9 (C) 2F/3 (D) F/18

340. A current of 2 ampere is flowing through a coil of radius 0.1 m and having 10 turns. The magnetic moment of the coil will be :
(A) 20 A-m^2 (B) 2A-m^2 (C) 0.314 A-m^2 (D) 0.628 A-m^2

341. The radius of a circular ring of wire is R and it carries a current of I ampere. At its centre a smaller ring of radius r with current i and N turns is placed. Assuming that the planes of two rings are perpendicular to each other and the magnetic induction produced at the centre of bigger ring is constant, then the torque acting on smaller ring will be -

(A) $Ni\pi r^2 \times \left\{\frac{\mu_0 I}{2R}\right\}$ (B) zero (C) $Nir^2 \times \left\{\frac{\mu_0 I}{2R}\right\}$ (D) $Nir^2 \left\{\frac{I^2}{2R}\right\}$

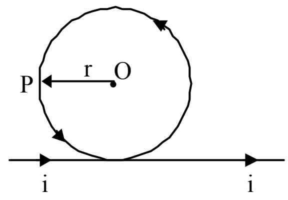
342. The effective radius of a circular coil is R and number of turns is N. The current through it is i ampere. The work done is rotating the coil from angle $\theta = 0^o$ to $\theta = 180^o$ in an external magnetic field B will be -

(A) πNiR^2B (B) $2\pi NiR^2B$ (C) $(2NiB)/(\pi R^2)$ (D) $4\pi NiR^2B$

343. A current carrying wire of length ℓ is bent to from a circular coil. If this coil is placed in any other magnetic field, then for the maximum torque on the coil, the number of turns will be

(A) 1 (B) 2 (C) 4 (D) 8

344. An electric current of i ampere is flowing in a long conductor as shown in the figure. The magnitude and direction of magnetic induction at the centre of circular part will be-



(A) $\frac{\mu_0 i}{2r}\left(1+\frac{1}{\pi}\right)$, $\odot$ (B) 0

(C) $\frac{\mu_0 i}{2r}\left(1-\frac{1}{\pi}\right)$, $\otimes$ (D) $\frac{\mu_0 i}{2r}$, $\odot$