FM: 20x4 # JEE PHYSICS Arabinda Maity/physics tutor

Time:30mins Level I (mini mock2)

1.Two spherical conductors B and C having equal radii and equal charges repel each other with a force F when kept apart at some distance.A third spherical conductor having same radius but uncharged,is brought in contact with B and removed away.The new force of repulsion between B and C is

a)F/2 b)F/4 c)3F/4 d)3F/8

2.When capacitor connected to a battery

a) a current flows in the circuit for sometimes,then decreases to zero. b)no current flows

c)an ac current flows in the circuit d)none of the above

3.Dimension of electrical resistance is

a)$[ML^2T^{-3}A^{-1}]$ b) $[ML^2T^{-3}A^{-2}]$ c) $[MLT^{-3}A^{-2}]$ d) $[ML^3T^{-3}A^{-1}]$

4.A wire is cut into 4 pieces,which are put together by sides to obtain one conductor.If the original resistance of the wire was 2R,the resistance of the bundle will be

a) R/4 b)R/32 c)R/16 d)R/8

5.A galvanometer can be changed into ammeter by providing

a)low resistance in series b)low resistance in parallel

c)high resistance in series d) high resistance in parallel

6.At a certain place ,the angle of dip is 30 degree and the horizontal component of earth magnetic field is 0.05 oersted.The earth's total magnetic field is

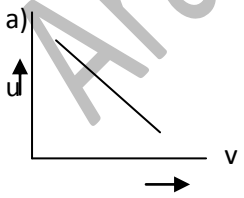
a)1 b) $\sqrt{3}$ c)$1/\sqrt{2}$ d)$1/\sqrt{3}$

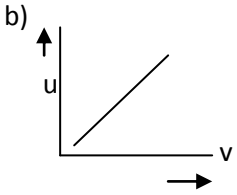
7.In general,the wavelength of microwaves is

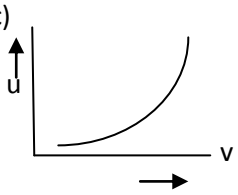
a)less than the ultraviolet waves b)more than the radio waves

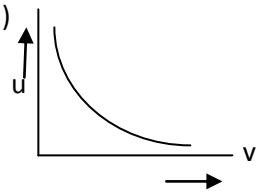
c)less than the infra-red waves d)more than the infra-red waves

8.For a concave lens of focal length,graph between the magnitude of u and v is like

a) 

b) 

c) 

d) 

9.In photoelectric effect,the electrons are ejected from metals,if the incident light has a certain minimum

a)wavelength b)amplitude c)frequency d)angle of incidence

10. The ionisation energy of H-atom is 13.6eV.Energy required to remove an electron from n=2 is

a)3.4 eV b)-3.4 eV c)10.2 eV d)-13.6 eV

11.In the reaction $_1H^2+_1H^3 \rightarrow {}_2He^4+{}_0n^1$ if the B.E. of $_1H^2$, $_1H^3$ and $_2He^4$ are respectively A,B,C(in MeV),the energy released (in MeV) in this reaction is

a)A+B+C b)A+B-C c)0 d)C-A-B

12. In a common emitter transistor amplifier the audio signal voltage across the collector is 3 V. The resistance of collector is 3 kΩ. If current gain is 100 and the base resistance is 2 kΩ, the voltage and power gain of the amplifier is

a) 200 and 1000 b) 15 and 200 c) 150 and 15000 d) 20 and 2000

13.In semiconductor the mobilities of electrons and holes are μ_e and μ_h respectively.Which of the following is true?

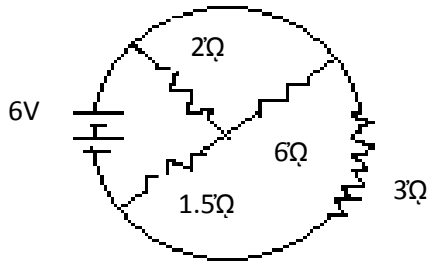
a) $\mu_e > \mu_h$ b) $\mu_e < \mu_h$ c) $\mu_e = \mu_h$ d) none

14.A charge Q μC is placed at the centre of a cube of length L.The flux coming out from any surface will be

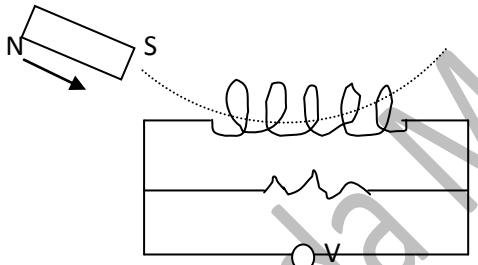
a)$Q/24\varepsilon_0$ b) $Q/6\varepsilon_0$ c) $(Q/6\varepsilon_0)x10^{-6}$ d) $(Q/6\varepsilon_0)x10^{-3}$

15.The total current supplied to the circuit by the battery is

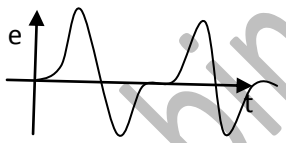
a)1A b)2A c)4A d)6A

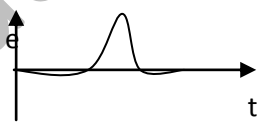


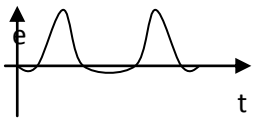
16.A magnet is made to oscillate with a particular frequency,passing through a coil as shown in figure

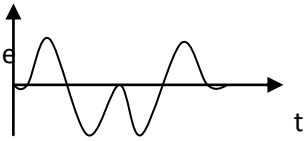


The time variation of the magnitude of e.m.f generated across The coil during one cycle is

a) 

b) 

c) 

d) 

17.The waves produced by a motor boat sailing in water are

a)Transverse b)Longitudinal c)stationary d) Transverse & Longitudinal

18.The absolute zerois the temperature, at which

a)water frezes b) molecular motion ceases c)all substances exits in solid state d)none

19.A sphere of mass M and radius R is falling in a viscous fluid.The terminal velocity will be proportional to

a)R^2 b)1/R c)$1/R^2$ d)R

20.The energy which an electron acquires,when accelerated through a potential difference of 1V,is

a)1eV b)$1.6x10^{-19}$ Joule c)1 Joule d) a and b both