Federal Board

Annual 2008

Physics HSSC-II(2008)

Section-A(Marks 17)

1. Insert the correct option.

1) Viewed from above, the current in a solenoid is anti-clockwise. What magnetic pole would be the top of the solenoid be?

a)North pole b)May be north or south c)south pole d)insufficient data

2) If the distance between two charged bodies is halved what will the force b/w them become?

a) Double b)four time c)Half d)one half

3) The ratio of collector current to the base current is nearly equal and is known as

a)Reverse bias current b) forward bias current c)emitter current d)current gain

4) 1×10^{7} electron pass through a wire in 1μs. the current through the wire will be:

a)1.6×10^{-6}A b) 3.6×10^{-6}A c) 2.6×10^{-6}A d) 4.6×10^{-6}A

5) What is the barrier potential of silicon diode at room temperature?

a) .3 V b) .7V c)1.0V d) 2mV

6) Which of the following band may be either completely filled or partially filled by electrons which can never be empty

a) Conduction band b) Forbidden energy gap c) Valance band d)none of these

7) By increasing the frequency of an alternating current the value of inductive reactance.

a)increases b) do not change c) Decrease d)None

8) What is the % elongation when 1m long copper wire is stretched by 20cm due to a stress?

a) 10 b) 30 c) 20 d) 0.2

9) What will be the output value of an OR operational gate when both the switches are open?

a) 0 b) both 0 and 1 c) 1 d) None

10) What should be done to increase the sensitivity of a galvanometer?

a) Increase the no. of turns b) Increase the area of coil

c) Place the coil in a stronger region d) all of these

11) A dynamo converts?

a)Mechanical energy into electrical energy

b) Electrical energy into mechanical energy

c) Magnetic energy into electrical energy

d) Magnetic energy into Mechanical energy

12) What are the following cannot be acerbated by an electric or magnetic field?

a) Electrons b) Neutrons c) Protons d) Alpha partials

13) What does larger capacitance in AC circuit results at the same frequency?

a) More reactance b) The same reactance c) Less reactance d) Less reactance if voltage decreases

14) What are the minority charge carriers in an N type substance?

a) Protons b) Holes c) positrons d) Electron

15) What effect do two parallel wires carrying currents in the opposite direction have on each other.

a) Repel b0 Attract c) Have no effect d) none

16) The amount of energy needed to remove electron from the metal surface depend upon

a) Work b) Power c) Work function d) Power functions

17) Electron in hydrogen atom jump from any higher orbit to 1st orbit. What is the set of lines emitted called

a) Lyman series b) Pfund series c) Paschal series d) Bracket series

Section-II

2. ATEMPT ANY FOURTEEN PARTS

1) Two conducting spheres having charges 2Q and 5Q attract each other with a force of 10 N. They touched with each other and then separated to the same distance again. Calculate the magnitude and nature of force now?

2) A conducting wire of resistance R is cut into three equal parts and then these parts are joined in parallel. Calculate the equaling resistance?

3) At what speed of an observer the length of an object will appear as 70% of its proper length?

4) What happen to light intensity of a lamp in a series circuit when more lamps are added in the circuit?

5) Discuss the situation when

(a) Electric intensity at a point is zero but electric potential is not zero?

(b) electric potential at a point is zero but Electric intensity is not zero?

6) A balloon is negatively charged by rubbing and set free. It first cling to the wall but eventually falls down . Why?

7) When we hold a live wire standing bare footed we get an electric shock while wearing plastics or rubber shoes we do not . Explain the reason?

8) In an hydrogen atom there are two attraction b/w Electron and protons. Name them also find there magnitude if the radius of hydrogen atom is 0.053nm?

9) Write down three different b/w coulombs force and gravitational?

10) What will be the instantaneous value of alternating voltage at time T/6 where T is the time period of the alternating voltage?

11) What factor makes fission reaction difficult to achieve?

12) How can radioactivity help us in treatment of cancer?

13) The decay content for Sir is 1.99×10^{-5} per sec. calculate its half life?

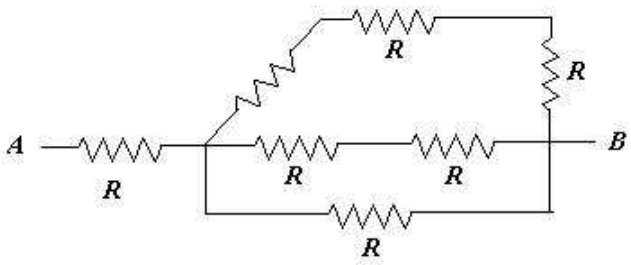
14) A capacitor is connected across a battery

(a) why does each plate receive charge of exactly the same magnitude?

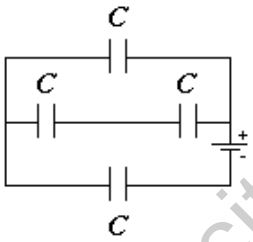
(b) Is this true even is the plates are of different sizes?

(c) Will there be any current flowing through the circuit?

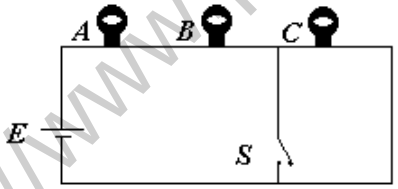
15) Find the equivalent resistance for the combination shown in the figure. Resistance of each resistor is R.



16) Find the equivalent capacitance of each capacitor is C



17) A series circuit of three identical lamps is connected to a battery as shown in fig. when the switch S is closed what effect will it have on following



a)brightness of A and B

b) brightness of lamp C

c) Current in the circuit.

18) The resistance of a conductor decreases with the increase in cross sectional area of a conductor. Why

19) Why do we use a potentiometer To measure potential difference accurately rather than a volt meter?

Section-III

ATTEMPT ANY TWO QUESTIONS

3. (a) What is mutual induction? Explain how induced emf is produced in the secondary coil. What factors does mutual induction depend upon?

b) Name the unit of mutual induction and define it?

c) An emf of 5.6Vis induced in a coil while the current in a nearby coil is decreased from 100A to 20A in 0.02s. What is the mutual inductance of the two coils?

4. (a) What is Compton effect? Prove that the Wave length of the photon increases after collision with the electron.

(b) A 20KeV photon is Compton scattered by quasi free electron. If the scattered Photon comes off at 45^0, what is its wavelength?

(c) Explain Why bright light Eject more electrons from a metal surface than dimmer light of the same color?

5.(a) State the basic postulates of Bohrs atomic model of the hydrogen atom. Also derive the expression for radii of quantized orbit of electron.

(b) What is meant by the half life of a radioactive element? How can it be determined from the decay constant of radioactive element?

(c) Compute the shortest wave length radiation in the blamer series what of n must be used?and why?