Section-A(MCQ's)

Q.1 Choose the correct answer for each from the given options:

(i) Absorption power of perfect black body is _____.
(a) Half   (b) One   (c) Infinite   (d) None of these

(ii) The unit of electromotive force is _____.
(a) Volt   (b) Newton   (c) Eelctron volt   (d) Kilowatt hour

(iii) An electric iron operate on a current of 15 amp; when connected to 120 volt power source. Its resistance will be _____.
(a) 0.125 ohms (b) 4 ohms   (c) 8 ohms   (d) 1800 ohms

(iv) Isobaric changes in an ideal gas show that there is no change in _____.
(a) Volume   (b) Pressure   (c) Temperature   (d) Internal energy

(v) A photo cell is based on _____.
(a) Doppler effect   (b) Compton effect   (c) Photo-electric effect
(d) None of these

(vi) Quantum theory was presented by _____.
(a) Bohr   (b) Planck   (c) Young   (d) Rutherford

(vii) The delay constant of a radioactive elementis inversely proportional to _____.
(a) Activity   (b) Half life   (c) Mean life   (d) Wave length

(viii) Lenz law is in accordance with the law of conservation of _____.
(a) Mass   (b) Charge   (c) Energy   (d) Momentum

(ix) When the temperature of source and sink of a heat engine becomes equal, the entropy of the system becomes.
(a) Zero   (b) Same   (c) Minimum   (d) Maximum

(x) e/m of an electron was determined by _____.
(a) Faraday   (b) Millikan   (c) Rutherford   (d) J.J. Thomson

(xi) _____ resemble in properties with gamma rays.
(a) Alpha rays   (b) Beta rays   (c) X-rays   (d) Cathode rays

(xii) 122 F is equal to _____.
(a) 5 C   (b) 25 C   (c) 50 C   (d) 90 C

(xiii) Small currents can be detected by _____.
(a) Ammeter   (b) Voltmeter   (c) ohmmeter   (d) Galvanometer

(xiv) The photo electric threshold frequency depends upon _____.
(a) Velocity of light   (b) Intensity of light   (c) Nature of the metal surface
(d) All of these

(xv) Balmer series in the spectrum of hydrogen lies in _____ region.
(a) Infra red   (b) Far infra red   (c) visible   (d) Ultra violet

(xvi) The nucleus consists of _____.
(a) Protons and electrons   (b) Protons and neutrons
(c) Electrons and neutrons   (d) Neutrons only

(xvii) Properties of _____ are similar to the alpha particles.
(a) X-rays   (b) Protons   (c) Electrons   (d) Neutrons

Section-B
(Short Answer)

Note: Answer any EIGHT of the following questions. Each question carries 05 marks.

Q.2 Do the bends in a wire effect its electrical resistance? Explain.

Q.3 The pressure of air in an automobile tyre increases if the automobile is moved for a while. Explain.

Q.4 Explain a closed circuit and an open circuit.

Q.5 Define henry and describe slef induction with the help of a diagram.

Q.6 The half life of Radon is 3.80 days. What would be its decay constant?

Q.7 Can two magnetic liens of force ever croos each other? Explain.

Q.8 What happens to the capacitance of aparallel plat capacitor, when the size of plates increases and distance between them decreases?

Q.9 Why the pair production process does not take place in vacuum?

Q.10 Write any five application of laser.

Q.11 A galvanometer of resistance 5 ohms gives a full scale deflection with a current of 15 mA. How would you convert it into a voltmeter reading up to 1.5 volt?

Q.12 Both potential difference and electromotive force are measured in volts. Are they same? Explain.

Q.13 Why we prefer mercury to be used in thermometers? Give five reasons.

Section-C
(Descriptive Answer)

Note: Answer any TWO of the following questions. Each question carries 14(7+7) marks.

Q.14 (a) State the basic postulates of special theory of relativity and write the results obtained with the help of this theory.

(b) Determine equivalent resistance of three resistance which are connected in series and parallel.

Q.15 (a) Explain first law of thermodynamics. How it can be applied in Isobaric and Adiabatic processes?

(b) State and explain Guass's law.

Q.16 Write short notes on any TWO of the following:
(i) Nuclear Fission   (ii) Tramsformer
(iii) Compton effect   (iv) Galvanometer