

## Section-A

## Q.1 Choose the Correct Answers:

- (1) If the temperature of a cold body decreases, efficiency of heat engine will \_\_\_\_\_.
- (a) Increase (b) Decrease (c) Remains same (d) None of these
- (2) Normal human body temperature on Celsius scale is \_\_\_\_\_ °C.
- (a) 37 (b) 40.6 (c) 98.6 (d) 96.4
- (3) Two parallel conductors carrying current in same direction, they \_\_\_\_\_.
- (a) Attract each other (b) Repel each other  
(c) Neutralize each other (d) None of these
- (4) Lenz's Law predicts the \_\_\_\_\_.
- (a) Direction of induced emf (b) Direction of induced current  
(c) Magnitude of induced emf (d) Magnitude of induced current
- (5) S.I Unit of co-efficient of thermal expansion is:
- (a) K-1 (b) K (c) mK (d) m/k
- (6) By moving a charge of 20 Coulombs 200 J of work is done, then the potential difference between the points.
- (a) 10V (b) 8 V (c) 5 V (d) 2 V
- (7) If we increase the distance between two plates of the capacitor, the capacitance will:
- (a) Increase (b) Decrease (c) Remains same  
(d) First increase then decrease
- (8) The total resistance in a series is equals to:
- (a) Product of all resistance (b) Sum of all resistance  
(c) Half of the sum of all resistance (d) None of these
- (9) Laser is an intense beam of light, which is:
- (a) Monochromatic (b) Coherent  
(c) Collimated (d) All of these
- (10) X-rays have the same essential nature as:
- (a) Alpha rays (b) Beta rays (c) Gamma rays (d) Positive rays
- (11) The process of scattering of an X-ray photon by an electron is called:
- (a) Compton effect (b) Photoelectric effect (c) Pair production  
(d) Annihilation
- (12) Half life of a radioactive element can be calculated by formula:
- (a) \_\_\_\_\_ (b) \_\_\_\_\_ (c) \_\_\_\_\_ (d) \_\_\_\_\_
- (13) Ammeter always connected \_\_\_\_\_ in circuit.
- (a) Perpendicular (b) Parallel (c) Series (d) None of these
- (14) For pair production the minimum energy of photon is \_\_\_\_\_.
- (a) 0.76 MeV (b) 0.511 MeV (c) 2.11 MeV (d) 1.022 MeV
- (15) The amount of energy equivalent 1 a.m.u is \_\_\_\_\_.
- (a) 931.5 MeV (b) 0.511 MeV (c) 2.11 MeV (d) 1.022 MeV
- (16) S.I unit of electric field intensity is:
- (a) N/S (b) N/C (c) 0.315 MeV (d) 0.9315 MeV
- (17) The intensity of magnetic field near its pole is \_\_\_\_\_.
- (a) Zero (b) Maximum (c) Minimum (d) Variable
- (18) In electromagnetic waves electric and magnetic fields are:
- (a) Parallel to each other (b) Perpendicular to each other  
(c) Opposite to each other (d) None of these
- (19) For each material emission occurs only for certain definite frequency of light called:
- (a) Critical frequency (b) Threshold frequency  
(c) High frequency (d) None of these
- (20) Number of electron in one Coulomb charge are:
- (a)  $9.11 \times 10^{-31}$  (b)  $1.6 \times 10^{-10}$  (c)  $8.25 \times 10^{16}$  (d)  $0.25 \times 10^{-18}$
- (21) The nucleus of hydrogen with symbol  ${}^1_1\text{H}^3$  is called:
- (a) Proton (b) Deuterium (c) Tritium (d) All of these
- (22) In Isothermal process:
- (a)  $\Delta U = \Delta W$  (b)  $\Delta U = \Delta W$  (c)  $VQ = \Delta U$  (d)  $\Delta Q = \Delta W$
- (23) Unstable isotopes are called:
- (a) isobars (b) Isomers (c) Radioactive (d) None of these
- (24) Light consists of particles known as:
- (a) Protons (b) Electrons (c) Neutrons (d) Photons
- (25) Mass of Positron equal to mass of:
- (a) Proton (b) Neutron (c) Electron (d) Photons
- (26) Unit of Planck's constant is same as the unit of:
- (a) Energy (b) Power (c) Linear momentum (d) Angular momentum
- (27) S.I unit of electric current is Ampere and one Ampere is equal to:
- (a) 1 Joule / sec (b) 1 volt / sec (c) 1 Coulomb / sec (d) None of these.
- (28) The resistance of a conductor does not depend upon its \_\_\_\_\_.
- (a) Length (b) Area of cross-section  
(c) Resistivity (d) Mass
- (29) The smaller unit of magnetic induction is Gauss, and Gauss related to tesla as \_\_\_\_\_.
- (a)  $1\text{T} = 10^4\text{G}$  (b)  $1\text{T} = 10^{-4}\text{G}$  (c)  $1\text{T} = 10^3\text{G}$  (d)  $1\text{T} = 10^{-3}\text{G}$
- (30) The process in which the original signal recovered is known as:
- (a) Demodulation (b) Detection (c) Both (a) and (b)  
(d) Transmission
- (31) Radio waves of wave length 300 m having frequency of:
- (a)  $10^{-3}\text{KHz}$  (b) 500 KHz (c) 1MHz (d) 8 MHz
- (32) A particle with rest mass  $m_0$  has total energy  $5/3 m_0 c^2$  the its K.E is \_\_\_\_\_.
- (a)  $1/3 m_0 c^2$  (b)  $2/3 m_0 c^2$  (c)  $4/3 m_0 c^2$  (d)  $7/3 m_0 c^2$
- (33) What will be the resistance, if current flowing through a conductor is 10 amp and voltage is 220 Volts.
- (a) 20 Ohms (b) 1.5 Ohms (c) 0.5 Ohms (d) 22 Ohms
- (34) A field of 1C is moving perpendicular to the magnetic field of 0.5 tesla with velocity of 10 m/sec.
- (a) 5N (b) 0.5 N (c) 10 N (d) 0 N
- (35) Transistor in a circuit basically acts as:
- (a) Voltage amplifier (b) Current amplifier (c) power amplifier  
(d) Rectifier
- (36) If the quantity of charge on each of two bodies is doubled. The force between them becomes:
- (a) Twice (b) Four times (c) Nine times (d) Sixteen times
- (37) Kelvin temperature equal to:
- (a)  $273 + ^\circ\text{C}$  (b)  $273 - ^\circ\text{C}$  (c)  $273 + ^\circ\text{F}$  (d)  $273 - ^\circ\text{F}$
- (38) Two capacitors of capacitance 2C and C respectively are connected in series, their equivalent capacitance becomes.
- (a) 2C (b) C/2 (c)  $2C/3$  (d)  $3C/2$
- (39) Electron volt is the unit of:
- (a) Work (b) Frequency (c) Potential difference (d) Energy
- (40) Decay constant of a radioactive element is inversely proportional to \_\_\_\_\_.
- (a) Activity (b) Half life (c) mean life (d) Wave length
- (41) In P-type semi-conductors the majority of charge carriers are:
- (a) Electrons (b) Holes (c) Neutrons (d) Protons
- (42) Isobaric changed in a gas show that there is no change in:
- (a) Internal energy (b) Pressure (c) Volume (d) Temperature
- (43) Fahrenheit and Celsius scales coincide at:
- (a) 273 (b) -40 (c) 0 (d) 32