PHYSICS 2019

Time: 20 Minutes Max. Marks: 17

SECTION "A" (MULTIPLE CHOICE QUESTION)

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

(i) The principle of laser production is:

• Spontaneous emission • Induced absorption
• spontaneous absorption • Stimulated emission

(ii) The binding energy of deuteron ($_1H^2$) is 23 MeV, its binding energy per nucleon will be:

• 1.15 MeV • 0.2 MeV • 1 MeV • 0.51 MeV

(iii) The ratio of the radius of 3rd Bohr orbit in hydrogen atom to the radius of 1st Bohr orbit is:

• 12:1 • 3:1 • 6:1 • 9:1

(iv) Stefan Boltzmaann law is:

• $E = \alpha T$ • $E = \alpha T^4$ • $E = \alpha T^3$ • $E = \alpha T^2$

(v) The method of finding the age of a specimen by radioactive isotope of carbon $_6C^{14}$ is called:

• artificial radio activity • radio carbon dating
• halflife • radiography

(vi) The application of electric potential across the diode is called: • doping • biasing
• impurity addition • potential barrier

(vii) The path of neutron, moving perpendicularly through a uniform magnetic field is:

• a straight line • circular • oval • sinusoidal

(viii) The scalar produc of electric intensity $(\bar{E})$ and vector area $(\Delta\bar{A})$ is called: • electric flux • electric force
• electric potential • electric flux density

(ix) The resistance of a current carrying wire does not depend on:

• temperature • length • area • electric current

(x) The average translational kinetic energy per mole of molecules of a gas is:

• $\frac{3}{2}KT$ • $\frac{2}{3}KT$ • $\frac{3}{2}RT$ • $\frac{2}{3}RT$

(xi) Resistances of 10Ω, 30Ω and 40Ω are connected in series. If the current in 10Ω resistance is 0.1A then the current through 40Ω resistance wil be:

• 0.4A • 0.3A • 0.1A • 0.08A

(xii) Non-inductive coil in a resistance box is used to minimize: • Eddy currentr • heat lose
• mutual inductance • self inductance

(xiii) A container is filled with a sample of an ideal gas at a pressure of 1.5 atm. The gas is compressed isothermally to one fourth of its original volume. Its new pressure will be: • 2 atm • 4 atm • 6 atm • 9 atm

(xiv) A particle of mass 'm' and charge 'q' is to be held motionless between two parallel and horizontal charged plates. The electric field intensity between the plates will be: • $\frac{mg}{qV}$ • $\frac{g}{mg}$ • $\frac{mg}{q}$ • $\frac{qV\sin\theta}{m}$

(xv) Concave magnetic poles, with a fixed sofi-iron cylinder in a moving coil galvanometer, make the magnetic field:

• weak • radial • Zero • infinite

(xvi) If mo is the rest mass of an electron. Pair production takes place only if the minimium energy of incident photon is equal to:

• $\frac{2m_o}{c^2}$ • $\frac{2}{m_oc^2}$ • m_oc^2 • $2m_oc^2$

(xvii) In the process of positive beta emission, charge number of daughter nucleus: • is increased
• is decreased • remains the same • is doubled

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