

A 10 cm long solenoid has 100 turns. What will be the magnetic field inside it along its axis if one micro ampere current is passed through it?

- A) $4\pi \times 10^{-13}$ tesla.
 B) $4\pi \times 10^{-7}$ tesla.
 C) $4\pi \times 10^{-10}$ tesla.
 D) $4\pi \times 10^{-16}$ tesla.

Q.4 The kinetic energy K.E. with which the electron strikes the target is given by:

- A) $K.E. = e^2V$.
 B) $K.E. = hc/\lambda$.
 C) $K.E. = hf^2$.
 D) $K.E. = eV$.

Q.5 LASER is an acronym for:

- A) Light amplification by stimulated emission of radiation.
 B) Light annihilation by stimulated emission of radiation.
 C) Light amplitude of stimulated emission of radiation.
 D) Light amplification by stimulated emission of radio.

Q.6 X-rays can be produced by bombardment of _____ on target metal:

- A) Protons.
 B) Electrons.
 C) Neutrons.
 D) Alpha particles.

Q.7 Laser light is monochromatic which means:

- A) It consists of one ray of light.
 B) It consists of one wavelength.
 C) It consists of carbon monoxide gas.
 D) It consists of photons having 1 eV energy.

Q.8 If an electron in the 'K' shell is removed and an electron from 'L' shell jumps to occupy the hole in the 'K' shell, it emits a photon of energy:

- A) $hf_{K\alpha} = E_L - E_K$.
 B) $hc = E_L - E_K$.
 C) $h/\lambda_{K\alpha} = E_L - E_K$.
 D) $hf_{K\alpha} = E_K - E_L$.

Q.9 Which of the following property must be there in a substance so that it can be used as target in X-ray tube?

- A) It must have low melting point.
 B) It must have low atomic number.
 C) It must have high reflecting ability.
 D) It must have high atomic number.

Q.10 Which of the following can be used to produce population inversion for the emission of Laser?

- A) Optical pumping.
 B) Optical fibre.
 C) Optical instrument.
 D) Optical polarization.

Q.11 What is the charge on alpha particles emitted during the phenomenon of radioactivity?

- A) +e.
 B) -e.
 C) -2e.
 D) +2e.

Q.12 A radioactive nuclide decays by emitting an α -particle, a β -particle and a γ -ray photon, the change in the nucleon number will be:

- A) -4.
 B) -1.
 C) -2.
 D) -3.

Q.13 A half-life of sodium-24 is _____ which is used to estimate the volume of blood in a patient:

- A) 6 hours.
 B) 15 hours.
 C) 8 hours.
 D) 15 days.

Q.14 Which of the following is unit of absorbed dose?

- A) Severt.
 B) Gray.
 C) Roentgen.
 D) Curie.

Q.15 In a radioactive phenomenon observation shown in figure where α deviates lesser than β in some electric or magnetic field (not shown in the figure). What is the reason of less deviation of α ?



- A) α is charged particle.
 B) α is neutral particle.
 C) α is heavier particle.
 D) α is lighter particle.