

PHY309

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1. The wavelength associated with an electron of energy  $E = 100 \text{ eV}$  is equal to

1.23 nm

--->> 12.3 nm

123 nm

None of these

2. Radiation wavelength  $\lambda = 0.085 \text{ \AA}$  incident on a carbon target is deflected by  $40^\circ$ . The wavelength of the radiation deflected equals:

0.085  $\text{\AA}$

--->> 0.09  $\text{\AA}$

0.080  $\text{\AA}$

All of these

3. A mono-energetic electron beam is incident normally on a sheet of aluminum foil. On a fluorescent screen placed behind the foil, we observe:

small, scattered bright spots

--->> bright concentric rings

nothing

All of these

4. Bohr atom initially in its ground state makes a transition to its first excited state after absorbing a photon. What is the wavelength of the photon absorbed?

55 nm

--->> 122 nm

181 nm

All of these

5. The energy of photon emitted by one atom Bohr making a transition state with

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0.55 eV

0.68 eV

--->> 0.30 eV

All of these

6. If the uncertainty of a proton accelerated in a laboratory is 400 m/s, that of its position is:

--->> 7.88 nm

9.70 nm

112 nm

All of these

7. The potential energy of interaction between two static charges is:

proportional to the distance separating the two charges

--->> inversely proportional to the distance separating the two charges

inversely proportional to the square of the distance separating the two charges

All of these

8. A neutron beam is incident on a crystalline solid where the distance between Bragg planes is 1.2 Å. The energy of the neutron diffracted from the angle of  $30^\circ$  is equal to:

--->> 0.057 eV

0.068 eV

0.07 eV

All of these

9. The density of energy radiated by a blackbody in the infrared region is proportional to:

--->> T

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T4

All of these

10. The largest wavelength of the Balmer series is equal to:

365 nm

--->> 434 nm

175nm

All of these

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