

21. When X-rays are passed through successive aluminum sheets what happens to their thickness?

- A. increases B. it decreases
C. it remains same D. sometimes increases and sometimes decreases

Answer: Option c

22. The penetrating power of X-rays is comparable with that of

- A. γ - rays B. β - rays
C. α - rays D. all of above

Answer: Option c

23. Quality of X-rays depends upon _____ A-filament current B-accelerating voltage C-material of the target

- A. A&B B. B&C
C. A&C D. A B & C

Answer: Option B

24. Radiation produced from TV picture tube is

- A. γ -rays B. X-rays
C. Far infrared. D. Infrared

Answer: Option B

25. In an X-ray tube electrons each of charge e are accelerated through V potential difference allowed to hit a metal target. The wavelength of the X-rays emitted is

- A. hc/eV B. hc/Vc
C. eV/h D. impossible to predict

Answer: Option A

26. The minimum wavelength of X-rays can further be reduced by

- A. Reducing the pressure or cooling the target.
- B. Increasing the temperature of the filament.
- C. Using a target element of higher atomic number.
- D. Increasing the potential difference between the cathode and the target.

Answer: Option D

27. The characteristic X-rays spectrum is due to

- A. The illumination of the target metal by ultra-violet radiation.
- B. The bombardment of the target by protons.
- C. The bombardment of target by electrons.
- D. The absorption of γ radiation by the target metal.

Answer: Option C

28. The minimum wavelength of X-rays produced by the bombardment of electrons on the screen of a television set where the accelerating potential is 2.0K V will be

- A. $6.2 \times 10^{-10}\text{m}$
- B. $9.1 \times 10^{-18}\text{m}$
- C. $3.11 \times 10^{-10}\text{m}$
- D. $4 \times 10^{-10}\text{m}$

Answer: Option A

29. Maximum frequency in the spectrum from X-ray tube is directly proportional to the

- A. Number of incident electron i.e. filament current.
- B. The kinetic energy of the incident electron i.e. the potential difference through which they are accelerated.
- C. The soft target which can easily emit electrons.
- D. all of above are correct.

Answer: Option B

30. X-rays are diffracted by a crystal but not by a diffraction grating because

- A. The ions in a crystal are well arranged.
- B. The lines in a diffraction grating cannot reflect X-rays.
- C. The penetration power of X-rays is high in a diffraction grating.
- D. The wavelengths of X-rays are of the same order of magnitude as the separation between atoms in a crystal

Answer: Option D

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