2/21

0205N153

Candidate's Seat No :_____

MSc Sem.-2 Examination

408

Medical Physics

May-2025

Time : 2-30 Hours]

[Max. Marks : 70

Q.1 Describe construction and working principle of Pelletron. [14]

OR

Q.1 Describe construction and working principle of Cyclotron. [14]

Q.2 What area the characteristics of X-rays? Explain in detail basic X-ray circuit diagram. [14]

OR

Q.2 What is Hooded anode? Explain full wave and half wave rectifiers used in high voltage circuit. [14]

Q.3 Explain the interaction of indirectly ionizing radiation with matter. Give their clinical importance. [14]

OR

Q.3 How light charged particles interact with matter? Describe in detail the interaction of electrons with matter. [14]

Q.4 List the types of neutrons. Explain in detail the mechanism through which neutrons gets absorbed by target nucleus. [14]

OR

Q.4 Explain in detail the mechanisms of neutron scattering. [14]

(P.T.O)

Q.5 **Attempt any seven out of twelve from the following (Each question is of two marks):** **[14]**

(i) **What is the role of flattening filter?**

(ii) **Write any two characteristics of material used as target in linear accelerator.**

(iii) **What is the role of ion-chamber in linear accelerator?**

(iv) **What are the types of anodes used in X-ray tube?**

(v) **What are the characteristics of X-ray tube used in Diagnostic radiology.**

(vi) **What are the advantages of rotating anode?**

(vii) **Why photo-electric effect is higher in bones than in soft tissues?**

(viii) **Describe Cerenkov radiation?**

(ix) **Define stopping power.**

(x) **What is cross-section for neutrons?**

(xi) **Which materials are used for neutron shielding?**

(xii) **How does boron captures neutron?**

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