

U.G. 6th Semester Examination-2025**PHYSICS****[HONOURS]****Discipline Specific Elective (DSE)****Course Code : PHY-H-DSE-T-03****(Medical Physics)****[Old Syllabus]**

Full Marks : 40

Time : $2\frac{1}{2}$ Hours*The figures in the right-hand margin indicate marks.**Candidates are required to give their answers in their own words as far as practicable.***GROUP-A**1. Answer any five questions : $2 \times 5 = 10$

- i) List various non-ionizing electromagnetic radiation.
- ii) Differentiate artificial and natural radioactivity.
- iii) What is an effective dose?
- iv) What is thermography?
- v) Give three properties of X-ray.
- vi) State inverse square law related to radiation.
- vii) Mention major components of the cardiovascular system.

[Turn Over]

viii) Define Gray and how it is related to rad?

GROUP-B

Answer any **two** questions: $5 \times 2 = 10$

2. Write down the principle and function of the Gamma camera. $2+3$
3. Write down the principle and function of the scintillation counter. $2+3$
4. Write a short note on Bremsstrahlung and rotating anode x-ray tube. 5
5. i) What is Computed tomography (CT) scanner?
ii) How does it work? $2+3$

GROUP-C

Answer any **two** questions: $10 \times 2 = 20$

6. i) What is NMR?
ii) How does MRI work?
iii) *Give briefly the properties of Ultra-sound.* $3+5+2$
7. i) Discuss briefly Therapeutic nuclear medicine.
ii) Write some types of nuclear medicine.
iii) What is a Telecobalt machine? How is Co-60 used in cancer treatment? $3+2+(3+2)$

8. i) Explain the Physics of breathing.

ii) What is meant by exposure and absorbed dose? $5+5$

9. i) What are the effects of electromagnetic waves on human body?

ii) What is meant by exposure and absorbed dose? $5+5$