

U.G. 6th Semester Examination-2022**PHYSICS****[HONOURS]****Discipline Specific Elective (DSE)****Course Code : PHY-H-DSE-T-03****(Medical Physics)**

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 : $2 \times 5 = 10$
- Give three properties of X-ray.
 - Define Gray and how it is related to rad.
 - Mention major components of the cardiovascular system.
 - State inverse square law related to radiation.
 - List various non-ionizing electromagnetic radiation.
 - Differentiate artificial and natural radioactivity.
 - What is an effective dose?
 - What is a Telecobalt unit?

*[Turn Over]***GROUP-B**

- Answer any **two** questions: $5 \times 2 = 10$
- Write a short note on Bremsstrahlung and rotating anode x-ray tube. 5
 - What is Computed tomography (CT) scanner?
 - How does it work? $2+3$
 - Write down the principle and function of the Gamma camera. $2+3$
 - What is a pocket dosimeter and why is it used?
 - What are the biological effects of radiation, give example? $(2+1)+2$

GROUP-C

- Answer any **two** questions: $10 \times 2 = 20$
- Explain the Physics of breathing.
 - What is meant by exposure and absorbed dose? $5+5$
 - Illustrate with a neat diagram the construction and working of the Scintillation Counter.
 - How does the TLD badge work? $(3+4)+3$
 - What is NMR?
 - How does MRI work?
 - Give briefly the properties of Ultra-sound. $3+5+2$

9. 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)
