

M.Sc. Sem-4 Examination

510

Med. Physics

April 2022

Time : 2-00 Hours]

[Max. Marks : 50

Instructions: All questions in **Section – I** carry equal marks.
Attempt any **Three** questions in **Section – I**.
Questions in **Section – II** is **COMPULSORY**.

Section – I

- Q-I A. Write a note on personal monitoring and describe TLD. 7
B. Write a note on system of radiological protection – 7
Justification of practice
Optimization of practice
Individual dose limits
- Q-II A. What are the emergency conditions and its management procedures in 7
telecobalt unit?
B. Write a note on area monitoring and radiation survey in teletherapy and 7
brachytherapy.
- Q-III A. Draw a layout plan of a Co-60 unit bunker and calculate the shielding 7
thickness required for primary walls.
B. Write the basic principle of radiation safety. How internal radiation hazard 7
can be controlled?
- Q-IV A. What are the types of radioisotope laboratory in nuclear medicine and 7
write their room planning also.
B. Explain the radiation safety during source transfer operations. 7
- Q-V A. Describe the general requirement for all types of packages. What are the 7
additional requirements for packages to be transported by air.
B. Describe the tests required for a package to demonstrate its ability to 7
withstand normal conditions of transport.
- Q-VI A. Write short note on 7
1. Sources of radioactive waste
2. Incineration

(P.T.O)

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- B. A cobalt-60 source of activity 333 TBq is to be transported for a teletherapy unit. Determine the type of the package for this shipment and describe the specified tests to be performed for this type of package. 7
- Q-VII A. Write down the type of radiation accidents and explain the emergency procedures. 7
B. Explain the emergency procedures in a radioisotope laboratory and write the procedure for handling spills. 7
- Q-VIII A. Write the responsibilities of a radiological safety officer. 7
B. Explain the safety and security of sources during storage, use, transport and disposal. 7

Section – II

- Q-IX MCQs 8
- What is the unit of collective dose?
A. Gy
B. Sv
C. Ci
D. Person-Sv
 - If the radiation level at 1 cm is 65 R/hr. What would be the radiation level at 10cm
A. 0.65 R/hr
B. 0.35 R/hr
C. 0.5 R/hr
D. None
 - HVT for I-131 in lead is
A. 0.3 cm
B. 3.0 cm
C. 4.5cm
D. None
 - Arrange in increasing order of external hazard
A. $\gamma < \beta < \alpha$
B. $\alpha < \beta < \gamma$
C. $\gamma > \beta > \alpha$
D. $\alpha > \beta > \gamma$

