

[LP 1019]

OCTOBER 2019

Sub. Code: 4014

**M.Sc. MEDICAL PHYSICS EXAMS
FIRST YEAR
PAPER IV – RADIATION DOSIMETRY AND STANDARDIZATION**

Q.P. Code : 284014

Time : Three hours

Maximum : 100 Marks

I. Elaborate on:

(2 x 20 = 40)

1. Explain how Ir-192 source is standardized using well type ionization chamber. Explain different correction factors involved in this procedure.
2. Write in detail about Spencers-Attix and Burlin cavity theory.

II. Write notes on:

(10 x 6 = 60)

1. Radiation chemical yield.
2. Fission products.
3. Definition of calibration factors – N_x , N_k , ND_{air} , ND_w in IAEA TRS277 protocol.
4. Calibration of protection level instrument.
5. Neutron sources.
6. Standardization of beta emitters.
7. Beer-Lambert law.
8. Formation of free radicals in solids and their application in dosimetry.
9. Compare characteristics of proportional counter, GM counter and scintillation counters.
10. Define apparent activity, Reference air kerma rate, Air kerma and Air kerma rate constant.
