[LA 0512]   **Sub. Code: 4017**

M.Sc (MEDICAL PHYSICS) DEGREE EXAMINATION- MAY 2012
FIRST YEAR
Paper VII – PHYSICS OF RADIATION THERAPY
Q.P. Code: 284017

Time: Three hours   **Maximum: 100marks**
180 (Min)   **Answer All questions.**

I.   Elaborate on :

	Pages (Max)	Time (Max)	Marks (Max)
1. Explain the detail the design and working of a medical linear accelerator.	17	40	20
2. Describe the acceptance, commissioning and quality assurance protocol for installing a remote after loading equipment.	17	40	20

II.   Write notes on:

	Pages	Time	Marks
1. Drive the relationship between Tissue Maximum Radio and Percentage Depth Dose.	4	10	6
2. How a integrated brachytherapy facility works. Give the sequence of procedures that is followed in such facilities.	4	10	6
3. Describe the construction of travelling and standing wave guides.	4	10	6
4. Describe the construction and working of a Van De Graff generator.	4	10	6
5. A patient has to receive 250cGy by rotation therapy using 4 MV X-rays. The field size is 6x10 sq.cm. at the isocenter which is at 100cms. The average TMR is 0.756, Machine output is 200 MU/min, collimator scatter factor for the given field size is 0.98 and phantom scatter is 0.99. Find the number of monitoring units required to deliver the treatment.	4	10	6
6. Explain the how the skin sparing effect is achieved by the high energy photon beams.	4	10	6
7. Describe the dose and volume specification for reporting gynecological treatments using ICRU 38 protocol.	4	10	6
8. Describe the setup for measuring the back scatter factor and peak scatter factor.	4	10	6
9. Describe the dose volume histograms and conformity indices used for studying the merits of a treatment plan.	4	10	6
10. Explain the Clarkson's method used for calculation the irregular treatment field.	4	10	6

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