

**B.Sc. IN RADIATION THERAPY TECHNOLOGY
(BRTT)**

Term-End Examination

December, 2015

**BAHI-041 : ADVANCE RADIOTHERAPY
EQUIPMENT**

Time : 3 hours

Maximum Marks : 70

Note : (i) Attempt *any six* questions.

(ii) Question No. 9 is *compulsory*.

1. What is the use of Miniature Multi Leaf Collimator (MMLC) in stereotactic radiotherapy ? Differentiate between MLC and MMLC. Explain why MLC is not used for stereotactic radiotherapy ? 3+3+2=8
2. Explain X-ray knife ? Write the equipment and accessories necessary for X-ray knife ? Explain the difference between gamma knife and X-ray knife. 2+2+4=8
3. Explain cyber knife ? Discuss the use of cyber knife over gamma knife and X-ray knife. 4+4=8
4. Explain various methods of IMRT treatment delivery techniques in linear accelerator. 8

5. What is 3D on board imaging in IMRT delivery ?
Explain the advantages of 3D imaging over 2D imaging. Discuss additional requirement in linear accelerator for 3D imaging. **2+2+4=8**
6. Explain three dosimetrical quality assurance of linear accelerator. **8**
7. Explain patient specific QA for IMRT delivery. **8**
8. Explain forward planning and inverse planning.
Differentiate between these two methods ?
Describe advantages of inverse planning. **4+2+2=8**
9. Write briefly about **any five** of the following : **6x5=30**
- (a) Asymmetric jaws and uses.
 - (b) DICOM RT
 - (c) Use of PET-CT in radiotherapy.
 - (d) Quality Index
 - (e) Field/light congruence test
 - (f) Treatment planning system and its use
 - (g) Tomotherapy
 - (h) Two MLC QA
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