1. Describe cell survival curve. Discuss in detail the genetic changes after irradiation.  

2. Describe the Bragg's Peak. How proton interaction differs from photons in tissue? Mention tumours where protons have been used and their results.  

3. How heavy ions are produced for clinical use? Mention various components of HADRON therapy machine.  

4. Discuss the indications, techniques and results of stereotactic body radiation therapy in carcinoma lung.  

5. Discuss various radio-isotopes and their characteristics, used for brachytherapy.  

6. What is radiosensitivity? Discuss four commonly used radiosensitizing agents in clinical practice.  

7. What is the principle of Intensity Modulated Radiation Therapy (IMRT)? Elaborate IMRT process mentioning dose prescription, dose constraints and DVH for carcinoma nasopharynx.  

8. What do you understand by "P" value and significance level in a clinical trial? Discuss the methods for calculating sample size for a randomized controlled trial comparing two treatment modalities.  

9. Discuss the utility of Hyperbaric Oxygen, Lasers and TACE in Oncology.  

10. Describe the principles and equipment used for PET-CT. Discuss the role of PET-CT scan in radiation treatment planning.