

Radiotherapy Viva 2006

Linear Accelerators

- Define absorbed dose
- Describe a 270° bending magnet
- Why do all electrons exit the magnet at the same point?
- What would happen to low energy electrons?
- What are the two types of EPIDs available?
- Which is the most commonly used?
- What else can be used to form images during treatment?
- How does this work?
- Why might this be of particular importance?
- What is the difference between a dynamic wedge and an enhanced dynamic wedge?

Dosimetry

- What dosimetry codes of practice are in place?
- What dates were these published?
- What are the main differences between the 1996 and 2003 electron codes of practice?
- What chamber should no longer be used for electron measurements?
- If the difference in measurements between the two electron codes of practice was 5%, what impact would this have clinically?
- When might orthovoltage photons be more useful than electrons for superficial treatments?
- Can you describe how a calibration factor is derived for the field chamber?
- What is the criterion for deciding if this should replace the previously determined calibration factor?
- Codes of practice ensure consistency of calibrations across all radiotherapy centres. If no codes of practice were in place, how else might you assess consistency?
- How would you go about implementing this in Scotland?
- What are the pros and cons of diodes over TLD's?
- When might a TLD be more suitable for measurements?
- What kind of dose error can be expected on TLD dose measurements?
- How might you improve this?
- What might you do before and after sending a chamber to NPL for cross calibration?
- Why would you do this?
- What implications are there when using a β -emitting source for assessing the consistency of response of the chamber to photons?
- What would you do if you discover the electrometer leakage measurement is out of tolerance?
- You discover that the chamber has become wet. What do you do?

- Why is it necessary to apply a temperature pressure correction factor?
- If you don't apply this factor, what kind of output measurement would you expect on a very hot day? A day with high pressure?

Quality Assurance

- If you discover the lateral laser is 5mm below that on the opposite wall what would you do?
- Is there anything else you should consider?
- Can you explain the Linaccheck (daily output) check that is carried out during monthly QA?
- How are the tolerance values determined?
- When measuring the output from a linac, you discover that the measurement differs from that obtained the previous day by 5%. What do you do?
- What may have affected this?
- If you cannot find the fault what would you do?
- What interlocks are in the therapy room?
- How would you go about checking each of these?

Treatment Planning

- Can you outline ICRU 52
- How would you go about commissioning a CT scanner for a planning system?
- How do you calculate electron density from CT numbers?

Radiation Protection

- Why are risk assessments carried out?
- Does any other legislation require this?
- In the radiation dose survey you carried out, why is there a higher reading obtained for the 135kV photons compared with the 300kV?
- What are the five roles defined in IRMER legislation?
- Describe what each role entails

Brachytherapy

- What is RAKR?
- How is it defined?

Moderator

- What minor attachments did you do?
- Can you describe what you seen in your Nuclear Medicine Placement?