

C.U.SHAH UNIVERSITY

Summer Examination-2018

Subject Name : Radiation protection and Safety

Subject Code : 2SC02RPS1

Branch: PGDMIRT

Semester : 2

Date : 27/04/2018

Time : 10:30 To 01:30

Marks : 70

Instructions:

- (1) Use of Programmable calculator & any other electronic instrument is prohibited.
- (2) Instructions written on main answer book are strictly to be obeyed.
- (3) Draw neat diagrams and figures (if necessary) at right places.
- (4) Assume suitable data if needed.

Q.1 FILL IN THE BLANKS

(14)

1. Thickness of lead apron used by Radiologist is generally -----mm.
2. Rem, used for Radiation protection purpose, is a unit of occupational exposure.
1 Rem=.....ergs/gm
3. The leakage radiation through the protective tube housing in any direction must not exceed -----mr in one hour at a distance of 1.0 meter from the x-ray tube.
4. Write Full form of "ALARA" is -----
5. Write Full form of TLD is _____
6. -----dose is used to assess the potential for biochemical changes in specific tissues.
7. -----dose is used to assess 'how much' biological damage is expected from the absorbed dose.(Different types of radiation have different damaging properties)
8. -----dose is used to assess the potential for long-term effects that might occur in future
9. Radioactive decay is the -----of an unstable atom with an accompanying emission of radiation
10. As more and more unstable atoms become stable atoms, less radiation is produced and eventually the material will become -----
11. You should wear TLD on chest -----lead apron. (Inside, outside)
12. While taking X-ray in Bucky, you are using grid to absorb -----radiation.
13. Filter absorbs-----
14. Main beam restrictors are ----- and -----

Q.2 Attempt all questions

(2X7=14)

1. Which are radiation high dose and low dose effects?
2. How can we reduce radiation by using Beam restrictors? Which are they?
3. Discuss the care taken from Radiation while using mobile units.
4. Discuss the Care taken while doing fluoroscopy.
5. What do you know about "proportional counter" and "Geiger-muller counter"?
6. What is ten days rule? What is inverse square law?
7. How can you reduce radiation by using grid? Explain.

Q.3 Attempt all questions

(14)

1. Explain the Concept of ALARA (Time/Distance/Shielding)
2. Write a detailed note on TLD monitors



Q.4 Attempt all questions (14)

1. Discuss about the location of the X-ray department of hospital. Explain the roles of a radiographer relating radiation safety.
2. Explain in detail the 'Film badge'.

Q.5 Attempt all questions (14)

1. Explain the roles of Radiographers before starting any X-ray, procedures in the X-ray department including instructions, history, safety.
2. Explain the Roles of pass-box and shielding wall in the X-ray room. Also write the role of Caution- light situated outside the door.

Q.6 Attempt all questions (14)

1. Describe major advantages and disadvantages of TLD
2. Explain Fluoroscopy. Write its functions. Also describe the functions of mobile units.

Q.7 Attempt all questions (14)

1. How do you reduce unnecessary patient dose? Explain in relation to unnecessary patient holding.
2. What do you mean by Radioactive Decay? Explain its principle with help of suitable example.

Q-8

Explain roles of a radiographer to avoid radiation while taking mobile X-ray and other X-ray. Also explain the precautions to be taken for him/her self while doing radiography. (14)

