**NAEEM,14013**

**IQRA NATIONAL UNIVERSITY**

**DEPARTMENT OF ALLIED HEALTH SCIENCES**

**Final-Term Examination (spring -20) (BS. Radiology)**

**Course Title: Therapeutic Radiology Instructor: Atoofah Azmat**

**Note:**

* **Attempt all questions from this section, all questions carry equal marks.**
* **Use only Blue / Black Ink other than diagrams**
* **Answer Briefly and to the point, avoid un-necessary details**
* **Possession of Mobile Phones is strictly prohibited**
* **Each question carries 10 marks.**
* **Try to write in points/bullets.**
* **Draw diagrams, flow charts where necessary.**
* **Total marks 80.**

**Q no.1 Describe a correlation between therapeutic radiology and oncology.**

**ANS: relationship between therapeutic radiology and oncology:**

 **These** tow field have strong relation with one another.

Oncology mean the study of cancer,Therapeutic mean Rx with the help of radiation,both are very distentic field but the cancer treat are probably possible on radiation,I,e word therapeutic radiology is the branch of radiology which deal with cancer like disease

Proton therapy, INMRT, IGRT,carbon therapy, brachytherapy etc all are therapeutic modalities treat the cancers.

**Q no.2 Elaborate the duties of therapeutic radio technologist in department.**

* [Resident Staff](https://medicine.yale.edu/therapeuticradiology/people/other/resident/%22%20%5Co%20%22Resident%20Staff)
* [Dosimetry Staff](https://medicine.yale.edu/therapeuticradiology/research/radiological/staff/%22%20%5Co%20%22Dosimetry/Physics%20Staff)
* [Nurse Practitioner](https://medicine.yale.edu/therapeuticradiology/people/other/aprn/%22%20%5Co%20%22Nurse%20Practitioner)
* Nursing Staff
* Therapy Staff
* Research Support Staff
* Clinical Support Staff
* Post Doctoral Radiobiology Staff
* Post Doctoral Physics Staff

**Work of therapeutic radiologist:**Therapeutic radiographers use doses of x-rays and other ionising radiation to treat medical conditions - mainly cancer and tumours. Radiographer will work to high levels of accuracy to help ensure the patient's tumour or cancer receives exactly the right dose of radiation, at the same time as ensuring the surrounding normal tissues receive the lowest possible dose.he’ll be making a difference every day, working closely with patients and helping them with many different issues as therapeutic radiographer. Some examples of things you might work on include:

using doses of x-rays and other ionising radiation to treat medical conditions - mainly cancer and tumours,helping cancer patients along their journey from the initial referral clinic, where they give pre-treatment information, through the planning process, treatment and eventually post-treatment review

The difference you make to your patients’ lives is one of the most exciting things about being a therapeutic radiographer.as well as seeing different patients and conditions you’ll also have the opportunity to work in a multi-disciplinary team working closely with doctors, nurses, medical physicists and engineers  in an oncology team

**Q no.3 What medical problems (diseases) could be treated under the field of therapeutic radiology. Explain with examples.**

#### **Proton therapy for head and neck squamous cell carcinomas**:

proton therapy can deliver highly effective doses of radiation with minimal side effects, the risk of damage to non-cancerous tissue in the head and neck is decreased. Physicians are better able to control the exact point at which the proton beam deposits its energy, so the cancer receives more radiation, while sensitive structures like the jawbone, salivary glands, eyes and spinal cord receive less radiation. This lowers the risk of side effects like bone injury and permanent dryness of the mouth.

**Carbon ion radiotherapy in pancreatic cancer:**

Taken together, the role of photon **radiotherapy** in localized unresectable **pancreatic cancer** is still inconclusive and the available data highlight the necessity of new radiotherapeutic approaches that may improve resection rates after neoadjuvant treatment and local control if the **tumor** is still deemed unresectable

#### [Acoustic neuroma](https://stanfordhealthcare.org/medical-conditions/ear-nose-and-throat/acoustic-neuroma.html)

A non-cancerous tumor that may develop from an overproduction of Schwann cells that press on the hearing and balance nerves in the inner ear.

#### l[iver cancer](https://stanfordhealthcare.org/medical-conditions/cancer/liver-cancer.html)

A type of cancer that starts in the cells of the liver. Viral hepatitis and liver damage from alcohol or fatty liver are risk factors for liver cancer

#### [Bone cancer](https://stanfordhealthcare.org/medical-conditions/cancer/osteosarcoma.html)

An abnormal growth of cells within a bone that may be cancerous or benign.

#### [Brain tumor](https://stanfordhealthcare.org/medical-conditions/brain-and-nerves/brain-tumor.html)

An abnormal growth of tissue (tumor) in the brain that may be cancerous or non-cancerous.

#### [Breast cancer](https://stanfordhealthcare.org/medical-conditions/cancer/breast-cancer.html)

A disease in which malignant (cancer) cells form in the tissues of the breast.

Fibroid.

**Qno.4 What are the complications and side effects that a person could face during his /her treatment in therapeutic radiology department.**

Radiation therapy side effects depend on which part of your body is being exposed to radiation and how much radiation is used. You may experience no side effects, or you may experience several. Most side effects are temporary, can be controlled and generally disappear over time once treatment has ended.

PELVIS:Diarrhea, bladder irritation, frequent urination, sexual dysfunction

HEAD AND NECK:Dry mouth, thickened saliva, difficulty swallowing, sore throat, changes in the way food tastes, nausea, mouth sores, tooth decay.

ABDOMEN:Nausea, vomiting, diarrhea.

CHEST:Difficulty swallowing, cough, shortness of breath