

Question Paper

Exam Date & Time: 10-Dec-2021 (10:00 AM - 01:00 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

THIRD SEMESTER B.Sc. RADIOTHERAPY TECHNOLOGY DEGREE EXAMINATION - DECEMBER 2021
SUBJECT: RTT 2101 - RADIOTHERAPY EQUIPMENTS
(2020 SCHEME)

Answer ALL questions.

Marks: 100

Duration: 180 mins.

- 1A) With the neat labelled diagram explain the construction and working of: (20)
i) Klystron
ii) Magnetron
- 1B) Explain in detail about Van de Graff generator and cyclotron. (20)
- 2A) Discuss about various types of "Beam ON" mechanisms in Co-60 units. (10)
- 2B) **Write a short note on:** (10)
i) Penumbra
ii) Beam collimation
- 3A) What is Cone Beam Computed Tomography(CBCT)? Name and Explain the types of CBCT. (5)
- 3B) Mention the different beam shaping devices and explain any Two. (5)
- 3C) Explain briefly about mammography unit. (5)
- 3D) Explain in detail about angular distribution of X-rays. (5)
- 3E) Write a short note on compensators. (5)
- 3F) Explain in detail about CT-Simulator. (5)
- 4A) Define inherent and added filters. (2)
- 4B) Mention different types of wedges. (2)
- 4C) List advantage of rotating anode X-ray tube. (2)
- 4D) Name the various patient verification system. (2)
- 4E) Define Hinge angle. (2)

-----End-----

Question Paper

Exam Date & Time: 13-Dec-2021 (02:30 PM - 04:30 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

THIRD SEMESTER BOT / BPT / BSc. MIT / BSc. RRT & DT / BAOTT / BSc. PFT / BSc. CVT / BSc. EMT / BSc. RT / B.Sc.
RTT DEGREE EXAMINATION - DECEMBER 2021
SUBJECT: PAT 2103 - PATHOLOGY
(2020 SCHEME)

Marks: 50

Duration: 120 mins.

Answer all the questions.

Draw diagrams wherever necessary.

- | | | |
|-----|---|-----|
| 1A) | Describe the events in wound healing by primary intention with diagrams. | (6) |
| 1B) | Explain the factors that influence wound healing. | (4) |
| 2A) | Define anemia. Classify anemia based on etiology.
(1+2 = 3 marks) | (3) |
| 2B) | Describe clinical features, etiology and basic laboratory investigations for iron deficiency anemia.
(2+2+3 = 7 marks) | (7) |
| 3A) | Describe four cardinal signs and list two causes of acute inflammation. | (5) |
| 3B) | Mention five differences between benign and malignant tumors. | (5) |
| 3C) | Describe the morphology of primary, secondary and miliary tuberculosis. | (5) |
| 3D) | Describe the pathogenesis and list two causes of hypovolemic shock. | (5) |
| 4A) | Define metaplasia. Give an example. | (2) |
| 4B) | List four causes of thrombocytopenia. | (2) |
| 4C) | Define aneurysm and mention the types of aneurysm. | (2) |
| 4D) | Mention any four clinical features of hyperthyroidism. | (2) |
| 4E) | List the modes of transmission of Hepatitis B. | (2) |

-----End-----

Question Paper

Exam Date & Time: 15-Dec-2021 (10:00 AM - 01:00 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

THIRD SEMESTER B.Sc. RADIOTHERAPY TECHNOLOGY DEGREE EXAMINATION - DECEMBER 2021
SUBJECT: RTT 2102 - PRINCIPLES AND PRACTICE OF RADIOLOGY - PART I
(2020 SCHEME)

Marks: 100

Duration: 180 mins.

Answer all the questions.

- 1) Classify and explain the interactions of X-rays with matter. (20)
- 2) Explain the step wise process of positioning for basic cervical spine projection. (20)
- 3) Explain steps involved in the image formation in computed radiography. (10)
- 4) Illustrate the anatomy of knee joint. Describe the radiographic positioning for Knee Anterior Posterior (AP). (10)
- 5A) Briefly explain the factors affecting the quality and quantity of X-rays. (5)
- 5B) Write a short note on the structure seen on basic projection KUB radiographic image. (5)
- 5C) Write a short note on the workflow in PACS system. (5)
- 5D) Write a note on air gap techniques. (5)
- 5E) Classify the different level the X-ray is filtered after the production in X-ray tube. (5)
- 5F) Define capture element, coupling element and collection element DR. (5)
- 6A) Define filtration and filters. (2)
- 6B) Anode heel effect. (2)
- 6C) List out Advantages and disadvantages in DR. (2)
- 6D) Classify the indications for shoulder radiography. (2)
- 6E) List the types grid cut-off. (2)

-----End-----

Question Paper

Exam Date & Time: 17-Dec-2021 (02:30 PM - 04:30 PM)



MANIPAL ACADEMY OF HIGHER EDUCATION

THIRD SEMESTER B.Sc. RADIOTHERAPY TECHNOLOGY DEGREE EXAMINATION - DECEMBER 2021
SUBJECT: RTT 2103 - PATIENT POSITIONING AND IMMOBILIZATION / MOULD ROOM TECHNIQUES
(2020 SCHEME)

Answer ALL questions.

Marks: 50

Duration: 120 mins.

- 1) Briefly explain the Respiratory Motion Management Techniques for Chest and Abdominal Radiation Therapy. (10)
- 2) What are the different immobilization devices used in the treatment of ca breast? (10)
- 3A) Write short note on X-ray Simulator. (5)
- 3B) Write a note on electronic portal imaging system. (5)
- 3C) Explain in detail the preparation of brachytherapy mould. (5)
- 3D) Briefly explain the individual malignancies immobilization in oral cavity. (5)
- 4A) Name the different patient elevation system. (2)
- 4B) Mention the melting point of lead and Cerro bend. (2)
- 4C) What is wedge angle? (2)
- 4D) What are types of block? (2)
- 4E) Write a note on acquisition of patient data. (2)

-----End-----