

**B.Sc. MEDICAL TECHNOLOGY (RADIOTHERAPY)
SECOND YEAR EXAMINATION, JULY - 2018
SIMULATION AND MOLD ROOM TECHNIQUES
PAPER - I**

[Time allotted: Three hours]

[Max Marks: 70]

Note: Attempt all questions

Draw suitable diagrams wherever necessary

A : Short answer questions:

(7 x 9 = 63)

- Q. 1. Write short notes on:
 - a. Wedge filters (4)
 - b. Compensating filters (3)
- Q. 2. What is 2-D and 3-D simulation & define the role of simulation in radiotherapy planning?
- Q. 3. Explain importance of immobilization devices in radiotherapy treatment simulation.
- Q. 4. Write short notes on:
 - a. Port film (4)
 - b. Breast board and angle (3)
- Q. 5. What is the role of online portal imaging in radiotherapy treatment delivery?
- Q. 6. Write down the methods for immobilization in craniospinal irradiation.
- Q. 7. What are the instructions given to a patient receiving radiation to pelvis?
- Q. 8. What are the basic differences between diagnostic CT scan and radiotherapy CT simulator?
- Q. 9. Define shielding blocks and its role in radiotherapy planning.

B.Sc. MEDICAL TECHNOLOGY (RADIOTHERAPY)**SECOND YEAR EXAMINATION, JULY - 2018****SIMULATION AND MOLD ROOM TECHNIQUES****PAPER - I (MCQ)**

Time allotted for MCQ - 15 minutes

MCQs (Single response type): $(\frac{1}{2} \times 14 = 7)$ Select the most appropriate answer and **encircle** the alphabet against it

1. Simulators are primarily used to:
 - a. Localize the target machine
 - b. Duplicate the geometry of therapy machine movements of therapy
 - c. Duplicate the mechanical
 - d. All of the above
2. 1 Gy is the same as :
 - a. 1 rad
 - b. 10 cgy
 - c. 100 cgy
 - d. 1 erg
3. A HVT is a way of expressing:
 - a. Filtration of beam
 - b. Dose
 - c. Shielding
 - d. None of the above
4. Positron are produced during:
 - a. Compton effect
 - b. Photoelectric effect
 - c. Pair production
 - d. Coherent scattering
5. Gamma Rays are:
 - a. Negatively charged
 - b. Positively charged
 - c. Neutral
 - d. None of the above
6. The maximum dose from a single 6MV photonbeam occurs at approximately:
 - a. 1.5 cm
 - b. 2 cm
 - c. 0.5 cm
 - d. 3 cm
7. CT simulator is different from a diagnostic CT scan:
 - a. Small bore
 - b. Flat couch
 - c. Quality of imaging
 - d. None of the above
8. 1 mev equals to :
 - a. 10^{-6} electron volts (ev)
 - b. 10^6 ev
 - c. 10^{10} ev
 - d. 10^{-9} ev
9. Compensator should be placed:
 - a. At skin surface
 - b. At some distance of skin surface
 - c. Both a & b
 - d. None of above
10. What percentage of radiation is transmitted after 5 HVL?
 - a. 1%
 - b. 3.125%
 - c. 5%
 - d. 10%
11. Dose required for cataract is:
 - a. 6GY
 - b. 2GY
 - c. 12GY
 - d. 30GY
12. SSD of 6MV Linac is:
 - a. 100cm
 - b. 80cm
 - c. 5cm
 - d. 30cm
13. Factors that increase the penumbra:
 - a. Increase in SSD
 - b. Increase in source diameter
 - c. Decrease in SDD (SCD)
 - d. All of the above
14. Which of the following elements is **not** included in the formation of cerrobend?
 - a. Lead
 - b. Bismuth
 - c. Zinc
 - d. Tungsten

B.Sc. MEDICAL TECHNOLOGY (RADIOTHERAPY)
SECOND YEAR EXAMINATION, JULY - 2018
PRINCIPLES OF CANCER CONTROL & ONCOLOGY CARE
PAPER - II

[Time allotted : Three hours]

[Max Marks : 70]

Note: Attempt all questions
Draw suitable diagrams wherever necessary

A : Short answer questions:

(7 x 9 = 63)

- Q. 1. Write note on National Cancer Control Program.
- Q. 2. Write note on Primary Prevention of cancer.
- Q. 3. What are the modes of spread of cancer?
- Q. 4. Write note on palliative care in cancer patients.
- Q. 5. Write note on risk factors for cancer.
- Q. 6. Write note on acute side effects of radiotherapy in carcinoma tongue.
- Q. 7. Write note on extended field radiotherapy.
- Q. 8. How will you plan a case of carcinoma tonsil with bilateral cervical lymphadenopathy?
- Q. 9. What are side effects of concurrent chemoradiotherapy?

B.Sc. MEDICAL TECHNOLOGY (RADIOTHERAPY)
SECOND YEAR EXAMINATION, JULY - 2018
PRINCIPLES OF CANCER CONTROL & ONCOLOGY CARE
PAPER - II (MCQ)

Time allotted for MCQ-15 minutes

B : MCQs (Single response type):

(½ x 14 = 7)

Select the most appropriate answer and **encircle** the alphabet against it

1. All of the following are risk factor for carcinoma breast **except**:
 - a. Citrus fruits
 - b. Late menopause
 - c. Early menarche
 - d. Nulliparity
2. Public education for side effects of smoking isprevention of cancer.
 - a. Primary
 - b. Secondary
 - c. Tertiary
 - d. Both a and b
3. HPV is common in cancer of:
 - a. Liver
 - b. Lung
 - c. Stomach
 - d. Cervix
4. Protons is used in radiotherapy treatment of cancer:
 - a. Tongue
 - b. Larynx
 - c. Lung
 - d. Parotid
5. Radiotherapy department consists of all **except**:
 - a. Server
 - b. Oncentra
 - c. Magneteron
 - d. Cath lab
6. Dental prophylaxis is done in cancer:
 - a. Lung
 - b. Caecum
 - c. Larynx
 - d. Tongue
7. Palliative care of cancer is done in:
 - a. Early stage
 - b. Late stage
 - c. Cancer prevention
 - d. All of above
8. Conventional dose of radiotherapy given is:
 - a. 45GY / 25#
 - b. 20GY / 5#
 - c. 40GY / 15#
 - d. 8GY / 1#
9. Wedge is used in carcinoma all **except**:
 - a. Glottis
 - b. Breast
 - c. Rectum
 - d. Maxilla
10. Tangential portals are used in carcinoma:
 - a. Rectum
 - b. Breast
 - c. GBM
 - d. Testes
11. Xerostomia is common in radiotherapy in carcinoma of:
 - a. Breast
 - b. Parotid
 - c. Endometrium
 - d. Nasal cavity
12. All are required for Pediatric patients of medulloblastoma **except**:
 - a. Anaesthesia
 - b. Play therapist
 - c. Conformal radiotherapy
 - d. Ortho voltage
13. Kidney shielding is used in carcinoma:
 - a. Vagina
 - b. Anal canal
 - c. Kidney
 - d. Stomach
14. Organ preservation with radiotherapy is done in all carcinoma **except**:
 - a. Larynx
 - b. Urinary bladder
 - c. Breast
 - d. Colon

**B.Sc. MEDICAL TECHNOLOGY (RADIOTHERAPY)
SECOND YEAR EXAMINATION, JULY - 2018
HEALTH CARE AND RADIOTHERAPY ETHICS
PAPER - III**

[Time allotted : Three hours]

[Max Marks : 70]

Note: Attempt all questions

Draw suitable diagrams wherever necessary

A : Short answer questions:

(7 x 9 = 63)

- Q. 1. Explain why a cancer patient has psychological distress.
- Q. 2. How will you manage a patient, under radiation for spinal metastasis having pain?
- Q. 3. Discuss the problems a patient can have while on treatment for carcinoma breast with chemotherapy and radiation.
- Q. 4. How will you console a child 5 years old coming for radiation?
- Q. 5. Write note on Informed Consent.
- Q. 6. Write note on server in TPS room in radiotherapy department.
- Q. 7. What are the procedures regarding management of cancer patient?
- Q. 8. Write note on bowel care during radiotherapy in cancer patients.
- Q. 9. Discuss the type of a diet given for a patient under radiation treatment for esophageal cancers.

**B.Sc. MEDICAL TECHNOLOGY (RADIOTHERAPY)
SECOND YEAR EXAMINATION, JULY - 2018
HEALTH CARE AND RADIOTHERAPY ETHICS
PAPER - III (MCQ)**

Allocated for MCQ-15 minutes

(½ x 14 = 7)

MCQs (Single response type):

the most appropriate answer and **encircle** the alphabet against it

Which one is a method of cancer prevention?

- a. Junk food
- b. Alcohol
- c. Smoking
- d. Exercise

2. What is true for radical treatment?

- a. Long duration of treatment
- b. Only symptomatic treatment
- c. Side effects are less
- d. None of the above

3. All are risk factors for lung cancer **except**:

- a. Smoking
- b. Tobacco
- c. Asbestos
- d. None of the above

4. Which one is a mode of cancer spread?

- a. Lymphatic spread
- b. Hematogenous
- c. Direct
- d. All of the above

5. Goal of palliative care is to provide:

- a. Curative treatment
- b. Inpatients service only
- c. Medical, social and psychosocial services
- d. None of the above

6. Which is a complication in bed ridden patient?

- a. Bed sore
- b. Infection
- c. Thrombosis
- d. All of the above

7. Which is **not** an acute side effect of radiotherapy in head & neck cancer patients?

- a. Mucositis
- b. Difficulty in swallowing
- c. Fibrosis
- d. Dermatitis

8. Which one is a prevention of breast cancer?

- a. Breast feeding
- b. Alcohol
- c. Fatty food
- d. None of the above

9. Which one is a carcinogen in cigarette?

- a. Tar
- b. NNK
- c. Butyraldehyde
- d. All of above

10. HBV virus causes:

- a. Cervical cancer
- b. Anal cancer
- c. Oropharyngeal cancer
- d. Hepatocellular carcinoma

11. Which is **not** a side effect of radiotherapy in carcinoma cervix patients?

- a. Loose motion
- b. Nausea
- c. Burning in urination
- d. Cough

12. Which is **not** a symptom of brain tumour?

- a. Headache
- b. Seizures
- c. Vomiting
- d. Diarrhoea

13. Late side effects of radiotherapy come after:

- a. 1 month
- b. 2 month
- c. 6 month
- d. 4 month

14. Cancer screening is a:

- a. Primary prevention
- b. Primordial prevention
- c. Secondary prevention
- d. None of the above

**B.Sc. MEDICAL TECHNOLOGY (RADIOTHERAPY)
SECOND YEAR EXAMINATION, JULY - 2018
EXTERNAL BEAM RADIOTHERAPY
PAPER - IV**

[Max Marks : 70]

Time allotted : Three hours]

Note: Attempt all questions
Draw suitable diagrams wherever necessary

(7 x 9 = 63)

A : Short answer questions:

- Q. 1. How will you plan a case of cancer breast post mastectomy?
- Q. 2. Write note on box field technique in carcinoma cervix.
- Q. 3. Write note on shielding in radiotherapy.
- Q. 4. What is the difference between cobalt 60 and linear accelerator teletherapy equipment?
- Q. 5. Write note on D max of 6MV photon.
- Q. 6. Write short note on field size.
- Q. 7. Write note on immobilization in case of carcinoma tongue.
- Q. 8. Write note on tissue air ratio
- Q. 9. How will you plan a case of carcinoma left maxilla with the use of wedge?

n. No.....

B.Sc. MEDICAL TECHNOLOGY (RADIOTHERAPY)
SECOND YEAR EXAMINATION, JULY - 2018
EXTERNAL BEAM RADIOTHERAPY
PAPER - IV (MCQ)

Time allotted for MCQ-15 minutes

(½ x 14 = 7)

MCQs (Single response type):Select the most appropriate answer and **encircle** the alphabet against it

1. For reducing hot spots ----- is used.
 - a. Wedge
 - b. Shield
 - c. Block
 - d. Bolus
2. Primary beam transmission through the block is:
 - a. 10 %
 - b. 20 %
 - c. 1 %
 - d. Less than 5 %
3. HVL depends upon:
 - a. Energy of beam
 - b. Type of material
 - c. Both a and b
 - d. Temperature
4. Shielding block used in 6MV x-ray is _____ HVL.
 - a. 1
 - b. 3
 - c. 5
 - d. 6.5
5. Planning target volume is:
 - a. CTV + GTV
 - b. GTV
 - c. GTV + CTV + margin
 - d. GTV + margin
6. Melting point of cerrobend is:
 - a. 25 °C
 - b. 50 °C
 - c. 70 °C
 - d. 100 °C
7. Wedge is made up of:
 - a. Tin
 - b. Iron
 - c. Water
 - d. Lead
8. MLC thickness is _____ at isocentre level.
 - a. 1 cm
 - b. 2 cm
 - c. 3 cm
 - d. None of the above
9. MLB is used in:
 - a. Ca breast
 - b. Ca cervix
 - c. Ca lung
 - d. Ca pancreas
10. TVL is related to HVL by:
 - a. TVL = 3.3 HVL
 - b. TVL = 1.44 HVL
 - c. HVL = 0.693 TVL
 - d. TVL = 0.693 / HVL
11. 6 MV photon beam Dmax is:
 - a. 1.5 cm
 - b. 3 cm
 - c. 2.5 cm
 - d. None of the above
12. IOP is used in carcinoma:
 - a. Tonsil
 - b. Thyroid
 - c. Lung
 - d. Pinna
13. Dmax is _____.
 - a. Minimum dose
 - b. Maximum dose
 - c. Medium dose
 - d. None of the above
14. 10 Gy is _____.
 - a. 100 cgy
 - b. 10 cgy
 - c. 1000 cgy
 - d. None of the above

**B.Sc. MEDICAL TECHNOLOGY (RADIOTHERAPY)
SECOND YEAR EXAMINATION, AUGUST – 2019
SIMULATION AND MOULD ROOM TECHNIQUES
PAPER - I**

[Time allotted: Three hours]

[Max Marks: 70]

Note: Attempt all questions

Draw suitable diagrams wherever necessary

(7 x 9 = 63)

A : Short answer questions:

- Q. 1. Describe the CT simulation process in case of carcinoma cervix
- Q. 2. What is the record and verification system (R&V system)? Explain its importance in radiotherapy
- Q. 3. Explain different immobilization devices used in radiotherapy
- Q. 4. Write short notes on:
 - a. Tissue compensator (4)
 - b. Shielding blocks (3)
- Q. 5. Composition of cerrobend material and its benefit over lead
- Q. 6. Write short notes on:
 - a. Virtual simulation in radiotherapy (4)
 - b. Use of fiducial markers in radiotherapy (3)
- Q. 7. Explain the styrofoam cutter & its use for lung shielding in mould room.
- Q. 8. What is the basic difference between conventional and CT simulator?
- Q. 9. Define wedge and its role in radiotherapy treatment planning. Draw the isodose lines for a wedge angle of 45 degree.

**B.Sc. MEDICAL TECHNOLOGY (RADIOTHERAPY)
SECOND YEAR EXAMINATION, AUGUST - 2019
SIMULATION AND MOULD ROOM TECHNIQUES
PAPER - I (MCQ)**

Time allotted for MCQ - 15 minutes

B : MCQs (Single response type):

(½ x 14 = 7)

Select the most appropriate answer and **encircle** the alphabet against it.

1. Intracavitary applicator is also called:
 - a. ICRU
 - b. Van Herk
 - c. Fletcher suit
 - d. AAPM
2. Following is the elementary particle:
 - a. Electrons
 - b. Protons
 - c. Neutrons
 - d. All of the above
3. Percentage of lead in cerrobend is:
 - a. 26.7%
 - b. 20%
 - c. 50%
 - d. 5%
4. GTV is:
 - a. Gross tumor volume
 - b. Gross target volume
 - c. General tumor volume
 - d. Genetic target volume
5. During radiation treatment verification following is used:
 - a. EPID
 - b. Port Film
 - c. Both a and b
 - d. None of above
6. Melting point of cerrobend is:
 - a. 25 °C
 - b. 50 °C
 - c. 70 °C
 - d. 100 °C
7. Orfit is made ofequivalent material.
 - a. Air
 - b. Tissue
 - c. Water
 - d. Lead
8. Tissue compensator is made of:
 - a. Tungsten
 - b. Aluminium
 - c. Steel
 - d. Lead
9. Bolus is made up of:
 - a. Lead
 - b. Wax
 - c. Cerrobend
 - d. Tin
10. TVL is:
 - a. Total value layer
 - b. Tenth value layer
 - c. Tumor volume layer
 - d. Treatment value layer
11. Dmax of 6MV photon beam:
 - a. 1.5 cm
 - b. 1.5 mm
 - c. 2 cm
 - d. 2.5 cm
12. The half life of Ir¹⁹² is:
 - a. 73.83 days
 - b. 73.83 years
 - c. 89 days
 - d. 60 days
13. Contact therapy is given with the x-ray beam of potential:
 - a. < 20 KV
 - b. 40-50 KV
 - c. 50-150 KV
 - d. 150-500 KV
14. Head rest is used for:
 - a. Patient immobilization
 - b. Patient treatment
 - c. Tissue compensation
 - d. Comfort of the patient

B.Sc. MEDICAL TECHNOLOGY (RADIOTHERAPY)
SECOND YEAR EXAMINATION, AUGUST - 2019
PRINCIPLES OF CANCER CONTROL & ONCOLOGY CARE
PAPER - II

[Time allotted: Three hours]

[Max Marks: 70]

Note: Attempt all questions

Draw suitable diagram wherever necessary

A : Short answer questions:

(7 x 9 = 63)

- Q. 1. Write note on primary prevention of cancer.
- Q. 2. Write short note on NCCP.
- Q. 3. What is difference between a curative & palliative treatment?
- Q. 4. Write short note on chemotherapy induced toxicities.
- Q. 5. What is cancer? How does it spread?
- Q. 6. How will you plan a patient with carcinoma cervix with paraaortic lymphadenopathy?
- Q. 7. Write short note on radiation induced mucositis and its management.
- Q. 8. Write a short note on cancer screening with two examples.
- Q. 9. Write short note on management of patient with spinal cord compression.

B.Sc. MEDICAL TECHNOLOGY (RADIOTHERAPY)
SECOND YEAR EXAMINATION, AUGUST - 2019
PRINCIPLES OF CANCER CONTROL & ONCOLOGY CARE
PAPER - II (MCQ)

Time allotted for MCQ - 15 minutes

B : MCQs (Single response type):

(½ x 14 = 7)

Select the most appropriate answer and **encircle** the alphabet against it.

1. Intracavitary applicator is also called:
 - a. ICRU
 - b. Van Herk
 - c. Fletcher suit
 - d. AAPM
2. Acute toxicity of radiotherapy in head and neck cancer during radiotherapy is:
 - a. Mucositis
 - b. Fibrosis
 - c. Telengectasia
 - d. Bleeding
3. All are mode of spread of cancer in breast cancer **except**:
 - a. Lung
 - b. Bone
 - c. Liver
 - d. Spleen
4. GTV is:
 - a. Gross tumor volume
 - b. Gross target volume
 - c. General tumor volume
 - d. Genetic target volume
5. Which ICRU followed in carcinoma cervix patients treated by intracavitary brachytherapy?
 - a. 83
 - b. 50
 - c. 62
 - d. 38
6. Which of the following advice you will give to the patient during radiotherapy of carcinoma cervix?
 - a. Apply oil
 - b. Rub irradiated area
 - c. Full bladder
 - d. None of the above
7. What is the timing of concurrent chemotherapy?
 - a. After RT
 - b. Before RT
 - c. Any time
 - d. All of the above
8. What is tolerance of radiotherapy in spinal cord?
 - a. 35 Gy
 - b. 65 Gy
 - c. 25 Gy
 - d. 45 Gy
9. Mode of spread in cancer is:
 - a. Hematogenous
 - b. Lymphatics
 - c. Local invasion
 - d. All of the above
10. TVL is:
 - a. Total value layer
 - b. Tenth value layer
 - c. Tumor volume layer
 - d. Treatment value layer
11. Cancer screening is done in all **except**:
 - a. Ca breast
 - b. Ca colon
 - c. Ca gall bladder
 - d. Ca cervix
12. Which of the following is a method of brachytherapy?
 - a. Intracavitary
 - b. Interstitial
 - c. Intravascular
 - d. All of Above
13. Palladium is particularly used in brachytherapy for?
 - a. Esophagus
 - b. Lung
 - c. Prostate
 - d. Cervix
14. Type of brachytherapy in which needles and wires are inserted directly into the tissue is known as:
 - a. Interstitial brachytherapy
 - b. Intra cavity brachytherapy
 - c. Intraluminal brachytherapy
 - d. Surface mould

**B.Sc. MEDICAL TECHNOLOGY (RADIOTHERAPY)
SECOND YEAR EXAMINATION, AUGUST - 2019
HEALTH CARE AND RADIOTHERAPY ETHICS
PAPER - III**

[Time allotted: Three hours]

[Max Marks: 70]

Note: Attempt all questions

Draw suitable diagrams wherever necessary

(7 x 9 = 63)

A : Short answer questions:

- Q. 1.** Write note on significance of nutrition in cancer patients.
- Q. 2.** Write note on legal issues in radiotherapy.
- Q. 3.** Write note on cardiopulmonary resuscitation.
- Q. 4.** Write note on oral cavity care in cancer patients on radiotherapy treatment.
- Q. 5.** Write note on concurrent chemotherapy.
- Q. 6.** Write note on toxicities of radiotherapy treatment in a case of cancer uterus.
- Q. 7.** Write note on counselling in cancer patient on radiotherapy. What are the precautions to be taken during radiotherapy?
- Q. 8.** Write note on care of pediatric patients on radiotherapy treatment.
- Q. 9.** Write note on nursing care in a case of glioma with grade 0 power in oncology ward.

B.Sc. MEDICAL TECHNOLOGY (RADIOTHERAPY)
SECOND YEAR EXAMINATION, AUGUST - 2019
HEALTH CARE AND RADIOTHERAPY ETHICS
PAPER - III (MCQ)

Time allotted for MCQ - 15 minutes

B : MCQs (Single response type):

(½ x 14 = 7)

Select the most appropriate answer and encircle the alphabet against it

1. Anemia is decreased:
 - a. Hb
 - b. TLC
 - c. DLC
 - d. Platelets
2. Ambubag is used to give:
 - a. Oxygen
 - b. Radiotherapy
 - c. Chemotherapy
 - d. Brachytherapy
3. Pleural effusion is fluid in:
 - a. Liver
 - b. Lung
 - c. Bones
 - d. Abdomen
4. Electronic Medical Record (DICOM) in radiotherapy consists of:
 - a. Text
 - b. Images
 - c. Graphics
 - d. All of the above
5. TPS room in radiotherapy department consists of:
 - a. Maize wall
 - b. Oncentra
 - c. Magneteron
 - d. Lasers
6. Colostomy is done in cancer of:
 - a. Breast
 - b. Caecum
 - c. Larynx
 - d. Skin
7. CEA is tumor marker in cancer of:
 - a. Cervix
 - b. Breast
 - c. Rectum
 - d. Prostate
8. Mammogram is x-ray of:
 - a. Stomach
 - b. Lung
 - c. Breast
 - d. Oral cavity
9. Colostomy shielding is done in:
 - a. Cervix
 - b. Breast
 - c. Rectum
 - d. Prostate
10. Informed consent for possibility of infertility by radiotherapy is taken in cancer:
 - a. Lung
 - b. Gall bladder
 - c. Testes
 - d. Tongue
11. Sperm banking is done before chemoradiotherapy in cancer of:
 - a. Urinary bladder
 - b. Testes
 - c. Stomach
 - d. Breast
12. Decrease in blood pressure is called:
 - a. Hypotension
 - b. Hypoxia
 - c. Hypothermia
 - d. Cataract
13. Standard operating procedures (SOP) provides information for:
 - a. Job descriptions
 - b. Employee training
 - c. Performance review
 - d. All of the above
14. Tumor Board includes interaction of Radiation Oncologist with.....for treatment decision:
 - a. Surgical oncologist
 - b. Medical oncologist
 - c. Onco - pathologist
 - d. All of the above

Regn. No. DD.....

Paper Code: BRT204

**B.Sc. MEDICAL TECHNOLOGY (RADIOTHERAPY)
SECOND YEAR EXAMINATION, AUGUST - 2019
EXTERNAL BEAM RADIOTHERAPY
PAPER - IV**

[Max Marks: 70]

[Time allotted: Three hours]

Note: Attempt all questions

Draw suitable diagrams wherever necessary

(7 x 9 = 63)

A : Short answer questions:

- Q. 1. Define box technique in external beam radiotherapy.
- Q. 2. Write note on couch movements in radiotherapy.
- Q. 3. Write note on wedge isodose angle.
- Q. 4. Write note on tissue compensator.
- Q. 5. Write note on gap junctions in radiotherapy.
- Q. 6. Write note on percentage depth dose.
- Q. 7. Write note on parallel opposed field.
- Q. 8. Write note on planning target volume.
- Q. 9. Write note on electron treatment in radiotherapy.

B.Sc. MEDICAL TECHNOLOGY (RADIOTHERAPY)
SECOND YEAR EXAMINATION, AUGUST - 2019
EXTERNAL BEAM RADIOTHERAPY
PAPER - IV (MCQ)

Time allotted for MCQ - 15 minutes

B : MCQs (Single response type):

($\frac{1}{2} \times 14 = 7$)

Select the most appropriate answer and **encircle** the alphabet against it.

1. Electron applicator is kept at distance of ____ cm from skin.
 - a. 50
 - b. 15
 - c. 100
 - d. On the skin
2. Lasers are used for:
 - a. Shielding
 - b. Bolus
 - c. Immobilization
 - d. Compensation
3. Percentage depth dose is:
 - a. $(D_d/D_{d0}) \times 100$
 - b. $(D_{max}/D_d) \times 100$
 - c. $(d_d \times d_{max}) \times 100$
 - d. None of the above
4. Shielding block is ____ HVL.
 - a. 1
 - b. 3
 - c. 5
 - d. 7
5. Internal target volume is:
 - a. CTV+IM
 - b. GTV+IM
 - c. PTV+IM
 - d. None of the above
6. Melting point of cerrobend is:
 - a. 25 °C
 - b. 50 °C
 - c. 70 °C
 - d. 100 °C
7. Wedge is made up of:
 - a. Tin
 - b. Iron
 - c. Water
 - d. Lead
8. MLC thickness is ____ at isocentre level.
 - a. 1 cm
 - b. 2 cm
 - c. 3 cm
 - d. None of the above
9. MLB is used in:
 - a. Ca breast
 - b. Ca cervix
 - c. Ca lung
 - d. None of the above
10. HVL is related to TVL by:
 - a. $TVL = 3.3 \text{ HVL}$
 - b. $TVL = 1.44 \text{ HVL}$
 - c. $HVL = 0.693 \text{ TVL}$
 - d. $HVL = 0.693/HVL$
11. 6MV photon beam Dmax is:
 - a. 1.5 cm
 - b. 3 cm
 - c. 2.5 cm
 - d. None of the above
12. The half life of Ir 192 is:
 - a. 2.7 years
 - b. 30 years
 - c. 73.8 days
 - d. 1600 years
13. Dmax is:
 - a. Minimum dose
 - b. Maximum dose
 - c. Medium dose
 - d. None of the above
14. RAD is:
 - a. Exposure
 - b. Absorbed dose
 - c. Attenuation
 - d. Scatter

**B.Sc. MEDICAL TECHNOLOGY (RADIOTHERAPY)
SECOND YEAR EXAMINATION, AUGUST - 2020
SIMULATION AND MOLD ROOM TECHNIQUES
PAPER - I**

[Time allotted: Two hours]**[Max Marks: 70]****Note:** Attempt all questions

Draw suitable diagrams wherever necessary

A : Short answer questions:**(06 x 10 = 60)**

- Q. 1. Write note on bolus used in radiotherapy
- Q. 2. What is CT simulation and its importance in radiotherapy?
- Q. 3. Write note on use of breast board in carcinoma breast.
- Q. 4. Write note on electron applicator.
- Q. 5. Write a note on utilization of wedge in carcinoma maxilla.
- Q. 6. Write a note on MLCs in your department.

B.Sc. MEDICAL TECHNOLOGY (RADIOTHERAPY)
SECOND YEAR EXAMINATION, AUGUST - 2020
SIMULATION AND MOLD ROOM TECHNIQUES
PAPER - I
(MCQ)

Time allotted for MCQ - 15 minutes

B : MCQs (Single response type):

(01 x 10 = 10)

Select the most appropriate answer and **encircle** the alphabet against it

1. Lead shielding can be used in electron treatment of Ca:
 - a. Cervix
 - b. Oesophagus
 - c. Stomach
 - d. Skin of nose
2. Bragg peak is seen with:
 - a. Electrons
 - b. Protons
 - c. Neutrons
 - d. Photon
3. Percentage of lead in cerrobend is:
 - a. 26.7%
 - b. 20%
 - c. 50%
 - d. 5%
4. Immobilization is done with all **except**:
 - a. Molds
 - b. Head rest
 - c. Fletcher suit
 - d. IOP
5. Indexing bar is used for fixation of:
 - a. EPID
 - b. Wedge
 - c. Base plate
 - d. IOP
6. Melting point of cerrobend is:
 - a. 25 °C
 - b. 50 °C
 - c. 70 °C
 - d. 100 °C
7. Orfit is made ofequivalent material.
 - a. Air
 - b. Tissue
 - c. Water
 - d. Lead
8. Tissue compensator is made of:
 - a. Tungsten
 - b. Aluminium
 - c. Steel
 - d. Lead
9. Bolus is made up of:
 - a. Lead
 - b. Wax
 - c. Cerrobend
 - d. Tin`
10. Vac lock, bean bag pillows, are commonly used for immobilization of tumors.
 - a. Chest wall
 - b. Brain
 - c. Orbit
 - d. Limb

Regn. No. DD.....

Paper Code: BRT202

B.Sc. MEDICAL TECHNOLOGY (RADIOTHERAPY)
SECOND YEAR EXAMINATION, AUGUST - 2020
PRINCIPLES OF CANCER CONTROL & ONCOLOGY CARE
PAPER - II

[Time allotted: Two hours]

[Max Marks: 70]

Note: Attempt all questions

Draw suitable diagram wherever necessary

A : Short answer questions:

(06 x 10 = 60)

- Q. 1.** What is breast self-examination?
- Q. 2.** Write short note on NCCP.
- Q. 3.** Write note on oral hygiene in a patient of CA tongue on radiotherapy.
- Q. 4.** Write short note on organ preservation citing two examples.
- Q. 5.** What is cancer? How does it spread?
- Q. 6.** Write note on pain management in oncology.

B.Sc. MEDICAL TECHNOLOGY (RADIOTHERAPY)
SECOND YEAR EXAMINATION, AUGUST - 2020
PRINCIPLES OF CANCER CONTROL & ONCOLOGY CARE
PAPER - II
(MCQ)

Time allotted for MCQ - 15 minutes

B : MCQs (Single response type):

(01 x 10 = 10)

Select the most appropriate answer and encircle the alphabet against it

1. Fletcher suit applicator is used in:
 - a. Ca breast
 - b. Ca colon
 - c. Ca gall bladder
 - d. Ca cervix
2. Acute toxicity of radiotherapy in head and neck cancer during radiotherapy is all **except**:
 - a. Mucositis
 - b. Xerostomia
 - c. Telengectasia
 - d. Skin reactions
3. All are mode of spread of cancer in breast cancer **except**:
 - a. Lung
 - b. Bone
 - c. Liver
 - d. Spleen
4. GTV is:
 - a. Gross Tumor Volume
 - b. Gross Target Volume
 - c. General Tumor Volume
 - d. Genetic Target Volume
5. Which ICRU followed in carcinoma cervix patients treated by intracavitary brachytherapy?
 - a. 83
 - b. 50
 - c. 62
 - d. 38
6. Which of the following advice you will give to the patient during radiotherapy of carcinoma cervix?
 - a. Apply oil
 - b. Rub irradiated area
 - c. Full bladder
 - d. None of the above
7. What is the timing of concurrent chemotherapy?
 - a. After RT
 - b. Before RT
 - c. Any time
 - d. All of the above
8. What is tolerance of Radiotherapy in spinal cord?
 - a. 35 Gy
 - b. 65 Gy
 - c. 25 Gy
 - d. 45 Gy
9. Mode of spread in cancer is:
 - a. Hematogenous
 - b. Lymphatics
 - c. Local invasion
 - d. All of the above
10. TVL is:
 - a. Total Value Layer
 - b. Tenth Value Layer
 - c. Tumor Volume Layer
 - d. Treatment Value Layer

Regn. No. DD.....

Paper Code: BRT203

**B.Sc. MEDICAL TECHNOLOGY (RADIOTHERAPY)
SECOND YEAR EXAMINATION, AUGUST - 2020
HEALTH CARE AND RADIOTHERAPY ETHICS
PAPER - III**

[Time allotted: Two hours]

[Max Marks: 70]

Note: Attempt all questions

Draw suitable diagrams wherever necessary

A : Short answer questions:

(06 x 10 = 60)

- Q. 1. Write note on care of bed ridden patient with spinal metastasis
- Q. 2. Write note on colostomy care in a patient of ca rectum.
- Q. 3. Write note on radiation side effects in a case of ca cervix.
- Q. 4. What instructions will you give to a new patient before starting radiotherapy?
- Q. 5. Write note on informed consent in radiotherapy?
- Q. 6. Explain the process of setting up the patient of medulloblastoma for treatment.

B.Sc. MEDICAL TECHNOLOGY (RADIOTHERAPY)
SECOND YEAR EXAMINATION, AUGUST - 2020
HEALTH CARE AND RADIOTHERAPY ETHICS
PAPER - III
(MCQ)

Time allotted for MCQ - 15 minutes

B : MCQs (Single response type):

(01 x 10 = 10)

Select the most appropriate answer and encircle the alphabet against it

1. Leucocytopenia is decreased:
 - a. Platelets
 - b. TLC
 - c. Hemoglobin
 - d. None of the above
2. Ambu bag is used to give:
 - a. Oxygen
 - b. Radiotherapy
 - c. Brachytherapy
 - d. Chemotherapy
3. Colostomy is done in patient of:
 - a. Ca rectum
 - b. Ca breast
 - c. Ca stomach
 - d. Ca esophagus
4. CA 125 is a marker of:
 - a. Brain tumor
 - b. Ca breast
 - c. Ca ovary
 - d. Esophagus
5. Consent of infertility is taken in:
 - a. Cancer lung
 - b. Brain tumor
 - c. Testicular tumor
 - d. Brain tumor
6. Cancer screening should be done for all **except**:
 - a. Breast
 - b. Cervix
 - c. Colorectal
 - d. Brain
7. Which is not used for nutritional purposes?
 - a. Ryle tube
 - b. Gastrostomy
 - c. Jejunostomy
 - d. Colostomy
8. Tumor Board includes:
 - a. Radiation oncologist
 - b. Medical oncologist
 - c. Oncopathologists
 - d. All of the above
9. Counselling of a patient undergoing radiotherapy should be done by:
 - a. Oncologist
 - b. Nurses
 - c. Technologist
 - d. All of the above
10. Methods of cancer screening include all **except**:
 - a. Mammography
 - b. Pap smear
 - c. CECT
 - d. Colonoscopy

Regn. No. DD.....

Paper Code: BRT204

**B.Sc. MEDICAL TECHNOLOGY (RADIOTHERAPY)
SECOND YEAR EXAMINATION, AUGUST - 2020
EXTERNAL BEAM RADIOTHERAPY
PAPER - IV**

[Time allotted: Two hours]

[Max Marks: 70]

Note: Attempt all questions

Draw suitable diagrams wherever necessary

A : Short answer questions:

(06 x 10 = 60)

- Q. 1.** Define isodose curve & explain its importance in external beam radiotherapy.
- Q. 2.** What is CT-simulation? Describe its importance in radiotherapy.
- Q. 3.** Write note on parallel opposed field.
- Q. 4.** Write note on wedge systems
- Q. 5.** Write note on beam profile.
- Q. 6.** Write note on percentage depth dose.

B.Sc. MEDICAL TECHNOLOGY (RADIOTHERAPY)
SECOND YEAR EXAMINATION, AUGUST - 2020
EXTERNAL BEAM RADIOTHERAPY
PAPER - IV
(MCQ)

Time allotted for MCQ - 15 minutes

B : MCQs (Single response type):

(01 x 10 = 10)

Select the most appropriate answer and **encircle** the alphabet against it

1. For shielding _____ is used.
 - a. Wedge
 - b. Shield
 - c. Block
 - d. Bolus
2. Primary beam transmission through the block is:
 - a. 10%
 - b. 20%
 - c. 1%
 - d. Less than 5%
3. Percentage depth dose is:
 - a. $(D_d/D_{d0}) \times 100$
 - b. $(D_{max}/D_d) \times 100$
 - c. $(d_d \times d_{max}) \times 100$
 - d. None of the above
4. Shielding block is _____ HVL.
 - a. 1
 - b. 3
 - c. 5
 - d. 7
5. Internal target volume is:
 - a. CTV+IM
 - b. GTV+IM
 - c. PTV+IM
 - d. None of the above
6. Melting point of cerrobend is:
 - a. 25 °C
 - b. 50 °C
 - c. 70 °C
 - d. 100 °C
7. Wedge is made up of:
 - a. Tin
 - b. Iron
 - c. Water
 - d. Lead
8. MLC thickness is _____ at isocentre level.
 - a. 1 cm
 - b. 2 cm
 - c. 3 cm
 - d. None of the above
9. MLB is used in:
 - a. Ca breast
 - b. Ca cervix
 - c. Ca lung
 - d. None of the above
10. HVL is _____ related to TVL by:
 - a. $TVL = 3.3 \text{ HVL}$
 - b. $TVL = 1.44 \text{ HVL}$
 - c. $HVL = 0.693 \text{ TVL}$
 - d. $HVL = 0.693/HVL$