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**B.R.T. SECOND YEAR EXAMINATION, JUNE/JULY - 2013**  
**SIMULATION AND MOLD ROOM TECHNIQUES**  
**PAPER FIRST**

[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 short note on orifit. Explain the process of immobilization in head and neck cancer patient.
- Q. 2. Write note on fiducial markers in radiotherapy.
- Q. 3. What is difference between conventional and CT simulator?
- Q. 4. Write short note on ovoids in brachytherapy
- Q. 5. Write short note on: (4+3=7)
- a. GTV
  - b. CTV
- Q. 6. What are the organs at risk during EBRT treatment of a case of cancer tongue? How will you save them, explain briefly?
- Q. 7. What are the radiation hazards of CT simulator?
- Q. 8. What are the immobilization devices used for planning a case of cancer breast?
- Q. 9. Write short note on dynamic wedges.

**B.R.T. SECOND YEAR EXAMINATION, JUNE/JULY - 2013**  
**SIMULATION AND MOLD ROOM TECHNIQUES**  
**PAPER FIRST (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. Humerus head shielding is done in EBRT planning of:
  - a. Cancer breast
  - b. Cancer esophagus
  - c. Cancer lip
  - d. Cancer cervix
2. Orifit is made of ----- equivalent material.
  - a. Air
  - b. Tissue
  - c. Water
  - d. Lead
3. Head rest is used for:
  - a. Patient immobilization
  - b. Tissue compensation
  - c. Contouring
  - d. All of above
4. Tissue compensator is made of:
  - a. Tungsten
  - b. Lead
  - c. Steel
  - d. Aluminium
5. GTV is:
  - a. Gross tumor volume
  - b. Gross target volume
  - c. General target volume
  - d. Genetic target volume
6. Percentage of lead in cerrobend is:
  - a. 26.7%
  - b. 20%
  - c. 50%
  - d. 5%
7. Intraoral prosthesis is used in EBRT treatment of:
  - a. Ca breast
  - b. Ca tonsil
  - c. Ca spin
  - d. Brain tumors
8. Melting point of carrobend is:
  - a. 100 °C
  - b. 300 °C
  - c. 70 °C
  - d. 200 °C
9. Melting point of lead is:
  - a. 327 °C
  - b. 70 °C
  - c. 100 °C
  - d. 200 °C
10. Shielding blocks are commonly made of:
  - a. Steel
  - b. Aluminium
  - c. Perspex
  - d. Lead
11. The half life of radium 226 is:
  - a. 2.7 yrs.
  - b. 5.6 yrs.
  - c. 30 yrs.
  - d. 162 yrs.
12. Which of the following is tissue equivalent material?
  - a. Lead
  - b. Aluminium
  - c. Bolus
  - d. All of the above
13. Purpose of port film is:
  - a. Contouring
  - b. Verify treatment volume
  - c. Uerify tumor dose
  - d. Immobilization
14. Internal shielding with lead is used in treatment of all EXCEPT:
  - a. Lip
  - b. Buccal mucosa
  - c. Eyelid lesion
  - d. Ca rectum

**B.R.T. SECOND YEAR EXAMINATION, JUNE/JULY - 2013**  
**PRINCIPLES OF CANCER CONTROL & ONCOLOGY CARE**  
**PAPER SECOND**

[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. What is secondary prevention in cancer?
- Q. 2. What is the difference between a curative and palliative patient?
- Q. 3. What is cancer? How does it spread?
- Q. 4. How will you plan a patient with Ca cervix stage II B?
- Q. 5. Write short note on sparing of spinal cord in cancer patients.
- Q. 6. Write short note on craniospinal radiation.
- Q. 7. Write note on organ preservation citing relevant examples.
- Q. 8. Write notes on: (4+3=7)
  - a. Chemotherapy
  - b. Concurrent chemotherapy
- Q. 9. Describe the complications of chemotherapy to a patient?

**B.R.T. SECOND YEAR EXAMINATION, JUNE/JULY - 2013**  
**PRINCIPLES OF CANCER CONTROL & ONCOLOGY CARE**  
**PAPER SECOND (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. Kidneys are shielded after ----- Gy.
  - a. 30 Gy
  - b. 20 Gy
  - c. 10 Gy
  - d. 50 Gy
2. Breast self examination is:
  - a. Primary prevention
  - b. Secondary prevention
  - c. Tertiary prevention
  - d. None of the above
3. Papanicolau test is screening test for carcinoma:
  - a. Breast
  - b. Rectum
  - c. Cervix
  - d. Skin
4. NCCP started in:
  - a. 1955
  - b. 1985
  - c. 1990
  - d. 1980
5. Mammography is:
  - a. X- ray of breast
  - b. MRI rt. Breast
  - c. Biopsy of breast
  - d. None of the above
6. Dental prophylaxis indicated in case of:
  - a. Oral cavity
  - b. Genitourinary
  - c. Soft tissue
  - d. Ca lung
7. Neoadjuvant chemotherapy is given:
  - a. Before radiotherapy
  - b. After radiotherapy
  - c. With radiotherapy
  - d. Without radiotherapy
8. M band in urine is visible in case of:
  - a. Multiple myeloma
  - b. Sarcomas
  - c. GBM
  - d. Carcinoma cervix
9. Adjuvant radiotherapy is given ----- surgery.
  - a. Before
  - b. After
  - c. With
  - d. None of the above
10. Bereavement includes :
  - a. Grief
  - b. Mourning
  - c. Screening
  - d. Both a & b
11. Tamoxifen is a:
  - a. Hormone
  - b. Pain killer
  - c. Anaesthetic
  - d. Radiation sensitizer
12. Cancer cervix spreads to liver through:
  - a. Lymphatics
  - b. Direct
  - c. Hematogenous route
  - d. All of the above
13. Morphine is:
  - a. Chemotherapy
  - b. Pain killer
  - c. Radiation sensitizer
  - d. All of the above
14. Which of these is an oncological emergency?
  - a. Carotid bleeding
  - b. Spinal cord compression
  - c. Bleeding p/v
  - d. Both a & b

**B.R.T. SECOND YEAR EXAMINATION, JUNE/JULY - 2013**  
**HEALTH CARE AND RADIOTHERAPY ETHICS**  
**PAPER THIRD**

[Time allotted: Three hours]

[Max Marks: 70]

Note: Attempt all questions

Draw suitable diagram wherever necessary

**A : Short answer questions:**

(7 x 9 = 63)

Write short note on:

- Q. 1. Mucositis in a case of carcinoma tongue on EBRT treatment.
- Q. 2. Nutritional care in cancer patient.
- Q. 3. Cardiopulmonary resuscitation.
- Q. 4. Side effects of concurrent chemoradiotherapy?
- Q. 5. Dental prophylaxis in head and neck cancer patient.
- Q. 6. Care of semi conscious patients during radiotherapy.
- Q. 7. DICOM.
- Q. 8. Management of children on radiotherapy treatment.
- Q. 9. Cultural issues in cancer patients?

**B.R.T. SECOND YEAR EXAMINATION, JUNE/JULY - 2013**  
**HEALTH CARE AND RADIOTHERAPY ETHICS**  
**PAPER THIRD (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. Chemoport is used to give:
  - a. Radiotherapy
  - b. Chemotherapy
  - c. Brachytherapy
  - d. Oxygen
2. Which of the following is TPS room component?
  - a. Server
  - b. Magnetron
  - c. Electron gun
  - d. T- rod
3. Xerostomia is loss of:
  - a. Blood
  - b. Salvia
  - c. Hair
  - d. Teeth
4. Universal precaution is required in cancer patient with:
  - a. Anaemia
  - b. Cardiomyopathy
  - c. Fracture
  - d. HIV positivity
5. Informed consent in case of minor is given by:
  - a. Teacher
  - b. Doctor
  - c. Parents
  - d. Minor
6. Playtherapists is required in radiotherapy treatment of :
  - a. Adults
  - b. VIP patients
  - c. Children
  - d. Athletes
7. Arm adema is seen in carcinoma:
  - a. Uterus
  - b. Ovary
  - c. Breast
  - d. GBM
8. Discipline in radiation oncology is controlled by:
  - a. RTOG
  - b. EORTC
  - c. NCCN
  - d. BARC
9. Gentian violet is used in:
  - a. Mucosits
  - b. Skin reaction
  - c. Vomiting
  - d. Xerostomia
10. Geriatrics referred to age more than:
  - a. 60 yrs.
  - b. 80 yrs.
  - c. 90 yrs.
  - d. 100 yrs.
11. Anthropometry is measurement of:
  - a. Height
  - b. Weight
  - c. Both
  - d. All of the above
12. Care of bed ridden patient includes care of:
  - a. Bowel
  - b. Bladder
  - c. Bed sores
  - d. All of the above
13. Ice chips is kept in mouth during bolus infection of:
  - a. SFU
  - b. Bleomycin
  - c. Herceptin
  - d. Dexona
14. Colectomy shieloling is done in cancer of:
  - a. Tonsil
  - b. Rectum
  - c. GBM
  - d. Larynx

**B.R.T. SECOND YEAR EXAMINATION, JUNE/JULY - 2013**  
**EXTERNAL BEAM RADIOTHERAPY**  
**PAPER FOUR**

[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. What is wedge angle? Explain with diagram.
- Q. 2. What is box technique of radiotherapy? Give two examples where this technique is used.
- Q. 3. What is the difference between 2-D and 3-D treatment planning?
- Q. 4. Explain in detail the steps used for treatment cancer of Bare Tongue.
- Q. 5. What are the various techniques used to treat a case of cancer breast?
- Q. 6. Write short note on skin sparing effect of radiotherapy.
- Q. 7. Write short note on: (4+3=7)  
a. Isocentre  
b. Shielding block
- Q. 8. What is percentage depth dose? What is difference between PDD of cobalt-60 and 6mv photon?
- Q. 9. Draw isodose chart of parallel opposed fields.

**B.R.T. SECOND YEAR EXAMINATION, JUNE/JULY - 2013**  
**EXTERNAL BEAM RADIOTHERAPY**  
**PAPER FOUR (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. HVL is:
  - a. Half value layer
  - b. High value layer
  - c. High value lead
  - d. Half value lead
2. To remove the hot spots ----- is used.
  - a. Shield
  - b. Orift
  - c. Wedge
  - d. Laser
3. Percentage of lead in cerrobenol is:
  - a. 26.7%
  - b. 20%
  - c. 18%
  - d. 15%
4. 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
5. Number of lead marker put on the body for simulation are:
  - a. 5
  - b. 1
  - c. 3
  - d. 10
6. The required temperature for waterbath is:
  - a. 30 °C
  - b. 50 °C
  - c. 70 °C
  - d. None of the above
7. The half life of radium – 226 is:
  - a. 27 yrs
  - b. 56 yrs
  - c. 1622 yrs
  - d. 1200 yrs
8. Tangential portals are used to treat cancer of:
  - a. Cervix
  - b. Penis
  - c. Breast
  - d. Maxilla
9. MLB shielding is used to treat cancer of :
  - a. Cervix
  - b. Brain
  - c. Skin
  - d. Parotid
10. Craniospinal irradiation are used to treat cancer of:
  - a. Lung
  - b. Brain
  - c. Stomach
  - d. Anal canal
11. Mantle field is given in cancer of:
  - a. Tongue
  - b. Breast
  - c. Lymphoma
  - d. Stomach
12. Kidney shielding is done in cancer:
  - a. Lung
  - b. Breast
  - c. Stomach
  - d. Brain
13. PDD is:
  - a. Percentage depth dose
  - b. Percentage dense dose
  - c. Planning depth dose
  - d. Planning dense dose
14. D max of cobalt -60 is ----- below surface:
  - a. 5 cm
  - b. 0.5 cm
  - c. 1 cm
  - d. 10 cm



Regn. No.....

Paper Code: -201

**BRT SECOUND YEAR EXAMINATION, JUNE/JULY - 2015**  
**SIMULATION AND MOULD ROOM TECHNIUES**  
**PAPER FIRST**

[Time allotted: Three hours]

[Max Marks: 70]

Note: Attempt all questions

Draw suitable diagram wherever necessary

**A : Short answer questions:**

(7 x 9 = <sup>63</sup>~~63~~)

- Q. 1. What is HVL? Write note on shielding Block.
- Q. 2. What are various beam modifying devices used in radiotherapy planning of carcinoma Brest?
- Q. 3. What is difference between conventional simulator and CT simulator?
- Q. 4. Define hinge ange. Give two examples of wedge field technique used in radiotherapy .
- Q. 5. Write note on multiple field techniques used in radiotherapy.
- Q. 6. Write note on Tissue compensator? Discuss two areas where they can be used.
- Q. 7. What is treatment verification and its importance in radiotherapy?
- Q. 8. Write down composition of cerrobend material and its benefit over lead.
- Q. 9. Define various target volumes and organ at risk in a case of carcinoma tongue with neck lymphadenopathy?

Regn. No.....

Paper Code: -201

**BRT SECOUND YEAR EXAMINATION, JUNE/JULY - 2015**  
**SIMULATION AND MOULD ROOM TECHNIUES**  
**PAPER FIRST**

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. Percentage of lead in cerrobend is:
  - a. 26.7%
  - b. 20%
  - c. 50%
  - d. 0.5%
2. Melting point of cerrobend is:
  - a. 25°C
  - b. 50°C
  - c. 70°C
  - d. 100°C
3. Bolus is made up of:
  - a. Lead
  - b. Wood
  - c. Tin
  - d. Wax
4. Tissue compensator is mad of :
  - a. Tungsten
  - b. Steel
  - c. Lead
  - d. Aluminum
5. Wedge angle defined at :
  - a. 10 cm
  - b. 5 cm
  - c. 50% Isodose line
  - d. 95% Isodose line
6. Wedge is made up of
  - a. Tin
  - b. Lead
  - c. Cellulose
  - d. Iron
7. Dmae of 6mv photon is :
  - a. 0.5 cm
  - b. 1 cm
  - c. 1.5cm
  - d. 5 cm
8. Shielding Bloch is \_\_\_\_\_HVL:
  - a. 1
  - b. 3
  - c. 5
  - d. 7
9. Primary bean transmission through the block is
  - a. 10%
  - b. 20%.
  - c. 1%
  - d. Less than 5%.
10. During radiation treatment verification following is used :
  - a. EPID
  - b. Port film
  - c. Both
  - d. Wedge
11. All of following have lasers except
  - a. CT simulator
  - b. LINAC
  - c. COBALT 60
  - d. X-RAY (Diagnostic)
12. C T simulator consists of
  - a. X- ray tube
  - b. Detector
  - c. Source
  - d. Both A & B.
13. Energy of LINAC is in:
  - a. KV
  - b. MV
  - c. Mev
  - d. Kev
14. Mammography is X-ray of
  - a. Skull
  - b. Breast
  - c. Abdomen
  - d. Lings

**B.R.T. SECOND YEAR EXAMINATION, JUNE/JULY - 2015**  
**PRINCIPLES OF CANCER CONTROL & ONCOLOGY CARE**  
**PAPER SECOND**

[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 a note on primary prevention of cancer.
- Q. 2. Write a note on counseling done in a patient of carcinoma tongue with grade II mucositis.
- Q. 3. Write a note on pain palliation in cancer patient.
- Q. 4. What are various causes of carcinoma breast? Write a note on radiotherapy planning with 6mv photon in a case of stage III post MRM breast cancer.
- Q. 5. Write a note on concurrent chemotherapy. Give three examples of concurrent chemotherapy.
- Q. 6. Discuss in brief benefits of IMRI in comparison to conventional radiotherapy.
- Q. 7. Write a short note on cancer registry.
- Q. 8. How will you diagnose a case of cancer cervix? Draw portals of EBRT planning in Stage II cancer cervix.
- Q. 9. Write a short note on CT simulation in case of carcinoma urinary bladder.

**B.R.T. SECOND YEAR EXAMINATION, JUNE/JULY - 2015**  
**PRINCIPLES OF CANCER CONTROL & ONCOLOGY CARE**  
**PAPER SECOND (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. Which of the following is used for pain palliation?
  - a. Morphine
  - b. Mammography
  - c. Biopsy
  - d. Scintigraphy
2. What are late side effects of radiotherapy in case of carcinoma larynx:
  - a. Diarrhea
  - b. Vomiting
  - c. Arm lymphedema
  - d. Laryngeal edema
3. Xerostomia is a disease in:
  - a. Tears
  - b. Saliva
  - c. Urine
  - d. Stools
4. Kidney shielding is done in carcinoma:
  - a. Breast
  - b. Stomach
  - c. Anal canal
  - d. Kidneys
5. Tangential portals are used in carcinoma
  - a. Larynx
  - b. Breast
  - c. Cervix
  - d. Lung
6. Electrons are used in treatment of cancer kin:
  - a. 50
  - b. 100
  - c. 85
  - d. 15
7. Electrons applicator is kept at a distance of \_\_\_ cm from skin:
  - a. 50
  - b. 100
  - c. 85
  - d. 15
8. Patient is asked to drink fluids before EBRT in case of carcinoma :
  - a. Breast
  - b. Brain
  - c. Skin
  - d. Urinary Bladder
9. Tamoxifen is used in treatment of carcinoma:
  - a. Tongue
  - b. Stomach
  - c. Breast
  - d. Lip
10. Two parallel opposed lateral portals are used in carcinoma:
  - a. lung
  - b. Stomach
  - c. Tonsil
  - d. Colon
11. Prophylactic cranial radiation used in carcinoma?
  - a. Stomach
  - b. GBM
  - c. Breast
  - d. All of above
12. Which of the following is anticancer agent
  - a. Tobacco
  - b. Alcohol
  - c. HPV
  - d. Vitamin C
13. World No Tobacco day is
  - a. 31<sup>st</sup> January
  - b. 15<sup>th</sup> February
  - c. 31<sup>th</sup> May
  - d. 25<sup>th</sup> December
14. All of the following have radioactive source expect:
  - a. Cobalt-60
  - b. HDR Braily therapy
  - c. 6MV UNAC
  - d. LDR, brail therapy

Regn. No.....

Paper Code: RT - 203

**B.R.T. SECOND YEAR EXAMINATION, JUNE/JULY - 2015**  
**HEALTH CARE AND RADIOTHERAPY ETHICS**  
**PAPER THIRD**

[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 importance of personal hygiene in cancer patients undergoing radiotherapy.
- Q. 2. What kind of food you will advise in patient with cancer of oral cavity being treated with radiotherapy?
- Q. 3. Write note on informed consent and its importance in patients to be treated with radiotherapy.
- Q. 4. What instructions you will give to patients who has completed radiotherapy is ca cervix at the term of discharge?
- Q. 5. How will you manage 2 yrs old child on machine undergoing cranial irradiation for acute leukemia?
- Q. 6. Write briefly about evolution of radiotherapy is cancer treatment.
- Q. 7. Discuss briefly role of computers in delivering precise radioactive treatment.
- Q. 8. Describe various radioactive reactions in patients with cancer tongue treated with radical radiotherapy.
- Q. 9. Write a note on :
  - a. Xerostomia
  - b. DICOM

**B.R.T. SECOND YEAR EXAMINATION, JUNE/JULY - 2015**  
**HEALTH CARE AND RADIOTHERAPY ETHICS**  
**PAPER THIRD (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. Xerostomia is seen in past EBRT is :
  - a. Ca Cervix
  - b. Prostate Cancer
  - c. Lung cancer
  - d. Maxillary Antrum Cancer
2. Lymphoedema of arm is seen in cancer of :
  - a. Ovary
  - b. Uterus
  - c. Stomach
  - d. Breast
3. Alopecia is :
  - a. Mucositis
  - b. Loosening of tooth
  - c. Loss of Hair
  - d. Gingivitis
4. Calculation of Average is done by furring :
  - a. Mode
  - b. Mean
  - c. Median
  - d. All of these
5. Gentian violet is used to treat :
  - a. Mucositis
  - b. Leukopenia
  - c. Skin reaction
  - d. None of these
6. The most radio resistant tumour is :
  - a. Melanoma
  - b. Seminoma
  - c. Lymphoma
  - d. Dysgerminoma
7. PSA is tumour marker for cancer:
  - a. Breast
  - b. Cervix
  - c. Prostate
  - d. Lung
8. Consent is taken:
  - a. On completion of radiotherapy
  - b. During Radiotherapy
  - c. Before radiotherapy
  - d. Not required
9. Maximum permissible dose to foetus is :
  - a. 0.1 msv
  - b. 0.2 msv
  - c. 0.3 msv
  - d. 0.5 msv
10. Repopulation is related to :
  - a. Tumour cells
  - b. Host immunity
  - c. O<sub>2</sub>
  - d. RBC
11. Megavoltage Xray are produced by:
  - a. Sup. X-ray unit
  - b. Deep X-ray Unit
  - c. Linear accelerator
  - d. Cyclotron
12. Radiotherapy is given with full Bladder in cancer of
  - a. Cervix
  - b. Rectum
  - c. Colon
  - d. Ovary
13. The most radiosensitive organ is
  - a. Retina
  - b. Bone
  - c. Lung
  - d. Gonad
14. Anaesthesia during radiotherapy is given
  - a. Geriatric patients
  - b. Paediatric patients
  - c. Female patients
  - d. Obese patients

Regn. No.....

Paper Code: RT - 204

**B.R.T. SECOND YEAR EXAMINATION, JUNE/JULY - 2015**  
**EXTERNAL BEAM RADIOTHERAPY**  
**PAPER FOUR**

[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. Describe treatment planning techniques used in radiation treatment of cancer urinary Bladder.
- Q. 2. Discuss briefly beam shaping devices used in radiotherapy.
- Q. 3. What is wedge? Discuss briefly its uses in radiation therapy.
- Q. 4. Name immobilization devices used in radiotherapy & describe breast board in detail.
- Q. 5. Write briefly advantages of multiple field treatment & illustrate it with examples.
- Q. 6. How will you monitor side effects of radiotherapy in patients treated for cancer oral cavity with radical intent?
- Q. 7. Write about ISO centric techniques with examples.
- Q. 8. Draw ISO dose curves in wedge field techniques used in treatment of cancer maxillary antrum.
- Q. 9. Write notes on :
  - a. TAR
  - b. TMR

**B.R.T. SECOND YEAR EXAMINATION, JUNE/JULY - 2015**  
**EXTERNAL BEAM RADIOTHERAPY**  
**PAPER FOUR (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. In Linear accelerator radiation is given by :
  - a. Gamma rays
  - b. Photons
  - c. Alpha rays
  - d. Beta rays
2. Wedge is :
  - a. Immunization device
  - b. Monitoring device
  - c. Beam modifying device
  - d. None of these
3. TLD is :
  - a. Personal monitoring device
  - b. Area Monitoring device
  - c. Both a & b
  - d. None of these
4. Skin sparing effect is seen in
  - a. Ortho-voltage
  - b. Megavoltage
  - c. Electron Therapy
  - d. None of these
5. For 4 Mv photon beam D max is :
  - a. 1.0 cm
  - b. 2.5 cm
  - c. 4 cm
  - d. 5 cm
6. Tongue & Groove design is seen in :
  - a. Wedge
  - b. Collimator
  - c. MLC
  - d. Bolus
7. Melting point:
  - a. 50<sup>0</sup>c
  - b. 70<sup>0</sup>c
  - c. 300<sup>0</sup>c
  - d. Liquid material
8. Superficial therapy has energy range :
  - a. 40-50kvp
  - b. <20 kvp
  - c. 50-150 kvp
  - d. 150-500kvp
9. D max is :
  - a. Maximum dose
  - b. Minimum dose
  - c. Median dose
  - d. Medium dose
10. MLB is used is :
  - a. Ca Breast
  - b. Ca Cervix
  - c. Ca lung
  - d. Ca tongue
11. HVL is related to TVL By:
  - a. TVL =3.3 Hvl
  - b. TVL= 1.44 Hvl
  - c. HIL= 10 x TVL
  - d. TVL=0.693 Hvl
12. The half life of <sup>125</sup>I-125 is
  - a. 2.7 yrs
  - b. 30 days
  - c. 73.8 days
  - d. 6 months
13. Wedge angle is defined at
  - a. 10% of isodose
  - b. 25% isodose line
  - c. 50% of isodose line
  - d. 75% isodose line
14. Shielding block is
  - a. 1 HVL
  - b. 3 HVL
  - c. 5 HVL
  - d. 7HVL



Regn. No.....

Paper Code: RT- 201...

**B.R.T. SECOND YEAR EXAMINATION, JUNE/JULY - 2016**  
**SIMULATION AND MOLD ROOM TECHNIQUES**  
**PAPER FIRST**

**[Time allotted: Three hours]**

**[Max Marks: 70]**

**Note:** Attempt all questions

Draw suitable diagram wherever necessary

**A : Short answer questions:**

**(7 x 9 = 63)**

**Write a note on :**

- Q. 1.** Beam Modifying devices in radiotherapy.
- Q. 2.** Wax bolus in radiotherapy.
- Q. 3.** Immobilization devices used in radiotherapy.
- Q. 4.** Breast board in radiotherapy.
- Q. 5.** Composition of cerrobend material and its benefit over lead.
- Q. 6.** CT simulation of a 3 year old child diagnosed to be a case of medulloblastoma.
- Q. 7.** DICOM in radiotherapy.
- Q. 8.** Oncentra in Treatment Planning System.
- Q. 9.** Basic differences between conventional and CT simulator.

**B.R.T. SECOND YEAR EXAMINATION, JUNE/JULY - 2016**  
**SIMULATION AND MOLD ROOM TECHNIQUES**  
**PAPER FIRST (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. Fletcher suit used in
  - a. Teletherapy
  - b. Brachytherapy
  - c. Ion therapy
  - d. Hyperthermia
2. Following is the elementary particle used in medulloblastoma
  - a. Positron
  - b. Protons
  - c. Neutrons
  - d. Photon
3. First HVL decreases beam intensity to.....of its initial value
  - a. 26.7%
  - b. 20%
  - c. 50%
  - d. 5%
4. CTV includes
  - a. Gross disease
  - b. Microscopic disease
  - c. Organs at risk
  - d. Genetic Target Volume
5. During IMRT verification following is used
  - a. EPID
  - b. Port Film
  - c. C Arm
  - d. None of above
6. Melting point of cerrobend is
  - a. 25 0C
  - b. 500 C
  - c. 70 0C
  - d. 1000 C
7. Bolus is made of .....equivalent material
  - a. Air
  - b. Tissue
  - c. Water
  - d. Lead
8. Marie and Piere Curie discovered
  - a. Tungsten
  - b. Aluminium
  - c. Radium
  - d. Lead
9. Which of the following can be used as bolus
  - a. lead
  - b. Wet cotton
  - c. Cotton
  - d. Tin
10. TVL is
  - a. Total Value Layer
  - b. Tenth Value Layer
  - c. Tumor Volume Layer
  - d. Treatment Value Layer
11. PDD depends on
  - a. Field size
  - b. Distance
  - c. Energy
  - d. All of above
12. Which of the following is not immobilization device
  - a. Neck Rest
  - b. IOP
  - c. Shoulder Traction
  - d. Wedge
13. Grenz therapy is given with the X-Ray beam of potential
  - a. < 30 KV
  - b. 40-50 KV
  - c. 50-150 KV
  - d. 150-500 KV
14. Pituitary base plate is used for
  - a. Patient Immobilization
  - b. Patient Treatment
  - c. Tissue Compensation
  - d. Comfort of the patient

Regn. No.....

Paper Code: RT- 202

**B.R.T. SECOND YEAR EXAMINATION, JUNE/JULY - 2016**  
**PRINCIPLES OF CANCER CONTROL & ONCOLOGY CARE**  
**PAPER SECOND**

[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. Briefly discuss NCCP.
- Q. 3. What is palliative treatment and hospice care?
- Q. 4. Write a short note on organ preservation citing three examples.
- Q. 5. What are risk factors of cancer?
- Q. 6. Briefly write on concurrent chemotherapy and give three examples that you see in daily treatment.
- Q. 7. Outline in brief radiation induced mucositis and its management.
- Q. 8. Write a short note on cancer screening with two examples.
- Q. 9. How will you help a person to stop smoking?

**B.R.T. SECOND YEAR EXAMINATION, JUNE/JULY - 2016**  
**PRINCIPLES OF CANCER CONTROL & ONCOLOGY CARE**  
**PAPER SECOND (MCQ)**

Time allotted for MCQ- 15 minutes

(½ x 14= 7)

**B : MCQs (Single response type):**

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 modes 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 will you give to the patient during radiotherapy of carcinoma cervix?
  - a. Apply oil
  - b. Rub irradiated area
  - c. Full bladder
  - d. None
7. What is the timing of Concurrent chemotherapy?
  - a. After RT
  - b. Before RT
  - c. Any time
  - d. All
8. What is tolerance of Radiotherapy in spinal cord?
  - a. 35Gy
  - b. 65Gy
  - c. 25Gy
  - d. 45Gy
9. Mode of spread in cancer is:
  - a. Hematogenous
  - b. Lymphatics
  - c. Local invasion
  - d. All of the above
10. Prostate Cancer Screening is by:
  - a. PSA
  - b. Rectal Examination
  - c. Both A and B
  - d. Blood Test
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 not method of Brachytherapy?
  - a. Intracavitary
  - b. Interstitial
  - c. Intravascular
  - d. Intraocular
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 Cavitary Brachytherapy
  - c. Intraluminal brachytherapy
  - d. Surface Mold

Regn. No.....

Paper Code: RT - 203

**B.R.T. SECOND YEAR EXAMINATION, JUNE/JULY - 2016**  
**HEALTH CARE AND RADIOTHERAPY ETHICS**  
**PAPER THIRD**

**[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. How will you manage a patient having sudden onset of breathlessness?
- Q. 2. How is proctitis managed?
- Q. 3. Describe the tracheostomy tube. How will you care for a patient with traceostomy tube?
- Q. 4. What is colostomy? Explain care of colostomy.
- Q. 5. Explain the different skin reactions during radiation.
- Q. 6. What are the steps in planning treatment for a new case of carcinoma tongue?
- Q. 7. Write a note on informed consent.
- Q. 8. What is hypotension? What are the immediate measures taken for sudden Hypotension?
- Q. 9. Discuss the procedures in management of a cancer patient.

**B.R.T. SECOND YEAR EXAMINATION, JUNE/JULY - 2016**  
**HEALTH CARE AND RADIOTHERAPY ETHICS**  
**PAPER THIRD (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. Which one is not a method of cancer prevention?
  - a. Healthy life style
  - b. Green vegetables
  - c. Smoking
  - d. Exercise
2. What is true for palliative treatment?
  - a. Long duration of treatment
  - b. Only symptomatic treatment
  - c. Side effects are more
  - d. None
3. All are risk factors for head and neck cancer except:
  - a. Smoking
  - b. Tobacco
  - c. HPV virus
  - d. HBV Virus
4. Which one is a mode of cancer spread?
  - a. Lymphatic spread
  - b. Hematogenous
  - c. Direct
  - d. All of the above
5. Goal of hospice care is to provide:
  - a. Curative treatment
  - b. Inpatients service only
  - c. Medical, social and psychosocial services
  - d. None
6. Which is not a complication in bed ridden patient?
  - a. Bed sore
  - b. Infection
  - c. Thrombosis
  - d. None
7. Which is not a side effect of radiotherapy in head & neck cancer patients?
  - a. Mucositis
  - b. Difficulty in swallowing
  - c. Loose motion
  - d. Dermatitis
8. Which one is not a prevention of breast cancer?
  - a. Breast feeding
  - b. Multi parity
  - c. Fatty food
  - d. None
9. Which one is a carcinogen in cigarette?
  - a. Tar
  - b. NNK
  - c. Butraldehyde
  - d. All of the above
10. HPV virus causes all cancer except:
  - a. Cervix
  - b. Anal cancer
  - c. Oropharyngeal cancer
  - d. Testicular tumor
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 lung cancer?
  - a. Cough
  - b. Hemoptysis
  - c. Respiratory distress
  - d. Diarrhoea
13. Late side effects of radiotherapy comes 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

Regn. No.....

Paper Code: RT - 204

**B.R.T. SECOND YEAR EXAMINATION, JUNE/JULY - 2016**  
**EXTERNAL BEAM RADIOTHERAPY**  
**PAPER FOUR**

[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. Define isodose curve & its importance in external beam radiotherapy
- Q. 2. Write differences between Linear Accelerator and Coablt teletherapy machine
- Q. 3. Define:
- a. Bolus (3)
  - b. Compensator (4)
- Q. 4. What is penumbra ? Explain its various types.
- Q. 5. Discuss treatment plan of carcinoma cervix.
- Q. 6. What is Percentage Depth Dose (PDD)? What are the factors that affect it?
- Q. 7. What are the ways treatment verification can be done?
- Q. 8. Write a short note on electron therapy.
- Q. 9. Describe in brief the various steps involved in radiotherapy planning and treatment.

**B.R.T. SECOND YEAR EXAMINATION, JUNE/JULY - 2016**  
**EXTERNAL BEAM RADIOTHERAPY**  
**PAPER FOUR (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. For Tilting isodose curve ----- is used
  - a. Wedge
  - b. Shield
  - c. Block
  - d. Bolus
2. Primary beam transmission through the block is
  - a. 20%
  - b. less than 5%
  - c. 1%
  - d. 2%
3. Percentage depth dose depends on
  - a. SSD
  - b. Energy
  - c. Depth
  - d. All 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 OC
  - b. 50 OC
  - c. 70 OC
  - d. 100 OC
7. Wedge is made up of
  - a. Tin
  - b. Iron
  - c. Water
  - d. Lead
8. What energy of electrons to be used for treating a tumor at 4cm?
  - a. 9MeV
  - b. 21MeV
  - c. 12 MeV
  - d. None
9. MLB is Used in
  - a. Ca Breast
  - b. Brain Tumor
  - c. Ca Lung
  - d. Ca Cervix
10. TVL is
  - a. Tenth Value Layer
  - b. Twenty Value Layer
  - c. Tenth Value Load
  - d. None
11. 6 MV Photon beam Dmax is
  - a. 3cm
  - b. 1.5cm
  - c. 2.5cm
  - d. None of the above
12. The half Life of Cesium is
  - a. 2.7 yrs
  - b. 30 yrs
  - c. 73.8 Days
  - d. 1600 Yrs
13. Dmax is \_\_\_\_\_
  - a. Minimum dose
  - b. Maximum dose
  - c. Medium dose
  - d. None of the above
14. 10 Gy is \_\_\_\_\_
  - a. 1000cGy
  - b. 100cGy
  - c. 1cGy
  - d. none of the above



Regn. No.....

Paper Code: BRT- 201...

**B.Sc. MEDICAL TECHNOLOGY (RADIOTHERAPY)  
SECOND YEAR EXAMINATION, JUNE/JULY - 2017  
SIMULATION AND MOLD ROOM TECHNIQUES  
PAPER FIRST**

[Time allotted: Three hours]

Note: Attempt all questions

Draw suitable diagrams wherever necessary

[Max Marks: 70]

**A : Short answer questions:**

(7 x 9 = 63)

- Q. 1. Describe role of beam modifying device in radiotherapy treatment planning.
- Q. 2. What is simulation? Describe conventional simulator and CT simulator.
- Q. 3. Explain different immobilization devices used in radiotherapy.
- Q. 4. Write short notes on:
  - a. Thermoplastic cast
  - b. Vac-lok
- Q. 5. What are the steps for treatment verification and its importance in radiotherapy?
- Q. 6. Write down the methods used for immobilization in carcinoma rectum.
- Q. 7. Define various target volumes in radiotherapy.
- Q. 8. What is the basic difference between diagnostic CT and CT simulator?
- Q. 9. Define shielding blocks and its role in radiotherapy planning.

(4)

(3)

**B.Sc. MEDICAL TECHNOLOGY (RADIOTHERAPY)**  
**SECOND YEAR EXAMINATION, JUNE/JULY - 2017**  
**SIMULATION AND MOLD ROOM TECHNIQUES**  
**PAPER FIRST (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. Which is not an intra-cavitary applicator?
  - a. SORVO
  - b. Intraluminal catheter
  - c. Fletcher suit
  - d. None of above
2. One of the following is **not** the elementary particle:
  - a. Photon
  - b. Proton
  - c. Neutron
  - d. Electron
3. Percentage of tin in Cerrobend is:
  - a. 26.7%
  - b. 13.3%
  - c. 50.0%
  - d. 5.0%
4. Tissue compensator is made up of:
  - a. Aluminum
  - b. Lead
  - c. Tungsten
  - d. All of the above
5. During radiation treatment verification of following is not used:
  - a. EPID
  - b. Port Film
  - c. CB CT
  - d. CT Simulation
6. Melting point of cerrobend is:
  - a. 25 °C
  - b. 50 °C
  - c. 70 °C
  - d. 100 °C
7. Orfit is made of .....equivalent material:
  - a. Air
  - b. Tissue
  - c. Water
  - d. Lead
8. Wedge is made of:
  - a. Tissue equivalent material
  - b. Aluminium
  - c. Tungsten
  - d. Lead
9. Bolus is made up of:
  - a. Lead
  - b. Wax
  - c. Cerrobend
  - d. Tin
10. CT simulator consists of:
  - a. X-Ray tube
  - b. Detector
  - c. (A) & (B)both
  - d. Source
11. Dmax of 10MV Photon Beam is:
  - a. 1.5 cm
  - b. 1.5 mm
  - c. 2.0 cm
  - d. 2.5 cm
12. Energy of LINAC is in:
  - a. Kv
  - b. MV
  - c. Mev
  - d. Kev
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, JUNE/JULY - 2017  
PRINCIPLES OF CANCER CONTROL & ONCOLOGY CARE**

[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 breast self-examination.
- Q. 2. What are various risk factors for carcinoma breast?
- Q. 3. Write note on pre-radiotherapy counseling in patient suffering from carcinoma tonsil.
- Q. 4. Write note on pain palliation in cancer patients.
- Q. 5. Write note on vaccines in carcinoma cervix.
- Q. 6. Write note on acute side effects of radiotherapy in carcinoma cervix.
- Q. 7. Write note on radiotherapy planning in carcinoma breast.
- Q. 8. How will you plan a case of 3 year old child with diagnosis of medulloblastoma?
- Q. 9. Write note on dental prophylaxis in carcinoma oral cavity.

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**B.Sc. MEDICAL TECHNOLOGY (RADIOTHERAPY)**  
**SECOND YEAR EXAMINATION, JUNE/JULY - 2017**  
**PRINCIPLES OF CANCER CONTROL & ONCOLOGY CARE**  
**(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. Which of the following is risk factor for carcinoma lung?
  - a. Citrus fruits
  - b. Alcohol
  - c. Cigarette
  - d. Sunlight
2. Breast self examination is the .....prevention of cancer:
  - a. Primary
  - b. Secondary
  - c. Tertiary
  - d. Curative
3. Skin reaction in perineal region is common in cancer:
  - a. Liver
  - b. Lung
  - c. Stomach
  - d. Cervix
4. IOP 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. Electron treatment is done in cancer:
  - a. Lung
  - b. Caecum
  - c. Larynx
  - d. Skin
7. Following is used in palliative care of cancer:
  - a. Morphine
  - b. Herceptin
  - c. Docetaxol
  - d. Sutinib
8. Hemostatic dose of radiotherapy given is:
  - a. 45GY/ 25#
  - b. 20GY/5#
  - c. 60GY/30#
  - d. 20GY/10#
9. Head of humerus shielding is done in:
  - a. Cervix
  - b. Breast
  - c. Rectum
  - d. Prostate
10. Tamoxifen is used in carcinoma:
  - a. Rectum
  - b. Breast
  - c. GBM
  - d. Testes
11. Vomiting and diarrhea is common in radiotherapy in carcinoma:
  - a. Breast
  - b. Parotid
  - c. Endometrium
  - d. Nasal cavity
12. All are required for patients of carcinoma tongue for radiotherapy except:
  - a. Dental prophylaxis
  - b. Soft brushes
  - c. Salt soda gargles
  - d. Spicy food
13. Shrinking field technique is used in carcinoma head and neck to spare:
  - a. Oral cavity
  - b. Teeth
  - c. Parotids
  - d. Spinal cord
14. Curative dose in cancer larynx in organ preservation is:
  - a. 50 GY
  - b. 70 GY
  - c. 30 GY
  - d. 45 GY

**B.Sc. MEDICAL TECHNOLOGY (RADIOTHERAPY)  
SECOND YEAR EXAMINATION, JUNE/JULY - 2017  
HEALTH CARE AND RADIOTHEROPY ETHICS**

[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. How will you manage a patient having sudden onset of breathlessness at treatment couch?
- Q. 2. How will you council a patient undergoing treatment for cancer breast?
- Q. 3. Write briefly on diet counseling for a patient on radiotherapy for cancer esophagus.
- Q. 4. What is colostomy? Explain care of colostomy.
- Q. 5. Explain the different skin reactions during radiation.
- Q. 6. Explain why a cancer patient has stress? How will you console a 5 year old who is coming for radiotherapy.
- Q. 7. Write briefly on management of a patient with tracheostomy undergoing radiotherapy.
- Q. 8. Write note on informed consent. What are important components of consent in radiotherapy?
- Q. 9. What will you look for in a patient who comes daily for radiotherapy? How will you assess whether a doctor should be informed or not?

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**B.Sc. MEDICAL TECHNOLOGY (RADIOTHERAPY)**  
**SECOND YEAR EXAMINATION, JUNE/JULY - 2017**  
**HEALTH CARE AND RADIOTHERAPY ETHICS**  
**(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. Which one is not a method of cancer prevention?
  - a. Healthy life style
  - b. Green vegetables
  - c. Smoking
  - d. Exercise
2. What is true for palliative treatment?
  - a. Long duration of treatment
  - b. Only symptomatic treatment
  - c. Side effects are more
  - d. None
3. All are risk factors for breast cancer **except**:
  - a. Breast feeding
  - b. Diet
  - c. Family History
  - d. Obesity
4. Which one is **not** a mode of cancer spread?
  - a. Lymphatic spread
  - b. Hematogenous
  - c. Direct
  - d. By touch
5. Goal of hospice care is to provide:
  - a. Curative treatment
  - b. Inpatients service only
  - c. Medical, social and psychosocial services
  - d. None
6. Which is complication in bed ridden patient?
  - a. Bed sore
  - b. Infection
  - c. Thrombosis
  - d. All of the above
7. Which is a side effect of radiotherapy in head & neck cancer patients?
  - a. Mucositis
  - b. Constipation
  - c. Loose motion
  - d. Dysuria
8. Vaccine is available for?
  - a. Cancer cervix
  - b. Brain tumor
  - c. Kidney cancer
  - d. None
9. Mammography is part of screening for:
  - a. Breast cancer
  - b. Brain tumor
  - c. Ovarian
  - d. All of the above
10. HPV virus causes which cancer?
  - a. Cervix
  - b. Brain
  - c. Liver
  - d. Testicular tumor
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 lung cancer?
  - a. Cough
  - b. Hemoptysis
  - c. Respiratory distress
  - d. Diarrhoea
13. Late side effects of radiotherapy comes 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

Regn. No.....

Paper Code: BRT - 204

**B.Sc. MEDICAL TECHNOLOGY (RADIOTHERAPY)  
SECOND YEAR EXAMINATION, JUNE/JULY - 2017  
EXTERNAL BEAM RADIOTHERAPY**

[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. Define isodose curve & its importance in external beam radiotherapy.
- Q. 2. What is CT-Simulator? How will you simulate a case of head and neck cancer?
- Q. 3. Define:
- a. Bolus (3)
  - b. Wedge Systems (4)
- Q. 4. What is penumbra and explain its various types?
- Q. 5. Explain the treatment planning of carcinoma cervix.
- Q. 6. What is Percentage Depth Dose (PDD)? What are the factors that affect it?
- Q. 7. What is the importance of shielding devices? Discuss five areas where they can be used?
- Q. 8. Explain the process of setting up the patient of medullo blastoma for treatment.
- Q. 9. Describe in brief the various steps involved in radiotherapy planning and treatment.

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**B.Sc. MEDICAL TECHNOLOGY (RADIOTHERAPY)**  
**SECOND YEAR EXAMINATION, JUNE/JULY - 2017**  
**EXTERNAL BEAM RADIOTHERAPY**  
**(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. 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.  $(D_d / D_{do}) \times 100$
  - 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. Unit of absorbed dose is:
  - a. Gray
  - b. Roentgen
  - c. Rem
  - d. Sv
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.  $TVL = 3.3 HVL$
  - b.  $TVL = 1.44 HVL$
  - c.  $HVL = 0.693 TVL$
  - d.  $HVL = 0.693 / HVL$
11. MV 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 Iridium 192 is:
  - a. 2.7 yrs
  - b. 30 yrs
  - c. 73.8 days
  - d. 1600 yrs
13. Dmax is:
  - a. Minimum dose
  - b. Maximum dose
  - c. Medium dose
  - d. None of the above
14. 1 Gy is:
  - a. 100 cgy
  - b. 10 cgy
  - c. 1000 cgy
  - d. None of the above