Rajiv Gandhi University of Health Sciences, Karnataka

III year B.Sc. Radiotherapy Technology Examination – SEPTEMBER 2015

Time: Three Hours **Max. Marks: 60 Marks**

RADIOTHERAPY PART –II – A
Radiation physics (RS -2)
Q.P. CODE: 2915

Your answers should be specific to the questions asked
Draw neat, labeled diagrams wherever necessary

LONG ESSAYS (Answer any Two) **2 x 10 = 20 Marks**

1. Write in detail about the principles and functioning of a linear accelerator. Mention advantages of linear accelerator over cobalt unit.
2. Explain about interactions of X-ray with matter.
3. Explain about immobilization devices and techniques used for preparation and simulating patient of head and neck cancer.

SHORT ESSAYS (Answer any Five) **5 x 5 = 25 Marks**

4. Briefly write about preparation and usages of moulds for brachytherapy.
5. Various methods used for accuracy and reproducibility of planned treatment
6. Explain intensity modulated radiotherapy and its uses.
7. What is brachytherapy and what are physical characteristics of sources used for HDR brachytherapy?
8. What are unsealed brachytherapy sources and what are their uses?
9. Beam shaping devices
10. Usage of electrons in radiotherapy

SHORT ANSWERS (Answer any Five) **5 x 3 = 15 Marks**

11. Gene therapy
12. Immobilization
13. Bolus
14. Cone beam CT
15. Gamma knife
16. Superficial X-ray therapy
17. Beta applicator

Rajiv Gandhi University of Health Sciences, Karnataka

III year B.Sc. Radiotherapy Technology Examination – SEPTEMBER 2015

Time: Three Hours **Max. Marks: 60 Marks**

PRINCIPLES & PRACTICE OF RADIOTHERAPY

(RS -2)

Q.P. CODE: 2916

Your answers should be specific to the questions asked
Draw neat labeled diagrams wherever necessary

Section 'A'

LONG ESSAYS (Answer any One) **1 x 10 = 10 Marks**

1. Discuss the radiotherapy management of ca. breast
2. Describe the role of radiotherapy in the management of ca. cervix

SHORT ESSAYS (Answer any Two) **2 x 5 = 10 Marks**

3. Mould therapy
4. Intra operative radiotherapy
5. Superior vena cava syndrome

SHORT ANSWERS (Answer any Five) **2 x 5 = 10 Marks**

6. ICRU 38
7. PSA
8. Mantle technique
9. Temzolomide
10. Wilms tumor
11. Glioblastoma multiforme

Section 'B'

LONG ESSAYS (Answer any One) **1 x 10 = 10 Marks**

1. Discuss the basis of radiation accident preparedness describe the role of radiation monitors in management of acute radiation exposure
2. How do you plan for a comprehensive cancer centre to handle 3000 new patients every year? Give an account of procedures to be adopted to initiate the project

SHORT ESSAYS (Answer any Two) **2 x 5 = 10 Marks**

3. AIDS & cancer
4. Intensity modulated proton therapy
5. Hyperthermia

SHORT ANSWERS (Answer any Five) **2 x 5 = 10 Marks**

6. Level I evidence
7. Grade A recommendation
8. Heimleich maneouvre
9. Karnofsky performance score of 50
10. Tamoxifen
11. SPECT

*****

Rajiv Gandhi University of Health Sciences, Karnataka

III year B.Sc. Radiotherapy Technology Examination – APRIL 2015

Time: Three Hours **Max. Marks: 60 Marks**

Principles & Practice of radiotherapy (RS2)

Q.P. CODE: 2916

Your answers should be specific to the questions asked
Draw neat, labeled diagrams wherever necessary

Section – A

LONG ESSAYS (Answer any One) **1 x 10 = 10 Marks**

1. Describe the procedures involved for carcinoma cervix IMRT treatment.
2. Describe the clinical implication of stereotactic radio-surgery and radiotherapy.

SHORT ESSAYS (Answer any Two) **2 x 5 = 10 Marks**

3. Describe the advantages of immobilization devices.
4. Describe in detail about Post & Pre operative Radiotherapy.
5. Brief about image guided radiotherapy.

SHORT ANSWERS (Answer any Five) **5 x 2 = 10 Marks**

6. What is Seminoma?
7. How to rectify the daily re-positioning error caused during radiotherapy?
8. What type of cancer requires Hemi-body irradiation treatment?
9. Brief about management of skin cancer
10. What are the advantages of EPID over port film?
11. What are the common GI track tumours?

Section – B

LONG ESSAYS (Answer any One) **1 x 10 = 10 Marks**

12. Describe the professional role of the Radiotherapy technologists.
13. Describe about Cyber Knife radiotherapy unit.

SHORT ESSAYS (Answer any Two) **2 x 5 = 10 Marks**

14. What are the Counseling skills required to manage cancer patient?
15. Describe about Hospice and terminally illness.
16. Describe the role of Self Help Groups and NGO's in the management of health and safety.

SHORT ANSWERS (Answer any Five) **5 x 2 = 10 Marks**

17. What are the funding agencies available for cancer treatment?
18. Tracheostomy care
19. Radiation Protectors
20. How to manage the Patient with Ostomy?
21. What are the Complementary therapy required for pediatric patient?
22. IGRT

Rajiv Gandhi University of Health Sciences, Karnataka

III year B.Sc. Radiotherapy Technology Examination – APRIL 2015

Time: Three Hours **Max. Marks: 60 Marks**

RADIOTHERAPY PART –II – A
Radiation physics (RS -2)
Q.P. CODE: 2915

Your answers should be specific to the questions asked
Draw neat, labeled diagrams wherever necessary

LONG ESSAYS (Answer any Two) **2 x 10 = 20 Marks**

1. What is a Cobalt 60 Teletherapy unit, site its disadvantages over the linear accelerator.
2. Discuss production of X rays for therapeutic purposes. What are safety interlocks?
3. Explain the interactions between X Rays with matter.

SHORT ESSAYS (Answer any Five) **5 x 5 = 25 Marks**

4. Discuss conventional simulator and its uses.
5. Personnel dose monitoring and protection
6. Explain early and late effects of radiation, cite examples.
7. Principles of Scintillation detectors
8. Portal imaging and cone beam CT
9. Hypothermia and Radiosensitisers
10. Immobilization and Simulation for Ca Prostate

SHORT ANSWERS (Answer any Five) **5 x 3 = 15 Marks**

11. Total body irradiation
12. Multileaf collimator
13. Gamma zone monitor
14. HVL and beam quality
15. ADEL and ALARA
16. In vivo dosimetry
17. Bolus materials

*****

Rajiv Gandhi University of Health Sciences, Karnataka

III year B.Sc. Radiotherapy Technology Examination – AUG/SEP 2016

Time: Three Hours **Max. Marks: 60 Marks**

RADIOTHERAPY PART –II – A
Radiation physics (RS -2)
Q.P. CODE: 2915

Your answers should be specific to the questions asked
Draw neat, labeled diagrams wherever necessary

LONG ESSAYS (Answer any Two) **2 x 10 = 20 Marks**

1. Explain in detail the functioning of the Linear Accelerator. Why is it preferred over the Tele cobalt machine?
2. Discuss in detail biological effects of radiation.
3. Explain the interactions between X Rays with matter.

SHORT ESSAYS (Answer any Five) **5 x 5 = 25 Marks**

4. Radiation protection, ADEL and ALARA
5. IMRT: Principle, procedure and treatment delivery
6. Explain Stochastic and Deterministic effects with examples.
7. Survey meters and Gamma zone monitors: principle and working
8. Beam modifying devices
9. Photodynamic therapy
10. Immobilization and Simulation Procedure for Ca Oesophagus Upper 1/3rd

SHORT ANSWERS (Answer any Five) **5 x 3 = 15 Marks**

11. Doubling dose
12. Portal imaging
13. Roentgen and rad
14. Hypothermia
15. IORT
16. Beam quality and HVT
17. Bolus materials

*****

Rajiv Gandhi University of Health Sciences, Karnataka

III year B.Sc. Radiotherapy Technology Examination – SEP -2016

Time: Three Hours **Max. Marks: 60 Marks**

Principles & Practice of radiotherapy (RS2)

Q.P. CODE: 2916

Your answers should be specific to the questions asked
Draw neat, labeled diagrams wherever necessary

Section – A

LONG ESSAYS (Answer any One) **1 x 10 = 10 Marks**

1. Describe the role and treatment technique of IMRT in Brain tumour.
2. Discuss the pathology and management of breast cancer.

SHORT ESSAYS (Answer any Two) **2 x 5 = 10 Marks**

3. Virtual simulation
4. Discuss radiation safety in brachytherapy
5. Multi Leaf Collimators (MLC)

SHORT ANSWERS (Answer any Five) **5 x 2 = 10 Marks**

6. Radiation protectors
7. Advantages and disadvantages of post operative RT
8. Hospice
9. Inverted Y field
10. Sources used in Brachytherapy
11. ALARA

Section – B

LONG ESSAYS (Answer any One) **1 x 10 = 10 Marks**

12. Describe the psychosocial problems of a cancer patient and the role of counseling skills in cancer care, mention on quality of life and end care management.
13. Describe emergencies in oncology and their management with radiotherapy.

SHORT ESSAYS (Answer any Two) **2 x 5 = 10 Marks**

14. Biomedical waste management
15. Bring out the importance of play therapy for children.
16. Discuss in detail about TBI.

SHORT ANSWERS (Answer any Five) **5 x 2 = 10 Marks**

17. Thermoplastic device
18. Dynamic wedge
19. Amifostine
20. Gamma knife
21. Gross tumour volume
22. Chromosomal aberration

*****