Rajiv Gandhi University of Health Sciences, Karnataka

III year B.Sc. Radiotherapy Technology Examination – September 2014

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 how X-rays and Gamma rays get attenuated when they pass through the medium
2. Describe the various steps involved in treatment planning of Intensity modulated Radiotherapy treatments
3. Explain about the beam defining, beam modifying, and beam directional devices used in Radiotherapy

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

4. Explain the skin sparing effect in maga volt therapy
5. Briefly write about STS and SRT treatment techniques
6. Note on electron beam characteristics
7. What is High Dose Rate Brachytherapy and state how it differs form LDR treatments
8. Briefly write the principle of working of Electronic Portal Imaging devices and its importance in Radiotherapy
9. Write about the principle and working pf personnel monitoring devices
10. How image guided Radiotherapy differ form conventional treatment

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

11. Shielding materials
12. Inverse square law
13. Breast cone
14. ALARA
15. Thermionic emission
16. Universal wedge
17. Use factor and occupancy factor

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Rajiv Gandhi University of Health Sciences, Karnataka

III year B.Sc. Radiotherapy Technology Examination – April 2014

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 principle and functioning of a tele – cobalt machine and mention its disadvantages over linear accelerator
2. Explain in detail. How X–rays and gamma rays get attenuated when they pass through the medium
3. Write in detail about the different methods by which brachytherapy can be delivered and mention about the types of sources and their physical characteristics

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

4. Briefly write about the direct and indirect action of radiation
5. What is a CT simulator and why it is used
6. What is dose equivalent and mention the annual dose equivalent limits for radiation workers and public
7. Write short notes on electron beam characteristics
8. How image guided radiotherapy differs from conventional treatment
9. Write about the immobilization devices used for radiotherapy
10. Explain the principle and working of personal monitoring devices

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

11. Penumbra
12. Apparent activity
13. Inverse square law
14. Bolus materials
15. EPID
16. Shielding materials
17. Use factor and occupy factor

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Rajiv Gandhi University of Health Sciences, Karnataka

III year B.Sc. Radiotherapy Technology Examination – April 2014

Time: Three Hours Max. Marks: 60 Marks

PRINICPLES & PRACTICE OF RDIOTHERAPY

(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. Describe in detail the process involved in Radiotherapy planning of a patient with Head & Neck Cancer. Elaborate on the Mould room techniques used and simulation techniques used
2. Describe in detail the process involved in Radiotherapy planning of a patient with Prostate Cancer. Elaborate on the Mould room techniques used and simulation techniques used

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

3. Wedges
4. Brachytherapy of cancer cervix
5. Radiation Safety of patients and personnel during radioatherapy

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

6. IMRT
7. Iodine 131
8. EAPID ARC
9. Shield
10. ALARA
11. Benign Tumors treated with radiotherapy

Section – B

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

1. Describe the Radiotherapy Fractionation schedules and rationale. What are the schedules used in Teletherapy and Brachytherapy of Cancer Cervix
2. Describe in detail the process of CT simulation for 3D conformal radiotherapy. What are the mould room techniques used for patient positioning for 3DCRT of Bone tumour

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

3. Paediatric Radiotherapy
4. Brachytherapy
5. IGRT

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

6. Telecobalt
7. Telecesium
8. OER
9. Oxygen effect
10. Tomotherapy
11. SRS & SRT

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Rajiv Gandhi University of Health Sciences, Karnataka

III year B.Sc. Radiotherapy Technology Examination – September 2014

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. 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

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