SRI DEVARAJ URS ACADEMY OF HIGHER EDUCATION & RESEARCH

(A DEEMED TO BE UNIVERSITY)

B.Sc. Allied Health Sciences Second Year Semester-IV

September 2022 Examination

B.Sc. Radiotherapy Technology

Time: 3 Hrs. **Paper – I** **[Max. Marks: 100]**

Applied Anatomy & Pathology

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

(Use separate answer booklet for Section A & B)

Section – A

Applied Anatomy (50 Marks)

Q.P Code : J4585

LONG ESSAY **2 X 10 = 20 Marks**

1. Discuss the Mammary gland under the following headings: (3+2+3+2)
a) structure b)mammary bed c)lymphatic drainage d) applied anatomy.
2. Describe the Stomach under the following headings
a) Location & Parts b) Blood supply c) Nerve supply d) Lymphatic drainage. (2+2+4+2)

SHORT ESSAY (Answer any three) **3 X 5 = 15 Marks**

3. Discuss the coverings, lobes and blood supply of prostate
4. Discuss the gross features and blood supply of liver
5 Describe the structure of skin. Explain the principal function of the skin.
6. Discuss the gross features and relations of urinary bladder
7. What is Broncho-pulmonary segment and its clinical significance

SHORT ANSWERS (Answer any five) **5 X 3 = 15 Marks**

8. List the cranial nerves
9. List the differences between large intestine and small intestine
10. Mention the parts of pharynx
11. Name the major salivary glands
12. Mention the functions of Cerebellum
13. Name the primary and secondary lymphoid organs.
14. Name the branches of arch of aorta

Section – B

Applied Pathology (50 Marks)

Q.P Code : J4586

(Use separate answer booklet for Section-B)

LONG ESSAY **2 X 10 = 20 Marks**

1. Classify and describe the etiopathogenesis, morphology, clinical course, spread and complications of Breast cancer
2. Classify and describe the etiopathogenesis, morphology, clinical course, spread and complications of Lung cancer

SHORT ESSAY (Answer any three) **3 X 5 = 15 Marks**

3. Describe the etiopathogenesis, morphology, clinical course, spread and complications of Seminoma
4. Classify Lymphomas
5. Describe the etiopathogenesis, morphology and clinical course of Gastric Carcinoma
6. Classify thyroid cancers
7. Describe the etiopathogenesis and morphology of prostate cancer

SHORT ANSWERS (Answer any five) **5 X 3 = 15 Marks**

8. Pap smear
9. Describe the microscopy of Squamous cell carcinoma
10. Name 03 types of CNS tumors
11. Etiopathogenesis of bladder cancer
12. PSA
13. List 03 pediatric tumors
14. Name 03 benign soft tissue tumors

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B.Sc. Radiotherapy Technology

Time : 3 Hrs. **Paper – II** **[Max. Marks : 100]**

Radiation Safety in radiotherapy

Q.P Code: J4590

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

LONG ESSAY **2 X 10 = 20 Marks**

1. Radiation Protection Survey of High Dose Rate Remote afterloading Brachytherapy facility.
2. Write about the parts of telecobalt machine.

SHORT ESSAY (Answer any Ten) **10X 5 = 50 Marks**

3. Write notes on PDD. What are the factors on which PDD depends on.
4. Define (i) Workload (W) (ii) Use Factor (U) (iii) Occupancy Factor (T) and (iv) Distance in shielding calculation for a radiation installation.
5. Write about the light and radiation field congruence test.
6. Explain front and back pointer with diagram. What are their uses?
7. Explain the importance of Multi leaf collimators in radiotherapy
8. Explain briefly about Gamma zone monitor.
9. Differences between SSD and SAD treatment techniques.
10. Distinguish between Magnetron and Klystron
11. State the permissible leakage levels from a telecobalt machine in source OFF and ON conditions and brachytherapy
12. What are the factors affecting the image quality in diagnostic.
13. Write about personal monitoring device TLD?
14. Write about the historical development of radiotherapy.

SHORT ANSWERS (Answer any Ten) **10 X 3 = 30 Marks**

15. Bolus materials.
16. What is the importance T-rod?
17. Explain about the laser alignment check
18. Write a short note of Survey meter.
19. Emergency situation in brachytherapy
20. What are the daily checks done in a linear accelerator.
21. Time, Distance and shielding
22. What is Skin Sparring Effect?
23. Define TAR and Dmax.
24. What is the use of breast board immobilization device?
25. What is port film?
26. Shoulder retractor.

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B.Sc. Radiotherapy Technology

Time : 3 Hrs. **Paper – III** **[Max. Marks : 100]**

Radiation Biology and principles of Radiotherapy

Q.P Code: J4600

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

LONG ESSAY **2 X 10 = 20 Marks**

1. Explain briefly about effects of radiation on Embryo and fetus.
2. Acute and late effects of radiation therapy in various organs.

SHORT ESSAY (Answer any Ten) **10X 5 = 50 Marks**

3. Clinical signs and symptoms of cancer.
4. Chromosomal aberrations.
5. Concomitant boost Radiotherapy
6. Cell survival curve.
7. Time, dose and fractionation.
8. Brachytherapy rationale technique and treatment delivery.
9. Prevention and treatment of skin reactions during radiotherapy.
10. Catractogenisis.
11. EBRT - explain the rationale preparation of patient and technique in H&N malignances.
12. Multidisciplinary approaches to management of cancer- explain with two examples.
13. Prevention and treatment of skin reactions during radiotherapy.
14. Radiation protection.

SHORT ANSWERS (Answer any Ten) **10 X 3 = 30 Marks**

15. Mention any three late effects of radiation.
16. Mention side effects of chemotherapy.
17. What is cancer? Explain in briefly.
18. Define Linear Energy Transfer (LET) with unit.
19. TNM Staging.
20. Define the Relative Biological Effectiveness (RBE)
21. What are the complications that occur during treatment of ca. cervix?
22. Name any three techniques of EBRT and explain very briefly.
23. Mention the radiation tolerance limits of heart, lungs and esophagus.
24. Care during sedation/anesthesia.
25. Mention three types of gynecological brachytherapy and explain it briefly.
26. What is mutation?