SRI DEVARAJ URS ACADEMY OF HIGHER EDUCATION & RESEARCH

(A DEEMED TO BE UNIVERSITY)

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

September 2025 Examination

B.Sc. Radiotherapy Technology (RTT)

Time: 2.30 Hrs. **Paper – I** **[Max. Marks: 80]**

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 (40 Marks)

Q.P Code : K4555

LONG ESSAY **1 X10 = 10 Marks**

1. Describe the structure and function of the pharynx, including its subdivisions and its role in both the respiratory and swallowing food.

SHORT ESSAY **3X 5 = 15 Marks**

2. Structure passing through the openings of diaphragm
3. Explain the anatomical features and functions of the brainstem, including its subdivisions (midbrain, pons, and medulla) and their respective roles in regulating vital functions
4. Discuss the supports of uterus

SHORT ANSWERS **5 X 3 = 15 Marks**

5. List the bone participate in skeleton of the foot
6. What are the anatomical divisions of the aorta?
7. List the differences between large and small intestine
8. Name the muscles involved in movement of eye and their functions.
9. Name the parts of large intestine

Section – B

Applied Pathology (40 Marks)

Q.P Code : K4556

(Use separate answer booklet for Section-B)

Long Essay **1x10 = 10 Marks**

1. Classify and describe the etiopathogenesis, morphology, clinical course, spread and complications of Esophageal cancers.

Short Essay **3x5 = 15 Marks**

2. Describe the etiopathogenesis, morphology, clinical course, spread and complications of Melanoma
3. Describe the etiopathogenesis, morphology and clinical course of Cervical Carcinoma
4. Describe the etiopathogenesis and morphology of prostate cancer

Short Answers **5x3 = 15 Marks**

5. Describe the microscopy of Hodgkins Lymphoma
6. Name 03 types of Thyroid malignancies
7. List 03 adnexal tumors
8 List 03 pediatric tumors
9 Name 03 testicular tumors

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B.Sc. Radiotherapy Technology (RTT)

Time: 2 Hrs 30 Mins **Paper – II** **[Max. Marks: 80]**

Radiation Safety in radiotherapy

Q.P Code: K4560

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

LONG ESSAY **2X10 = 20 Marks**

1. Describe the parts of linear accelerator & their function in detail.
2. Explain radiation protection principles.

SHORT ESSAY **6X5 = 50 Marks**

3. What are the various types of radioactive sources used in radiotherapy and explain properties of any two.
4. Write about personal monitoring device in brief & TLD in detail?
5. What are the QA checks done daily, monthly and annually with tolerance for telecobalt unit.
6. Distinguish between Magnetron and Klystron
7. Write about the factors affecting percentage depth dose?
8. Write any 5 immobilization devices used in radiotherapy.

SHORT ANSWERS **10X3 = 30 Marks**

9. What is Equivalent square field?
10. Define half-value layer, tenth – value layer and its relationship
11. What is LMOS?
12. Write on Gamma Zone Monitor
13. Define equivalent dose and effective dose
14. What is penumbra? Types of penumbra?
15. List the different types of shutter systems used in telecobalt machines
16. What are the types of brachytherapy implants?
17. Draw the decay scheme of Co-60.
18. Write about use of T-rod in telecobalt?

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

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B.Sc. Radiotherapy Technology (RTT)

Time: 2.30 Hrs. **Paper – III** **[Max. Marks: 80]**

Radiation Biology and principles of Radiotherapy

Q.P Code: K4570

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

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

1. Write in detail about cell survival curve.
2. Development of neoplasia and explain the clinical signs and symptoms of cancer.

SHORT ESSAY 6 **X 5 = 30 Marks**

3. Describe the stochastic and deterministic effects .Give an example for each.
4. Define oxygen enhancement ratio (OER) and give its value for low & high LET radiation.
5. Describe the radiation effects in the developing embryo and fetus.
6. Explain about Chromosomal aberration and its types with neat diagram.
7. Write in detail about Staging of cancer (TNM Classification).
8. Write a short note on radio- protectors and radio -sensitizers.

SHORT ANSWERS **10 X 3 = 30 Marks**

9. Define the Relative Biological Effectiveness (RBE)
10 What is indirect effect of radiation?
11. Define Linear Energy Transfer (LET) with unit.
12. Mention side effects of chemotherapy.
13. What is mutation?
14. What are the complications occur during treatment of ca. cervix.
15. What is an acute and late effect?
16. What is cancer grading?
17. Define Somatic effects and Hereditary effects
18. Mention the radiation tolerance limits of heart, lungs and esophagus.

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