SRI DEVARAJ URS ACADEMY OF HIGHER EDUCATION & RESEARCH

(A DEEMED TO BE UNIVERSITY)

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

September 2024 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. Name the parts of gastrointestinal system. Briefly describe the structure and function of each part.

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

2. Describe the anatomy and functions of the inner ear.
3. Discuss the parts and attachment of femur
4. Discuss the anatomy and functions of the paranasal sinuses.

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

5. What are the three major divisions of the brain?
6. Discuss relation and interior of second part of duodenum
7. Name the three major arteries that supply the upper limb.
8. Mention the relations of liver
9. Name any three major muscles of facial expression.

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 Breast cancer

Short Essay **3x5 = 15 Marks**

2. Describe the etiopathogenesis, morphology, clinical course, spread and complications of Seminoma
3. Classify Lymphomas
4. Describe the etiopathogenesis, morphology and clinical course of Gastric Carcinoma

Short Answers **5x3 = 15 Marks**

5. Pap smear
6. Describe the microscopy of Squamous cell carcinoma
7. Name 03 types of CNS tumors
8. Etiopathogenesis of bladder cancer
9. PSA

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B.Sc. Radiotherapy Technology (RTT)

Time: 2 Hrs 30 Min **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 **2 X 10 = 20 Marks**

1. Write about the emergency situations and their management protocols in telecobalt and brachytherapy.
2. Radiation Protection Survey of linear accelerator.

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

3. Differences between SSD and SAD treatment techniques.
4. Write about personal monitoring device in brief & TLD in detail?
5. Write the differences between Magnetron and Klystron.
6. Define (i) Workload (W) (ii) Use Factor (U) (iii) Occupancy Factor (T) (iv) Distance and (v) Permissible limit in shielding calculation for a radiation installation.
7. Write about historical developments in radiotherapy.
8. Explain in detail about immobilization devices

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

9. Calculate the equivalent square field for 5 x 10 cm2, 8 x 5 cm2
10. Write about surface mould Brachytherapy treatment
11. Write about the properties of tungsten target material.
12. Explain about last man out switch.
13. What is meant by skin sparing effect?
14. Define absorbed dose and KERMA.
15. Write on Optical distance indicator.
16. What is filmbadge?
17. What is the source dimension of Co-60? Also give the activity and dose rate normally used at the time of source loading.
18. What are the types of beam modification devices are available.

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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. Name the 5R s in radiobiology. Explain about them in detail.
2. Explain Oxygen enhancement ratio, relative biological effectiveness & Linear energy transfer.

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

3. Explain direct and indirect effects of Radiation.
4. Define the terms Gene, Mutation, Tumor suppressor gene, & Onco gene.
5. Explain in detail about TNM and FIGO staging
6. Write about types of Cellular Damage Due to Radiation
7. Explain the chromosomal aberration
8. Define fractionation and explain Hypofractionation and hyperfractionation.

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

9. What is cancer? Explain in briefy
10. Name 3 late side effects of Radiotherapy to Ca breast
11. Define stochastic effect with example
12. What is DNA repair gene?
13. Write the Side effects of Chemotherapy
14. Define radio-sensitivity and give some examples.
15. Mention the radiation tolerance limit of Brain, Brain stem & spinal cord
16. Write about radio-protectors
17. Expansion of 3DCRT, IMRT, IGRT, VMAT, SRS and SBRT.
18. Define the term “α/β ratio” as it applies to the linear quadratic model.