Rajiv Gandhi University of Health Sciences, Karnataka

II Year B.Sc. Imaging Technology Degree Examination – 14-Jan-2022

Time: 3 Hours **Max. Marks: 40 Marks**

Physics of Radiology – RS-3
Q.P. Code: 1353

Your answers should be specific to the questions asked.
Draw neat, labeled diagrams wherever necessary
(Note: Both QP Codes 1353 and 1354 are to be answered within total duration of 3 hours)

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

1. Explain with a neat diagram the construction and working of a rotating anode x-ray tube and its advantage over stationary anode x-ray tube.

2. Explain rectification and types in detail write a note on rectifiers.

SHORT ESSAYS (Answer any Three) **3 x 5 = 15 Marks**

3. List the properties of x-ray.
4. Describe the working principle of autotransformer.
5. What are the various losses that occur in a transformer and how they are compensated?
6. List the uses of radioactive nuclides in medicine.

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

7. Define electric potential and potential difference.
8. Inverse square law
9. Thermionic gas diode
10. Isometric transmission
11. Define ionization and excitation.
12. Write the unites of radioactivity.

II Year B.Sc. Imaging Technology Degree Examination – 14-Jan-2022

Time: 3 Hours **Max. Marks: 40 Marks**

Physics of Radiology – RS-3
Q.P. Code: 1354

Your answers should be specific to the questions asked
Draw neat, labeled diagrams wherever necessary
(Both QP Codes 1353 and 1354 are to be answered within total duration of 3 hours)

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

1. Describe in detail about the components of image intensifier with neat diagram
2. Write a note on radiation protection and ALARA principle

SHORT ESSAYS (Answer any Three) **3 x 5 = 15 Marks**

3. Methods of cooling in x-ray tube
4. Magnification radiography
5. Rotating anode
6. Filters

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

7. Define Roentgen and Rad
8. Effective dose equivalents
9. HVL and TVL
10. Radioactive decay
11. Atomic number and mass number
12. Characteristic X ray spectrum

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Rajiv Gandhi University of Health Sciences, Karnataka

II Year B.Sc. Imaging Technology Degree Examination – 17-Jan-2022

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

Radiographic Photography and Image Processing (RS-3)
Q.P. CODE: 1355

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. Describe in detail working principle of Digital Radiography & Advantages and Disadvantages of it.
2. Discuss in detail Storage and archiving of radiographic film.
3. Describe in detail factors affecting the radiographic image.

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

4. Mass Miniaturization Radiography
5. Stains and Scum.
6. Types of Entrance in dark room.
7. Safelight Filters.
8. Formation of latent image.
9. Photographic Markers.
10. Auto Mixers.

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

11. Rare earth phosphors.
12. Direct exposure film
13. Contrast.
14. Functions of Developer.
15. Washing and drying.
16. Care and Maintenance of Automatic processor.
17. Type of Cassettes.

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Rajiv Gandhi University of Health Sciences, Karnataka

II Year B.Sc. Medical Imaging Technology Degree Examination – 14-Jan-2022

Time: Three Hours **Max. Marks: 100 Marks**

RADIATION PHYSICS
Medical Physics & Radiation Safety in Radio Diagnosis (RS-4)
Q.P. CODE: 3290

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

LONG ESSAYS (Second Question Choice) **2 x 10 = 20 Marks**

1. Write a note on radiation units and quantities
2. Explain in detail formation of X-ray circuit
   OR
   Write in details about the construction and working of image intensifier tube

SHORT ESSAYS (Question No 5 & 10 choice) **10 x 5 = 50 Marks**

3. Geiger-Muller counter
4. Explain the "Air Gap Technique"
5. Write a detailed note on inherent and added filtration
   OR
   Illustrate the types of circuit breakers
6. Earthing and its types
7. Compton scattering and its relevance in radiology
8. Working of isolation transformer
9. Write about "Collimators"
10. Somatic and genetic radiation effects
    OR
    X-ray tube in mammography
11. Properties of X-rays
12. Full wave rectification

SHORT ANSWER **10 x 3 = 30 Marks**

13. Explain workload, use factor and occupancy factor
14. Explain Alpha decay with an example
15. Draw a neat and labelled diagram of "Film badge"
16. Describe the terms-Grid ratio, bucky factor
17. Radioactivity and types
18. ICRP recommended dose limits
19. Difference between ionizing and non-ionizing radiation
20. Bremsstrahlung radiation
21. Reed switch
22. Causes of X-ray tube failure

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Rajiv Gandhi University of Health Sciences, Karnataka

II Year B.Sc. Medical Imaging Technology Degree Examination – 17-Jan-2022

Time: Three Hours **Max. Marks: 100 Marks**

IMAGING PHYSICS AND DARK ROOM TECHNIQUES (RS-4)

Q.P. CODE: 3291

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

LONG ESSAYS (Second Question Choice) **2 x 10 = 20 Marks**

1. Write in detail on the construction and types of "Intensifying screen" and its care and maintenance

2. Explain in brief about "Sensitometric curve"
   OR
   Write a note on "Silver recovery method" with neat labelled diagram

SHORT ESSAYS (Question No 5 & 10 choice) **10 x 5 = 50 Marks**

3. Write a note on types of x-ray film
4. Explain multisection cassette with neat labelled diagram
5. Draw a neat labelled diagram of Auto processor and explain the types of washing and drying methods
   OR
   Explain the entrance of the processing room
6. Write a note on principle of photographic effect
7. Factors affecting of fixing in manual film processing
8. Describe in detail about various factors affecting radiographic image
9. Explain Dry Bench and wet Bench
10. Brief factors affecting the image distortion in radiography
    OR
    Short note on safe light test
11. Factors affecting of developing in manual film processing
12. Define sharpness and unsharpness. Explain types of unsharpness

SHORT ANSWER **10 x 3 = 30 Marks**

13. Film hanger
14. Health and safety in dark room
15. Care and maintenance of radiographic cassette
16. Penumbra
17. Effect of pH on film processing
18. Film hopper in radiography
19. Function and sitting of the processing room
20. Loading and unloading or radiographic cassette
21. Explain static marks and finger marks of x-ray film
22. Define Graininess. Explain Quantum mottle

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Rajiv Gandhi University of Health Sciences, Karnataka

II Year B.Sc. Medical Imaging Technology Degree Examination – 19-Jan-2022

Time: Three Hours **Max. Marks: 100 Marks**

RADIOGRAPHIC POSITIONING AND TECHNIQUES (RS-4)

Q.P. CODE: 3292

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

LONG ESSAYS (Second Question Choice) **2 x 10 = 20 Marks**

1. Describe routine and supplementary views for PNS
2. Mention dental formula and describe bitewing radiography
   OR
   Describe projection to evaluate pleural space and hila

SHORT ESSAYS (Question No 5 & 10 choice) **10 x 5 = 50 Marks**

3. Explain different projection and positioning for intracondylar fossa
4. Name facial bones and describe occipito – mental view
5. Describe projections to evaluate epiglotitis
   OR
   Describe ankle stress projection
6. Describe expiration view
7. Apicogram test
8. Write briefly foot weight bearing view
9. Describe Stryker's view
10. Explain the projection for Zygopophyseal joint
    OR
    Explain Scottie dog view
11. Describe flexion and extension projections for c-spine
12. Mention the vertebral deformities and describe the radiographic projection to demonstrate it

SHORT ANSWER **10 x 3 = 30 Marks**

13. Projections for Hill-Sachs lesion
14. AP wagging jaw method
15. Settegast method
16. Rosenberg method
17. Mortise view
18. Positioning for Intercondylar fossa of knee
19. Projections for congenital clubfoot
20. Name all special views for shoulder
21. Occlusal radiography
22. Projections to visualize Sella Turcica

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Rajiv Gandhi University of Health Sciences, Karnataka

II Year B.Sc. Imaging Technology Degree Examination – 18-Jul-2022

Time: 3 Hours **Max. Marks: 40 Marks**

Physics of Radiology – (RS-3)
Q.P. Code: 1353

Your answers should be specific to the questions asked.
Draw neat, labeled diagrams wherever necessary
(Note: Both QP Codes 1353 and 1354 are to be answered within total duration of 3 hours)

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

1. Explain production and properties of x-rays and explain the factors effecting the intensity and quality of x-rays.
2. Explain rectification in detail with neat diagram.

SHORT ESSAYS (Answer any Three) **3 x 5 = 15 Marks**

3. Conductors and semiconductors.
4. Losses in transformers, regulations and rating of X-ray tube.
5. Linear energy transfer.
6. Explain thermionic emission and the effect of gas in a diode.

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

7. Photon Fluence and Fluence rate.
8. Cathode ray tube.
9. P-n junction diode.
10. Attenuation.
11. Inverse square law.
12. Isotopes, isobars and isomers with examples.

I Year B.Sc. Imaging Technology Degree Examination – 18-Jul-2022

Time: 3 Hours **Max. Marks: 40 Marks**

Physics of Radiology – (RS-3)
Q.P. Code: 1354

Your answers should be specific to the questions asked.
Draw neat, labeled diagrams wherever necessary
(Note: Both QP Codes 1353 and 1354 are to be answered within total duration of 3 hours)

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

1. Describe the construction and working of rotating anode x-rays tube.
2. Principle and construction of image intensifier and CRT.

SHORT ESSAYS (Answer any Three) **3 x 5 = 15 Marks**

3. Characteristic x-rays.
4. Stochastic and deterministic effects.
5. Characteristic of grid.
6. Structural shielding in X-ray department.

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

7. Interlocks.
8. Control of Kilovoltage in x-rays machine.
9. Principle of Radiation protection.
10. Switches and Fuses.
11. Potter- Bucky grids.
12. High tension cables.

Rajiv Gandhi University of Health Sciences, Karnataka

II Year B.Sc. Medical Imaging Technology Degree Examination – 22-Jul-2022

Time: Three Hours **Max. Marks: 100 Marks**

RADIOGRAPHIC POSITIONING AND TECHNIQUES (RS-4)

Q.P. CODE: 3292

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

LONG ESSAYS (Second Question Choice) **2 x 10 = 20 Marks**

1. Explain in detail routine and supplementary x-ray for a paediatric chest
2. Explain brief anatomy of pelvic girdle. Add a note of judet view
   OR
   Routine and supplementary projections for skull

SHORT ESSAYS (Question No 5 & 10 choice) **10 x 5 = 50 Marks**

3. Projections for rheumatoid arthritis
4. Routine and supplementary views of patella
5. Scoliosis series
   OR
   Explain OPG in detail
6. View taken in cases of pneumoperitoneum
7. Shoulder Y view
8. Write briefly about positioning for knee AP and weight bearing
9. Write the difference between ankle AP vs Mortise view
10. Explain frog leg view in detail
    OR
    Explain in detail swimmers view
11. Explain the difference between abdomen and KUB x-ray
12. Air gap technique

SHORT ANSWER **10 x 3 = 30 Marks**

13. Indication for C-spine open mouth projection
14. AP wagging jaw method
15. Ulnar deviation
16. Jones method positioning
17. Indications for carpel tunnel view
18. Positioning for Intercondylar fossa of knee
19. Name all the carpel bones
20. Positioning for scotty dog projection
21. Occlusal radiography
22. Views taken for Calcaneal spur

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