Rajiv Gandhi University of Health Sciences, Karnataka

II Year B.Sc. Imaging Technology Degree Examination – MARCH 2018

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

Physics of Radiology

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. Describe the various radioactive disintegration processes.
2. Explain in detail interaction of x-ray with matter.

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

3. Transformer losses
4. Describe briefly cooling of x-ray tube.
5. Electromagnetic spectrum
6. Define rectification and explain full wave rectification.

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

7. Define Ohm's law and Kirchhoff's law.
8. Thermionic emission
9. Line focus principle
10. Define linear attenuation coefficient.
11. Define exposure and absorbed dose with the units.
12. Semiconductors

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II Year B.Sc. Imaging Technology Degree Examination – MARCH 2018

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

Radiation Physics and Medical Physics

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 in detail about the components in X-ray generator with neat diagram.
2. Write a note on structural shielding design in diagnostic radiology.

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

3. G.M. Counter
4. Chromosome Aberrations and Mutation
5. Scintillation detector
6. Types and use of Grids

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

7. Characteristic X-ray spectrum
8. Anodes
9. Stochastic and Non-stochastic
10. Annual Dose Equivalents
11. Circuit Breakers
12. ALARA

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Rajiv Gandhi University of Health Sciences, Karnataka

II Year B.Sc. Imaging Technology Degree Examination – MARCH 2018

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

Radiographic Photography and Image Processing (RS - 2)

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. Discuss in detail Manual film processing.
2. Discuss in detail working principle of automatic processor with neat diagram.
3. Discuss in detail Characteristic curve.

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

4. Magnification Radiography
5. Spots and splashes
6. Types of Intensifying screen
7. Constituents of fixer
8. Storage of radiographic films
9. Photographic Markers
10. Auto Mixers

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

11. Ventilation & heating in dark room
12. Functions of daylight processing areas
13. Resolution
14. Functions of Guide plates
15. Single emulsion film & it's application
16. Quantum detection efficiency
17. Hatches

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II Year B.Sc. Imaging Technology Degree Examination – SEP-2018

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

Physics of Radiology

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. Describe the different modes of radioactive decay.
2. Discuss in detail about the theory and construction of AC Transformer.

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

3. Fluorescence and Phosphorescence
4. Factors affecting X-ray emission
5. Emission and absorption spectra
6. Linear and Mass attenuation Coefficient

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

7. Exposure and Absorbed dose
8. Thermionic Emission
9. HVL
10. Auger Electrons
11. Ohm's law
12. Photodiode

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Rajiv Gandhi University of Health Sciences, Karnataka

II Year B.Sc. Imaging Technology Degree Examination – SEP-2018

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

Radiation Physics and Medical Physics

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 role of medical imaging technologist during radiological studies in point of radiation protection and patient care.
2. Explain x-ray circuit in detail with a neat diagram and write a note on space charge compensation.

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

3. Beam centring devices
4. X-ray tube rating charts
5. Explain ionization counter and its uses.
6. Filters

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

7. Define Roentgen and Rad.
8. Lead equivalents
9. Maximum permissible exposure
10. Circuit breakers
11. Self-rectification
12. Gridded cassettes

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II Year B.Sc. Imaging Technology Degree Examination – SEP-2018

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

Radiographic Photography and Image Processing (RS - 2)

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. What is an Intensification factors? Describe an intensifying screen with the help of diagram.
2. List the constituents of developer and explain the functions of each.
3. Explain the factors that affect density and contrast in a radiograph.

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

4. What are the points to consider while scheduling weekly maintenance of automatic Processing equipment?
5. What are the factors affecting washing?
6. What are the functions of the fixer?
7. Draw and name the various regions of the characteristic curve.
8. What are the advantages of double coated films?
9. What are the advantages of Modular system used in daylight film handling system?
10. How will you test for screen contrast?

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

11. Pass box
12. Define density.
13. Replenisher
14. Clearing and Fixing time
15. Latent Image
16. Digital Radiography
17. Importance of string

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