

**BLDE (DEEMED TO BE UNIVERSITY)****B.Sc. in Medical Imaging Technology**

[Time: 3 Hours]

[Max. Marks: 80]

**VI SEMESTER****PAPER I - (Quality Assurance in Medical Imaging)****QP CODE: 8625**

Your answer should be specific to the questions asked.

Write Question No. in left side of margin.

**Long Questions****10X1 = 10 Marks**

1. Write in details about the Basics infrastructures of the imaging rooms?

**Short Essays: (Any – 8)****5 X 8 = 40 Marks**

2. What is the basic reasons of QA in Radiology department and how it affects patient's treatment?
3. What is the role of radiation protection device in the Radiology?
4. What are the patients positioning aids in Radiology?
5. How the image quality can be improved with potter Bucky and upright Bucky?
6. Write in details about the films and chemical storage in darkroom?
7. Where Aluminum step wedge is used?
8. What are the measuring calipers?
9. Where should be the location of the radiology department?
10. How the collimator improves the quality of a radiograph?

**Short Answers: (Any – 10)****3 X 10 = 30 Marks**

11. How will you choose the good x-ray tube?
12. What is a water phantom?
13. Where should be the patients waiting area?
14. How intensifying screen will play a role in QA?
15. What basic criteria you will apply for mobile x-ray unit?
16. What are the measuring calipers in radiology department
17. What are the adjacent departments and areas of radiology?
18. How grid plays an important role in QA?
19. What are artifacts?
20. What is tomography test tools?
21. Write the dimensions of the imaging rooms?

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### VI SEMESTER

#### PAPER II - (Modern Technologies in Imaging)

QP CODE: 8626

Your answer should be specific to the questions asked.

Write Question No. in left side of margin.

#### Long Questions

10X1 = 10 Marks

1. Explain in brief about Encoding?

#### Short Essays: (Any – 8)

5 X 8 = 40 Marks

2. What is Precession, Larmor equation and Resonance?
3. What are the characteristics of piezoelectric effect?
4. What is Helical CT Artifact?
5. Explain the types of Spin echo sequence?
6. Write about Data Acquisition System (DAS)?
7. What is T2 relaxation?
8. Explain slip ring technology?
9. What is K-space?
10. Write about Patient dose in CT scan?

#### Short Answers: (Any – 10)

3 X 10 = 30 Marks

11. Write the important facts about K-space?
12. What are the ingredients of USG Gel?
13. What are the factors affecting SNR?
14. What is Aliasing Artifact in CT scan?
15. What is shimming in MRI?
16. What are the three major systems of CT scan and draw a diagram of imaging system?
17. What are Stair Step and Cone Beam Artifact in CT scan?
18. What is Gantry cooling?
19. Write the difference between T1 and T2 relaxation?
20. What is Filtered back projection in CT scan?
21. What is Patient Motion Artifact in CT scan?

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**VI SEMESTER****PAPER III - (Radiation Physics & Radiation Protection)****QP CODE: 8627**

Your answer should be specific to the questions asked.

Write Question No. in left side of margin.

**Long Questions****10X1 = 10 Marks**

1. What is dosimeter and its types, write any one type of personal monitoring device in detail with neat labelled diagram?

**Short Essays: (Any – 8)****5 X 8 = 40 Marks**

2. Write about acute radiation syndrome?
3. Explain about the construction of OSL?
4. Write about radiation source?
5. How to control radiation?
6. How to store radioactive substance?
7. Write about Signage, draw an ionizing radiation caution?
8. Write about TLD badge and its construction?
9. What are the structural changes in biological tissue?
10. What are radiation effects?

**Short Answers: (Any – 10)****3 X 10 = 30 Marks**

11. What is radiation quantities and units?
12. Draw a layout of mammography unit?
13. What is radio sensitivity?
14. What is Cardinal principle?
15. How to calculate weekly workload of radiation?
16. What are the advantages and disadvantages of TLD badge?
17. What are the types of filters used in film badge?
18. Write about AERB?
19. What are ideal monitoring dosimeters?
20. What are the types of radioactive wastages?
21. Define leakage radiation and scatter radiation?

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**VI SEMESTER**

**PAPER IV - (BMIT Directed Clinical Education-IV)**

**QP CODE: 8628**

Your answer should be specific to the questions asked.

Write Question No. in left side of margin.

**Long Questions**

**10X1 = 10 Marks**

1. Explain HSG procedure in brief?

**Short Essays: (Any – 8)**

**5 X 8 = 40 Marks**

2. Explain interaction of X-rays with matter in brief?
3. Draw a neat labelled diagram of Hepato-biliary system and explain about it?
4. Explain about MRI Artifacts?
5. What is grid and mention the types of grids with their functions?
6. Draw a neat labelled diagram of breast and write about its location?
7. Mention the role of USG in 1<sup>st</sup> Trimester of Pregnancy?
8. Write in brief about patient preparation before barium enema?
9. What is HSG procedure and Name the instruments used in HSG procedure?
10. What are the factors used to increase the efficiency of screens?

**Short Answers: (Any – 10)**

**3 X 10 = 30 Marks**

11. What are the four components of PACS?
12. Write the indications and contraindications for cervical spine AP view?
13. Write patient preparation and position for Knee joint AP view?
14. Draw a neat labelled diagram of ultrasound transducer and write its frequencies?
15. What is the positioning and films taken in HSG procedure?
16. Enumerate the lobes of the brain and write the separation or fissures between them?
17. Draw a neat labelled diagram of lungs?
18. Write the important points about the Medico legal x-rays?
19. What is Auto-transformer, Step-Up and Step-down transformer?
20. What is intensifying screen and draw a neat labelled diagram of intensifying screen?
21. What is control panel or console?