

July 2019

**BLDE (DEEMED TO BE UNIVERSITY)**

**B.SC MEDICAL IMAGING TECHNOLOGY EXAMINATION**

[Time : 1 ½ Hours]

[Max.Marks : 50]

**PAPER – I (PARA MEDICAL SCIENCES)**

**QP CODE: 8211**

Your answer should be specific to the questions asked.

Write Question No. in left side of margin.

**Brief Answer Questions:**

**6 x 3 = 18**

1. Write a note on radiation dose monitoring devices
2. What is Prothrombin time. What is its importance.
3. Define Infection. Enumerate two examples of infection?
4. What are 3 effective strategies for radiation dose reduction?
5. What are different modes of spread of Infection.
6. Enumerate the methods of sterilization.

**Short Answers Questions:**

**6 x 2 = 12**

7. Define Disinfection. Enumerate two disinfectants.
8. Define hospital acquired infection. Enumerate two examples.
9. Define deterministic effect of radiation with example?
10. Define Inflammation with two examples.
11. Define consent. What is the legal age to give consent.
12. What are the antigens and antibodies of each blood type of the ABO blood system?

**Long Answers Questions**

**3 x 4 = 12**

13. Draw a neat labelled diagram of Cathode in the X-ray tube.
14. Draw a neat labelled diagram of structure of an atom.
15. Describe different modes of spread of an infection with a neat labeled diagram.

**Say True or False :**

**4 x 1 = 4**

16. X-ray tube does not produce heat. (T/F) –
17. Proton is positive charged particle (T/F) -
18. The cathode emits electrons in an X-ray tube. (T/F)–
19. Exposure dose is equal to absorbed dose (T/F) –

**Short Answer Questions**

**4 x 1 = 4**

20. Define bacteria.
21. Define Parasit.
22. Define Atom.
23. Expand ALARA.

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**B.SC MEDICAL IMAGING TECHNOLOGY EXAMINATION**

[Time : 1 ½ Hours]

[Max.Marks : 50]

**PAPER – II (IMAGING PHYSICS & POSITIONING)**

**QP CODE: 8212**

Your answer should be specific to the questions asked.

Write Question No. in left side of margin.

**Brief Answer Questions:**

6 x 3 = 18

Describe the X ray projections under following headings:

- a) FFD b) Centring point c) size of cassette  
d) Bucky/non-Bucky d) Position & immobilization of patient e) Parts demonstrated

1. Stenver's view .
2. Caldwell's view.
3. Skull lateral view.
4. Lumbar spine oblique view.
5. Radiography view of optic foramen.
6. What is a semiconductor and explain in brief the types ?

**Short Answers Questions:**

6 x 2 = 12

7. Name two X-ray artefacts?
8. What is a diode?
9. What are the types of rectification used in X-ray unit?
10. Which material is used in shielding & why?
11. Primary coil has 20 turns and voltage of 2000V, secondary coil has 60 turns. Calculate the voltage in secondary coil and tell whether it is a step up or step down transformer?
12. What is forward bias?

**Long Answers Questions**

3 x 4 = 12

13. Explain a transformer with neat labelled diagram, its principles and types of transformers ?
14. Explain with a neat labelled diagram construction of high tension cable and its use.
15. Explain parallel & focused grids with their uses ?

**Say True or False :**

4 x 1 = 4

16. The most effective means of radiation protection is distance (T/F)
17. Filament current uses step up transformer? (T/F)
18. Rectification is the process of changing DC to AC (T/F)
19. Unit of current is watt (T/F)

**Fill in the Blanks**

4 x 1 = 4

20. A rectifier allows flow of electrical current in \_\_\_\_\_ direction.
21. In a PA projection of chest ,central ray is directed at the level \_\_\_\_\_.
22. To visualize sella patients head is held in \_\_\_\_\_ position.
23. mAs timer is located on the \_\_\_\_\_ side of the high voltage transformer.

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## BLDE (DEEMED TO BE UNIVERSITY)

### B.SC MEDICAL IMAGING TECHNOLOGY EXAMINATION

[Time : 1 ½ Hours]

IV SEMESTER

[Max.Marks : 50]

#### PAPER – I (SPECIAL RADIOGRAPHIC POSITIONS & PROCEDURES)

QP CODE: 8411

Your answer should be specific to the questions asked.

Write Question No. in left side of margin.

#### BRIEF ANSWER QUESTIONS:

3 X 6 = 18

- Describe the X ray projections under following headings:
  - FFD
  - Centring point
  - size of cassette
  - Bucky/non-Bucky
  - Position of patient
  - Extent of image
- Ankle joint -AP view
- Hip joint -Lateral view
- SI joint - PA view
- Patella - Skyline view
- Foot - Dorsiplantar view.
- C spine - Swimmer's view for C7-T1.

#### SHORT ANSWERS QUESTIONS:

2 X 6 = 12

- What is difference between single and double contrast barium studies?
- How & what are the films taken for Hysterosalpingography procedure?
- Enumerate the indications and contraindications for Angiography?
- What are the various types of contrast media used in Angiography?
- What are various positions used in routine barium meal study?
- What is sialography procedure and mention its indications?

#### LONG ANSWER QUESTIONS:

4 x 3 = 12

Describe the procedures under following headings:

- Definition
- Preparation of patient
- Indications
- Contraindications
- Contrast used
- instruments used
- specific positions used for procedure
- procedure in brief.

13. IVP.

14. FISTULOGRAM.

15. BARIUM ENEMA.

#### SAY TRUE OR FALSE :

1 X 4 = 4

- Central ray in transpharyngeal projection of TMJ is oriented inferiorly 15 degrees(T/F) –
- Renal failure is not a contraindication for contrast usage(T/F)–
- Hydrocortisone is given for adverse contrast reactions in IVP (T/F) -
- Central ray of lateral ankle joint.xray is directed towards to malleolus (T/F) -

#### FILL IN THE BLANKS

1 X 4 = 4

- Lordotic view is used mainly for visualization of \_\_\_\_\_.
- \_\_\_\_\_ catheter is used for performing enteroclysis.
- \_\_\_\_\_ & \_\_\_\_\_ are the contrast media used in the double contrast examination.
- “Y” view is used in radiography of \_\_\_\_\_

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**B.SC MEDICAL IMAGING TECHNOLOGY EXAMINATION**

[Time : 1 ½ Hours]

**IV SEMESTER**

[Max.Marks : 50]

**PAPER – II (RADIATION PHYSICS & CROSS SECTIONAL  
ANATOMY OF HEAD NECK & SUPEX)**

**QP CODE: 8412**

Your answer should be specific to the questions asked.

Write Question No. in left side of margin.

**BRIEF ANSWER QUESTIONS:**

**6 X 3 = 18**

1. Draw a neat labelled diagram of axial section of the ethmoid sinuses.
2. Draw a neat labelled diagram of sagittal section of the sphenoid sinuses.
3. Draw a neat labelled diagram of axial section of Pons & Cerebellum.
4. Draw a neat labelled diagram of Fourth ventricle.
5. Draw a neat labelled diagram of coronal section of Maxillary sinus.
6. Draw labelled diagram showing cross sectional anatomy of External Ear.

**SHORT ANSWERS QUESTIONS:**

**6 X 2 = 12**

7. What are the three Radiation protection principles ?
8. Expand RAD & TLD ?
9. ALARA means ?
10. What are various sources of radiation ?
11. Enumerate the bones forming the ossicular chain?
12. Enumerate the parts of mandible bone?

**LONG ANSWER QUESTIONS:**

**3 x 4 = 12**

13. Draw a neat labelled diagram of Brainstem.
14. Explain in detail about the radiation protection in CT.
15. Draw a neat labelled diagram of Mandible & Temporo-mandibular joint.

**SAY TRUE OR FALSE:**

**4 X 1 = 4**

16. Internal auditory canal is a part of mandible.
17. External auditory canal is completely made of bony part.
18. 10 day rule for radiation protection is followed only in pregnant women.
19. TLD provides radiation protection.

**FILL IN THE BLANKS**

**4 X 1 = 4**

20. Malleus is attached to \_\_\_\_\_.
21. Mastoid is a part of \_\_\_\_\_ bone.
22. Sieverts is a unit of \_\_\_\_\_.
23. Maximum permissible dose for 20 years adult is \_\_\_\_\_.

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## B.SC MEDICAL IMAGING TECHNOLOGY EXAMINATION

[Time : 1 ½ Hours]

[Max.Marks : 50]

### VI SEMESTER

### PAPER – I (RADIOGRAPHY, CR/DR/PACS, ULTRASOUND & RADIATION PROTECTION)

QP CODE: 8611

Your answer should be specific to the questions asked.

Write Question No. in left side of margin.

#### Brief Answer Questions:

3 x 6 = 18

Describe the X ray projections under following headings:

- a) FFD b) Centering point c) size of cassette
- d) Bucky/non-Bucky d) Position of patient e) Extent of image
1. Patella - Skyline view
2. Abdomen - Cross table view
3. Lumbar spine - Oblique view for various facet joints
4. Foot – Dorsiplantar view
5. Sacroiliac joint - Prone view
6. Knee joint - Weight bearing view

#### Short Answers Questions:

2 x 6 = 12

7. Name two precautions to be taken before mammographic imaging.
8. What is piezoelectric effect? Give one example of piezoelectric crystal.
9. Enumerate benefits of PACS.
10. Mention the standard views of mammography.
11. Mention two limitations of CR.
12. What is Doppler effect? Who described it?

#### Long answer questions:

4 x 3 = 12

13. Mention radiation protection methods for patient in CT scan.
14. What is mammography? Mention two indications & two contraindications of mammography.
15. What is the role of ultrasound in 2<sup>nd</sup> trimester?

#### Say True or False:

1 x 4 = 4

16. Skyline view is used for visualisation of patella (T/F)
17. NT scan is done at 11-14 weeks (T/F).
18. CR is more adjustable to under and over exposure (T/F).
19. In colour Doppler examination, blood flow towards the probe is blue (T/F).

#### Fill in the blanks

1 x 4 = 4

20. Centering point in sacro-illiac joint prone view is \_\_\_\_\_
21. Full form of PACS \_\_\_\_\_
22. Frequency of linear probe is \_\_\_\_\_
23. Full form of TIFFA \_\_\_\_\_

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## B.SC MEDICAL IMAGING TECHNOLOGY EXAMINATION

[Time : 1 ½ Hours]

[Max.Marks : 50]

### VI SEMESTER

### PAPER – II (CT & MRI ADVANCES & CROSS SECTIONAL ANATOMY OF ABDOMEN & THORAX)

QP CODE: 8612

Your answer should be specific to the questions asked.

Write Question No. in left side of margin.

#### Brief Answer Questions:

6 x 3 = 18

1. What preparation is needed for patient for CT angiogram?
2. Mention the contraindications for MR mammography. What is the suitable period for MR mammography test.
3. What are the indications of MR enteroclysis?
4. What are the disadvantages of phase contrast MR venogram?
5. Enumerate different generations of CT. What type of movement is seen in each generation?
6. Write about slip ring technology.

#### Short Answers Questions:

6 x 2 = 12

7. Mention the two types of pitch in MDCT.
8. Mention the types of non contrast MRA Techniques.
9. What is MRCP? Write two indications.
10. Enumerate two types MR urography techniques.
11. What are the disadvantages of contrast enhanced MRA over non-contrast MRA?
12. What are the images commonly acquired in MRI of whole body?

#### Long Answer Questions:

3 x 4 = 12

13. What are the three classes of MR oral contrast agents? Give one example for each.
14. What is CT angiography? Write two indications & contraindications of CT angiography?
15. Mention the technical protocols used in acquisition of HRCT lung.

#### Say True or False:

4 x 1 = 4

16. In dual energy CT, tube operates at 80 kVp & 160kVp (T/F)
17. After administration of biphasic contrast media in MR enteroclysis, T1 appears hyperintense & T2 appears hypointense (T/F)
18. Phase Contrast-MRA uses change in the phase of transverse magnetization of the flowing blood to produce image (T/F)
19. A good contrast agent in MR enteroclysis should provide homogenous intensity to lumen of bowels (T/F)

#### Fill in the blanks

4 x 1 = 4

20. Inter slice interval used in HRCT is \_\_\_\_\_.
21. Anatomic coverage of the body in whole body MRI is from \_\_\_\_\_ to \_\_\_\_\_.
22. \_\_\_\_\_ fruit juice is used in MRCP as a negative contrast to opacify bowels.
23. Full form of TOF \_\_\_\_\_.