BACHELOR OF SCIENCE (RADIOLOGY & IMAGING TECHNOLOGY) (CBCS-2019 COURSE)

B.Sc. (R&IM) Sem-IV :SUMMER- 2022

SUBJECT : BASIC ULTRASOUND-I

Day : Monday | Time : 10:00 AM-12:00 PM

Date : 25-07-2022 | **S-22524-2022** | Max. Marks : 20

N.B.:

1) There are **THREE** sections as
   Section – A = Objective Type Questions - 20 marks.
   Section – B = Long Answer Questions - 20 marks.
   Section – C = Short Answer Questions - 20 marks.
2) Section A is given in **SEPARATE** sheet and has to be answered on same sheet. This sheet should be completed with the first **20** minutes of starting of the examination. This sheet with Section A only will be collected by Supervisor.
3) Section B has four long questions and **ANY TWO** questions have to be answered.
4) Section C has six short questions and **ANY FOUR** questions have to be answered.
5) You have to make ☑ such kind of mark in the box of the appropriate answers.

Seat No. _____

SECTION – A

MCQs: **[10 × 2 = 20]**

1. Linear probe is not used for imaging_____

- **a)** ☐ Thyroid
- **b)** ☐ Breast
- **c)** ☐ Eye
- **d)** ☐ Aorta

2. The height of the ultrasound wave is called:

- **a)** ☐ Frequency
- **b)** ☐ Wavelength
- **c)** ☐ Amplitude
- **d)** ☐ Intensity

3. Acoustic enhancement is shown by :

- **a)** ☐ Liver
- **b)** ☐ Spleen
- **c)** ☐ Kidney
- **d)** ☐ Ovarian Cyst

4. Low frequency transducer cannot be used for imaging :

- **a)** ☐ Aorta
- **b)** ☐ Pancreas
- **c)** ☐ Kidney
- **d)** ☐ Thyroid

P.T.O.

5. Which one of the following imaging modality is free of radiation exposure?

a) ☐ Radiography

b) ☐ Mammography

c) ☐ Doppler

d) ☐ Fluoroscopy

6. What is the speed of ultrasound wave in human soft tissues?

a) ☐ 330 m/sec

b) ☐ 1.450 m/sec

c) ☐ 1.540 m/sec

d) ☐ 4.080 m/sec

7. M – mode ultrasound is useful in determining

a) ☐ Portal vein flow

b) ☐ Deep vein thrombus

c) ☐ Fetal heart rate

d) ☐ Intestinal movements

8. Ultrasound gel consists of :

a) ☐ Polyvinyl amide

b) ☐ Polymethyle glycol

c) ☐ Polyacryl amide

d) ☐ Polyethylene glycol

9. Overall brightness of Image in Ultrasound is changed by :

a) ☐ TGC

b) ☐ Focus

c) ☐ Gain

d) ☐ Depth

10. USG transducer converts:

a) ☐ Electrical energy into sound energy

b) ☐ Wavelength into ultrasound

c) ☐ Radiofrequency waves into electrical energy

d) ☐ Microwave into ultrasound

Total Marks Obtained : _____

Signature of Invigilator

Signature of Examiner

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B.Sc. (R&IM) Sem-IV :SUMMER- 2022

SUBJECT : BASIC ULTRASOUND-I

Day : Monday
Date : 25-07-2022

S-22524-2022

Time : 10:00 AM-12:00 PM
Max. Marks : 40

N.B.:

1) There are **THREE** sections as
   Section – A = Objective Type Questions - 20 marks.
   Section – B = Long Answer Questions - 20 marks.
   Section – C = Short Answer Questions - 20 marks.
2) Section B has four long questions and **ANY TWO** questions have to be answered.
3) Section C has six short questions and **ANY FOUR** questions have to be answered.
4) Answers to both the sections should be written in **SAME** answer book.

SECTION – B

Long Answer (Attempt **ANY TWO**): **[10 × 2 = 20]**

1. What is the principle behind use of Ultrasound wave in imaging?
2. What are the different Ultrasound artifacts? Describe in detail.
3. Write in detail about Continuous Wave Doppler.
4. Write in detail about Colour Doppler and Colour flow Imaging.

SECTION – C

Short Answer (Attempt **ANY FOUR**): **[5 × 4 = 20]**

1. Write a short note on Ultrasound Gel and the coupling agent.
2. How does Continuous Doppler differ from Pulsed Doppler?
3. Write a short note on Mirror Image artifact in Doppler.
4. Write a short note on acoustic impedance.
5. Write in short about aliasing.
6. Write in short about curved transducer probes.

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