

**PARUL UNIVERSITY**  
**PARUL INSTITUTE OF APPLIED SCIENCES**  
**MID SEMESTER INTERNAL EXAMINATION, SEPTEMBER 2019**  
**B. Sc. -Semester II**  
**Subject: Nutrition and Dietetics**

**Paper Code: 11109161 Title of the paper: Biophysics and Instrumentation**

**Date: 05/03/20**

**Time: 10:30am**

**Maximum Marks: 40**

**Instructions:**

- 1. All questions are compulsory and options are given in first and second question only.**
- 2. Numbers to the right of question indicate the marks of respective question.**

<b>Q. 1</b>	Attempt any one question of the following. (i) Give the difference between CT scan and MRI. (ii) Explain in detail Lamberts law and Beer's law along with figure.	<b>(08)</b>
<b>Q. 2</b>	Attempt any three questions of the following. (i) Explain the working of colorimeter. (ii) Give any three limitation of Lambert-Beer Law. (iii) What are the benefits of CT scan? (iv) What is Doppler ultrasound technique? What are its uses. (v) Give the limitations of MRI.	<b>(12)</b>
<b>Q. 3</b>	Do as directed. Attempt all five questions. (i) Which kind of patients potentially poses a risk for MRI? Why? (ii) Define contrast material? (iii) Why CT scans is one of the best methods for detecting tumor? (iv) Define MRI.	<b>(05)</b>
<b>Q. 4</b>	Write correct option in your answer sheet for following 15 multiple choice questions.	<b>(15)</b>

<b>MCQ 1</b>	Which contrast material is used for X rays			
	(A)	Barium	(B)	Gadolinium
	(C)	Iodine	(D)	None of the above
<b>MCQ 2</b>	-----is the principle on which ultrasound is based.			
	(A)	Sonar	(B)	Eco
	(C)	Both A and B	(D)	None of the above
<b>MCQ 3</b>	Which of the following solution is not prepared when colorimeter is used?			
	(A)	Blank	(B)	Standard
	(C)	Control	(D)	Test
<b>MCQ 4</b>	-----from the following is invasive medical test?			
	(A)	NMRI	(B)	CAT scan
	(C)	Doppler ultrasound	(D)	None of the above
<b>MCQ 5</b>	Experiments in biochemistry involve the quantitative measurements of substances			

	present in complex mixtures of		
	(A)	Tissues homogenates	(B) Body fluids
	(C)	Food stuff	(D) All of the above
MCQ 6	The wavelength of the emitted light is always -----than that of absorbed radiation		
	(A)	Higher	(B) Lower
	(C)	Same	(D) None of the above
MCQ 7	The ----- reflect the sound waves back to the transducer.		
	(A)	Tissues	(B) bones
	(C)	Body fluids	(D) All of the above
MCQ 8	Which contrast material is used for CT scan?		
	(A)	Barium	(B) Gadolinium
	(C)	Iodine	(D) None of the above
MCQ 9	Which of the following takes more time		
	(A)	MRI	(B) CAT scan
	(C)	X rays	(D) None of the above
MCQ 10	-----ultrasound is a special ultrasound technique that measures the direction of blood flow.		
	(A)	Normal ultrasound	(B) Special ultrasound
	(C)	Doppler ultrasound	(D) None of the above
MCQ 11	The X rays are more used for dense body parts because		
	(A)	The more the dense organs the more the absorption of rays	(B) The more the dense organs less the absorption of rays
	(C)	Both A and B	(D) None of the above
MCQ 12	If the patient has -----, the physician may be prescribe a mild sedative.		
	(A)	Anxiety	(B) Claustrophobia
	(C)	Both A and B	(D) None of the above
MCQ 13	The color of the filter is ----- to the color of solution under investigation in colorimeter.		
	(A)	Complementary	(B) Same
	(C)	Opposite	(D) None of the above
MCQ 14	The main function of condense lance is to give -----which falls on the solution under investigation.		
	(A)	Parallel beam	(B) Monochromatic light
	(C)	Both A and B	(D) None of the above
MCQ 15	Ultra sound waves are disrupted by -----		
	(A)	Air	(B) Bones
	(C)	Both A and B	(D) All of the above

-- End of Paper--