

MSc DEGREE EXAMINATION MAY 2026

(Second Semester)

Branch - **PHYSICS****MEDICAL PHYSICS**

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)Answer **ALL** questions**ALL** questions carry **EQUAL** marks

(10 × 1 = 10)

Module No.	Question No.	Question	K Level	CO
1	1	The main function of the nervous system is (i) Digestion of food (ii) Transport of oxygen (iii) Production of blood cells (iv) Control and coordination of body activities	K1	CO1
	2	Needle electrodes are mainly used for recording (i) ECG signals (ii) EMG signals (iii) EEG signals (iv) Blood pressure	K2	CO1
2	3	Radiation that has enough energy to remove electrons from atoms is called (i) Thermal radiation (ii) Non-ionizing radiation (iii) Ionizing radiation (iv) Visible radiation	K1	CO2
	4	The cathode in an X-ray tube contains (i) Target metal (ii) Filament (iii) Cooling oil (iv) Collimator	K2	CO2
3	5	Magnetic induction transducers work based on (i) Faraday's law of electromagnetic induction (ii) Ohm's law (iii) Newton's law (iv) Coulomb's law	K1	CO3
	6	Ultrasound imaging systems use (i) Piezoelectric sensors (ii) Optical sensors (iii) Magnetic sensors (iv) Thermal sensors	K2	CO3
4	7	A sphygmomanometer is used to measure the (i) Body temperature (ii) Blood pressure (iii) Heart rate (iv) Respiration rate	K1	CO4
	8	The element mainly used for MRI imaging in the human body is (i) Carbon (ii) Hydrogen (iii) Oxygen (iv) Nitrogen	K2	CO4
5	9	The energy required to excite heart muscle is called (i) Optical energy (ii) Thermal energy (iii) Threshold energy (iv) Chemical energy	K1	CO5
	10	A defibrillator works by delivering (i) Light pulses (ii) Magnetic waves (iii) Sound waves (iv) Electrical shock	K2	CO5

Cont...

Module No.	Question No.	Question	K Level	CO
1	11.a.	Write short notes on the skeletal system and its functions.	K2	CO1
		(OR)		
	11.b.	Describe the Basic components of Medical Instruments.		
2	12.a.	List out the production and properties of X –rays.	K4	CO2
		(OR)		
	12.b.	Interpret the basic requirements of Industrial Radiographic tubes.		
3	13.a.	Infer on photovoltaic transducers.	K2	CO3
		(OR)		
	13.b.	Describe the capacitive type transducer with it's principle.		
4	14.a.	Explain the working Principle of sphygmomanometer.	K4	CO4
		(OR)		
	14.b.	Discuss the basic principle and working of electroneurography (ENG).		
5	15.a.	Summarize the energy required to excite heart muscle.	K5	CO5
		(OR)		
	15.b.	Illustrate the function of heart lung machine.		

SECTION -C (30 Marks)

Answer ANY THREE questions

ALL questions carry EQUAL Marks

(3 × 10 = 30)

Module No.	Question No.	Question	K Level	CO
1	16	Explain the construction and applications of microelectrodes and micro-pipette electrodes.	K2	CO1
2	17	Discover the various types of X-Ray machines.	K4	CO2
3	18	Organize the strain gauge as a pressure transducer with neat diagram.	K3	CO3
4	19	Interpret the basic principles and working of electrocardiogram (ECG) with neat diagram.	K4	CO4
5	20	Describe the types, characteristics and life cycle of pacemaker batteries.	K2	CO5

Z-Z-Z

END