Register Number:……..

KUMARAGURU
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B.E EXAMINATIONS: NOV/DEC 2023

(Regulation 2018)

Sixth Semester

ELECTRONICS AND INSTRUMENTATION ENGINEERING

U18EIE0006 : Bio Sensors and Medical Instrumentation

COURSE OUTCOMES

CO1: Impart basic knowledge about the biosensors and its types.
CO2: Illustrate the different methods of electrical and nonelectrical medical parameters diagnostic.
CO3: Explain the basic parameters of the equipment for using in electro diagnostic and electro therapy
CO4: Outline about the assisting and therapeutic medical equipment.

Time: Three Hours **Maximum Marks: 100**

Answer all the Questions:-
PART A (10 x 2 = 20 Marks)
(Answer not more than 40 words)

1.	Define bio sensor.	CO1	[K1]
2.	Name any two optical bio sensors used in biomedical applications.	CO1	[K_1]
3.	Sketch the Einthoven triangle used to represent cardiac vector.	CO2	[K_1]
4.	What is meant by let-go current? Indicate its range for men.	CO2	[K_2]
5.	State the working of the major components of sphygmomanometer in blood pressure measurement.	CO2	[K_2]
6.	Distinguish between heart sound and murmurs.	CO2	[K_2]
7.	List any four applications of ultrasonography.	CO3	[K_1]
8.	Compare radio graphic technique with fluoroscopic technique.	CO3	[K_2]
9.	List the different types of dialyzers.	CO4	[K_1]
10.	Mention the clinical usage of Lithotripsy.	CO4	[K_2]

Answer any FIVE Questions:-
PART B (5 x 16 = 80 Marks)
(Answer not more than 400 words)

11.	a)	Elaborate the working of any two transducer based bio sensors and its application with necessary diagrams.	(16)	CO1	[K_2]
12.	a)	Describe the 10-20 electrode system used in EEG with neat sketch.	(16)	CO2	[K_2]

13.	a)	Explain the Fick's Method for determination of cardiac output.	(8)	CO3	[K_3]
	b)	With suitable diagram explain the respiration volume measurements.	(8)	CO3	[K_3]
14.		Construct the block diagram of a MRI system and explain the image reconstruction using it.	(16)	CO3	[K_3]
15.	a)	Explain the two types of in pacemaker and mention their important.	(8)	CO4	[K_2]
	b)	What are the draw backs of ac defibrillator? Explain the working of dc defibrillator.	(8)	CO4	[K_2]
16.	a)	Explain with neat sketch the model of heart lung machine	(16)	CO4	[K_2]

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