Register Number:……..

KUMARAGURU college of technology
character is life

B.E/B.TECH DEGREE EXAMINATIONS: APRIL /MAY 2024

(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.	What is Biosensor?	CO1	[K_2]
2.	List the application of biosensor in Healthcare	CO1	[K_2]
3.	Draw the Einthoven triangle.	CO2	[K_3]
4.	Mention the types of ECG lead system.	CO2	[K_2]
5.	Infer Korotkoff sounds, and how are they used in medical applications.	CO3	[K_3]
6.	State respiration rate.	CO3	[K_2]
7.	Define telemedicine. What are its biomedical applications?	CO3	[K_2]
8.	What is micro shock? How is it affected to human body?	CO3	[K_2]
9.	Distinguish between Internal and External pacemakers.	CO4	[K_2]
10.	Identify the situation to use diathermy?	CO4	[K_2]

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

11.	a)	Compare and contrast the advantages and disadvantages of different types of biosensors.	8	CO1	[K_3]
	b)	Explain the role of nanotechnology in advancing biosensor technology.	8	CO1	[K_3]

12.	a)	Explain standard 10-20 electrode placement system for EEG measurement	8	CO2	[K_3]
	b)	Discuss the steps involved in performing a 12-lead ECG on a patient and the significance of each lead's placement.	8	CO2	[K_3]
13.	a)	Explain any one method of blood pressure measurements with necessary diagram.	8	CO3	[K_3]
	b)	Illustrate the working operation of Plethysmograph with necessary diagram	8	CO3	[K_3]
14.	a)	Describe the working of X-ray machine with a neat diagram. Enumerate the uses of X-rays in medicine.	8	CO3	[K_3]
	b)	Write short notes on ultrasound scanning.	8	CO3	[K_3]
15.	a)	Explain in detail about phonocardiography.	8	CO3	[K_3]
	b)	What is Hemodialysis? Explain the working of an artificial kidney with necessary diagram.	8	CO4	[K_3]
16.	a)	Elucidate the working operation of DC defibrillator with the help of neat block diagram	8	CO4	[K_3]
	b)	Discuss in detail the heart lung machine with the help of neat diagram.	8	CO4	[K_3]

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