

THE KAVERY ENGINEERING COLLEGE*(An Autonomous Institution)***UG/PG DEGREE END SEMESTER THEORY EXAMINATIONS, APRIL-MAY 2026***Fifth Semester***BIOMEDICAL ENGINEERING****BM3591- DIAGNOSTIC AND THERAPEUTIC EQUIPMENT***Regulations - 2021***Duration : 3 Hrs****Maximum : 100 Marks****PART – A(ANSWER ALL QUESTIONS) (Marks 10*2=20)**

Q.No	Questions	BTL	CO	Marks
1.	Show the purpose of Holter ECG	L2	1	2
2.	Recall the radioactive isotopes used in nuclear powered pacemaker batteries	L1	1	2
3.	List the requirements for an amplifier in designing electroencephalograph	L1	2	2
4.	Compare visual and auditory evoked potentials	L2	2	2
5.	Show the importance of GAIT analysis in biomechanical assessment	L2	3	2
6.	Relate the role of EMG in fatigue analysis	L1	3	2
7.	List the types of ventilators.	L1	4	2
8.	Show the working principle of pneumotachometer	L2	4	2
9.	Infer the significance of speech audiometry	L2	5	2
10.	Define galvanic skin resistance	L1	5	2

PART – B (ANSWER ALL QUESTIONS) (Marks 5*16 = 80)

Q.No	Questions	BLT	CO	Marks
11.	i Show the process of identification of normal and abnormal waves in an ECG waveform	L2	1	10
	ii Illustrate the construction and working of a phonocardiograph	L2	1	6
	Or			
	b Explain the internal and external cardiac pacemakers. Discuss about the components and types of batteries used during their operation	L2	1	16
12.	a Explain about EEG with a neat sketch and also analyze how different types of EEG waveforms change during various physiological and pathological conditions	L4	2	16
	Or			
	b Evaluate various recording techniques used for Visual, Auditory, and Somatosensory Evoked Potentials and explain their clinical importance in diagnosing neurological disorders	L4	2	16
13.	a Explain the principle of EMG biofeedback instrumentation and its support in muscle rehabilitation	L2	3	16
	Or			
	b Illustrate the muscle stimulator circuit and various types of waveforms used for the stimulation of nerves and muscles. Also show how these are utilized in the treatment of different diseases	L2	3	16
14.	a Infer about the instrumentation and working of spirometers used for lung volume and vital capacity measurements.	L2	4	16

Or

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| b | Explain the operation of Pressure-controlled, Volume-controlled and Time-controlled ventilators in detail. | L2 | 4 | 16 |
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| 15. a | Outline the working of a polygraph. Show how psychophysiological measurements like basal skin resistance and galvanic skin resistance are used in diagnostic purposes. | L2 | 5 | 16 |
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| <p style="text-align: center;">Or</p> | | | | |
| b | Explain the construction of an audiometer with a neat sketch and also Compare pure tone and speech audiometry. | L2 | 5 | 16 |