

THE KAVERY ENGINEERING COLLEGE
(An Autonomous Institution)

B.E/B.TECH DEGREE END SEMESTER THEORY EXAMINATIONS, APRIL-MAY 2025

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)

<i>Q.No</i>	<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
1.	How do you troubleshoot a complex ECG machine problem, such as a machine that is not recognizing the patient's heart rate?	L3	1	2
2.	When extraneous random magnetic fields are affecting an implantable programmable pacemaker what method would you suggest to overcome the effect?	L2	1	2
3.	What are the types of epilepsy?	L1	2	2
4.	State the applications of MEG in medical field?	L1	2	2
5.	Give the characteristics of fatigue.	L1	3	2
6.	Define GAIT analysis.	L1	3	2
7.	Differentiate tidal volume and vital capacity.	L2	4	2
8.	Recall the principle of Apnoea Monitor.	L1	4	2
9.	How can changes in intraocular pressure affect vision?	L2	5	2
10.	Mention the role of slit-lamp examination in diagnosing eye diseases.	L1	5	2

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

<i>Q.No</i>	<i>Questions</i>	<i>BLT</i>	<i>CO</i>	<i>Marks</i>
11.	a i Explain in detail about Holter Monitor as an ambulatory device.	L2	1	8
	ii Draw the typical ECG waveform and label the amplitude and intervals.	L2	1	8
	Or			
	b i Discuss the functioning of an internal on-demand pacemaker. What type of batteries are deployed?	L2	1	8
	ii Compare the working of DC defibrillator with its AC counterpart.	L2	1	8
12.	a i Enlist the clinical significance and applications of EEG.	L2	2	8
	ii Discuss in detail about multichannel EEG.	L2	2	8

Or

	b i	Explain in detail about EEG biofeedback instrumentation.	L2	2	8
	ii	How would you evaluate the effectiveness of an EEG machine maintenance program?	L2	2	8
13.	a i	Discuss about muscle and nerve stimulators and its applications in medical field.	L2	3	10
	ii	Write short notes on nerve conduction velocity measurement.	L2	3	6
Or					
	b	Compare and contrast static and dynamic measurement of EMG unit with necessary examples.	L2	3	16
14.	a i	What information can be derived from a spirogram?	L3	4	8
	ii	How can intra-alveolar pressure measurements be used to diagnose pulmonary diseases?	L3	4	8
Or					
	b i	Compare and contrast the advantages and disadvantages of pressure-controlled and volume-controlled ventilators.	L3	4	8
	ii	Evaluate the effectiveness of using a nebulizer for treating asthma.	L3	4	8
15.	a	Explain the difference between basal skin resistance (BSR) and galvanic skin resistance (GSR).	L3	5	16
Or					
	b	Describe the pure tone and speech audiometer in diagnosing auditory processing disorders.	L3	5	16