VIVEKANANDHA COLLEGE OF ENGINEERING FOR WOMEN
[AUTONOMOUS INSTITUTION AFFILIATED TO ANNA UNIVERSITY, CHENNAI]
Elayampalayam – 637 205, Tiruchengode, Namakkal Dt., Tamil Nadu.

Question Paper Code: 12004

B.E. / B.Tech. DEGREE END-SEMESTER EXAMINATIONS – MAY / JUNE 2024
Sixth Semester
Biomedical Engineering
U19BM613 - DIAGNOSTIC AND THERAPEUTIC EQUIPMENT - I
(Regulation 2019)

Time: Three Hours   Maximum: 100 Marks

Answer ALL the questions

Knowledge Levels	K1 – Remembering	K3 – Applying	K5 - Evaluating
(KL)	K2 – Understanding	K4 – Analyzing	K6 - Creating

PART – A

(10 x 2 = 20 Marks)

Q.No.	Questions	Marks	KL	CO
1.	State the purpose of a Holter monitor.	2	K2	CO1
2.	Compare AC and DC defibrillators.	2	K2	CO1
3.	What is meant by evoked potential?	2	K1	CO2
4.	Distinguish between EEG and MEG.	2	K2	CO2
5.	Define nerve conduction velocity.	2	K1	CO3
6.	Give the characteristics of fatigue.	2	K2	CO3
7.	List the types of ventilators.	2	K1	CO4
8.	Define Tidal volume & Inspiratory reserve volume.	2	K1	CO4
9.	Mention the need for equalization circuit and attenuation in audiometer.	2	K4	CO5
10.	State the difference between air and bone conduction.	2	K2	CO5

PART – B

(5 x 13 = 65 Marks)

Q.No.	Questions	Marks	KL	CO
11. a)	Explain with neat block diagram the construction and working of synchronized DC defibrillator.	13	K2	CO1

(OR)

			Marks	KL	CO

b) Explain in detail about the building blocks of Heart rate monitor. — 13 — K2 — CO1

12. a) Explain in detail about the acquisition of visual evoked potential and discuss its typical output waveform. — 13 — K3 — CO2

(OR)

b) With a neat sketch explain the multichannel EEG recording system. — 13 — K2 — CO2

13. a) Explain in detail about recording and analysis of EMG waveforms. — 13 — K3 — CO3

(OR)

b) Explain the EMG biofeedback instrumentation with a neat sketch. — 13 — K2 — CO3

14. a) Explain in detail, how the pneumotachograph can be used for air flow and volume measurement. — 13 — K3 — CO4

(OR)

b) What is spirometer? Explain how it is used to measure lung volumes. — 13 — K2 — CO4

15. a) What is audiometry? Explain the functional blocks of audiometer. — 13 — K2 — CO5

(OR)

b) Explain the recording of basal skin resistance and galvanic skin resistance and give their clinical significance. — 13 — K2 — CO5

PART – C

(1 x 15 = 15 Marks)

Q.No.	Questions	Marks	KL	CO
16. a)	Explain the different types of current waveforms used in muscle stimulator with its clinical applications. Also describe the measurement of nerve conduction velocity.	15	K2	CO3

(OR)

b) Discuss the working of pressure controlled and volume controlled and time controlled ventilators. — 15 — K2 — CO4

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