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Question Paper Code	12706
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B.E. / B.Tech. - DEGREE EXAMINATIONS, APRIL / MAY 2024

Sixth Semester

Instrumentation and Control Engineering

(Common to Electronic and Instrumentation Engineering)

20ICPC602 - BIOMEDICAL INSTRUMENTATION

Regulations - 2020

Duration: 3 Hours

Max. Marks: 100

PART - A (10 × 2 = 20 Marks)

Answer ALL Questions

	Marks	K- Level	CO
1. Define Action Potential.	2	K1	CO1
2. Name the physiological systems of the body.	2	K1	CO1
3. What is plethysmograph?	2	K1	CO2
4. Define GSR.	2	K1	CO2
5. Define Micro shock.	2	K1	CO3
6. List different types of electrodes used in biomedical application.	2	K1	CO3
7. Compare NMR Xray and CT scan.	2	K2	CO4
8. What are the important parameters of MRI?	2	K1	CO4
9. What are the advantages of diathermy?	2	K1	CO5
10. What is an oxygenator?	2	K1	CO5

PART - B (5 × 13 = 65 Marks)

Answer ALL Questions

11. a) Outline the Structure of Cardiovascular system and explain its functionality in detail.	13	K2	CO1
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OR

b) Illustrate the resting and action potential with neat sketch.	13	K2	CO1
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12. a) Explain Indicator Dilution method for Cardiac output measurement.	13	K2	CO2
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OR

b) Infer how blood pCO ₂ and pO ₂ were measured.	13	K2	CO2
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13. a) Illustrate the principle construction and working of Micropipet electrode.	13	K2	CO3
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OR

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create

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b) Illustrate different devices used to protect against electrical hazards. 13 K2 CO3

14. a) Infer CT scan. Give the mathematical details of obtaining a CT image. 13 K2 CO4

OR

b) Summarize a detailed technical note on Imaging application in Biometric system. 13 K2 CO4

15. a) Outline different types of pacemakers with the neat diagram. 13 K2 CO5

OR

b) Show a ventilator along with its accessories and explain its functioning. 13 K2 CO5

PART - C (1 × 15 = 15 Marks)

16. a) i) Infer infrared thermo graphic instrumentation technique with suitable diagram. 8 K2 CO4

ii) Illustrate the principle construction and working of peritoneal dialysis with a suitable diagram. 7 K2 CO5

OR

b) i) Explain the problem associated with implant telemetry circuits. 8 K2 CO4

ii) Infer the function of nerve stimulators. 7 K2 CO5