

Seat  
No.

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मध - 063

**ELECTIVE - I**  
**Biomedical Instrumentation**  
**(New) (1252)**

P. Pages : 2

Time : Three Hours

Max. Marks : 100

Instructions to Candidates :

1. Do not write anything on question paper except Seat No.
2. Answersheet should be written with blue ink only. Graph or diagram should be drawn with the same pen being used for writing paper or black HB pencil.
3. Students should note, no supplement will be provided.
4. Solve **any two** questions from each unit.
5. Figures to the right indicate full marks.

**UNIT - I**

1. Give the classification of various NMR imaging methods. Give in detail sequential line method. 10
2. Explain with block diagram basic NMR components. 10
3. Explain with block diagram pulse - echo technique. 10

**UNIT - II**

4. Draw & explain complete blood gas analyser. 10
5. Explain the principle & working of coulter counter. 10
6. Describe the implantable defibrillator with the help of system architecture. 10

**UNIT - III**

7. Explain the principle of surgical diathermy machine. 10
8. What are the types of Lasers ? Explain with schematic diagram Pulsed Ruby Laser. 10
9. Draw & explain block diagram of ultrasonic therapy unit. 10

**UNIT - IV**

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| 10. | Give the functions of kidney. And explain the principle of Dialysis in the artificial Kidney. | 10 |
| 11. | Draw & explain the Haemodialysis machine.   | 10 |
| 12. | Give details on classification of ventilator.   | 10 |

**UNIT - V**

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| 13. | Explain the single channel ECG telemetry system.                           | 10 |
| 14. | Draw & explain the working of multichannel colorimeter.                    | 10 |
| 15. | Describe the implantable telemetry system for Blood pressure & blood flow. | 10 |

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