

Please check whether you have got the right question paper.

- N.B:
- 1) Question **No. 1** is **compulsory**.
  - 2) Answer **any three** questions from the remaining questions.
  - 3) Figures to the right indicate full marks.

**Q.1** Attempt the following:

- (a) Explain the brain waves? State the frequency range and significance of each. **(05)**
- (b) What is a Spirogram? What do you understand by the terms, FEVs and TLC? **(05)**
- (c) What do you mean by 'Cardiac Arrhythmias'? **(05)**
- (d) Compare an analog hearing aid and a digital hearing aid. **(05)**

- Q.2**
- (a) Explain the design of ECG signal conditioning system with neat circuit diagram. **(10)**
  - (b) Explain the biological effects of Lasers? What are the safety aspects and radiation safety exposure limits for lasers. **(10)**

- Q.3**
- (a) What is artificial kidney? Explain in brief peritoneal dialysis with a diagram. Compare it with haemodialysis. **(10)**
  - (b) What is the significance of implantable medical devices? Explain the working of cochlear implant with neat labeled diagram. **(10)**

- Q.4**
- (a) Explain the various Image reconstruction techniques used in MRI system. **(10)**
  - (b) Explain the concept of Human and Equipment Safety. What are the physiological effects of electricity? **(10)**

- Q.5**
- (a) What are the general parameters monitored by bedside monitors? Explain the computerized patient monitoring system with neat block diagram. **(10)**
  - (b) Explain in brief working principle and construction of SPECT system with neat labeled diagram. **(10)**

- Q.6** Write short notes on **(Any two)** **(20)**
- (a) Medical Applications of lasers
  - (b) Automated drug delivery system
  - (c) Fetal monitor

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