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Name of Examination : **Winter 2020** - (Preview)

Course Code & Course Name : **IN402 - Biomedical Instrumentation**

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Maximum Marks : **60**

Duration : **3 Hrs**

[Edit](#) [Print](#) [View Answer Key](#) [Close](#) **Answer Key Submission Type:** Marking scheme with model answers and solutions of numerical

Instructions:

1. All questions are compulsory.
2. Illustrate your answer with suitable figures/sketches wherever necessary.
3. Assume suitable additional data; if required.
4. Use of logarithmic table, drawing instruments and non programmable calculators is allowed.
5. Figures to the right indicate full marks.

1) Answer the following sub questions

- a) What is biomedical signal? state and explain sources of biomedical signals. [6]
- b) What is the importance of measurement of cardiac output? With neat diagram explain dye dilution method to measure cardiac output [6]

2) Answer any two sub questions

- a) Explain with neat sketch working of direct method used for blood pressure measurement. [6]
- b) State the function of kidney. Explain with neat diagram working of Artificial kidney [6]
- c) State and explain the physiological effects of current. What are the accident prevention methods. [6]

3) Answer any two sub questions

- a) What is the need of pace maker? Explain with neat block diagram working of external pacemaker. [6]
- b) Explain with neat diagram working of X-Ray machine. [6]
- c) Explain the different sounds produced by the mechanical event that occur during heart cycle.. Explain with neat block diagram working of phonocardiograph. [6]

4) Answer the following sub questions

- a) What is the need of defibrillator? Explain explain working of DC defibrillators. [6]
- b) Explain the anatomy of human heart with neat sketch [6]

5) Answer any two sub questions

- a) State and explain different types of biomedical electrodes [6]
- b) Explain with neat sketch working of water sealed spirometer. [6]
- c) Explain with neat sketch working of multi channel ECG machine [6]

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