# M. TECH.-IV (ELECTRONICS V.L.S.I.) (CBCS – 2015 COURSE) : SUMMER - 2018

## SUBJECT: SELF STUDY PAPER – II: BIOMEDICAL INSTRUMENTATION

Day: **Tuesday** | **S-2018-3085** | Time: **11.00 AM TO 02.00 PM**

Date: **19/06/2018** | Max. Marks: 60

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**N.B.:**

1) All questions are **COMPULSORY**.
2) Figures to the right indicate **FULL** marks.
3) Answers to both the sections should be written in **SEPARATE** answer book.
3) Draw neat and labelled diagrams **WHEREVER** necessary.

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### SECTION-I

**Q.1** Draw and explain respiratory system in detail. Write the importance of alveoli. **(10)**

**OR**

**Q.1** Describe the parts of brain. Draw the diagram of Nervous system and explain. **(10)**

**Q.2** What is Einthoven Triangle? Explain bipolar leads with the help of configuration and ECG waveforms. **(10)**

**OR**

**Q.2** What do you mean by augmented leads of ECG? List the types of augmented leads and explain with the help of diagram. **(10)**

**Q.3** What is the importance of monitoring blood pressure invasively? Explain $H_2O$ manometer method for B.P. monitoring. **(10)**

**OR**

**Q.3** What do you mean by pulse oximetry? List the types of pulse oximeters and explain any one with neat diagram. **(10)**

### SECTION-II

**Q.4** Classify respiratory transducers. Explain the principle of used for monitoring the respiration rate using respiratory transducer. Also write about the material used for the construction of respiratory transducer. **(10)**

**OR**

**Q.4** List and explain application of plethysomograph. Also graph its basic principle. **(10)**

**Q.5** Explain spectrophotometer with the help of neat diagram. Write the function of monochromator used in spectrophotometer. **(10)**

**OR**

**Q.5** Draw and explain Coulter Counter method used for Counting blood cells. **(10)**

**Q.6** Explain the effect of electrical current passing through the body. Draw the diagram showing levels of current. **(10)**

**OR**

**Q.6** Explain the block diagram of Electro surgical unit and cutting, coagulation and blend operations performed with the help of ESU. **(10)**

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