B.Tech. SEM -V Bio Medical 2014 Course (CBCS) : SUMMER - 2019
SUBJECT: BIOMEDICAL ELECTRONICS-I

Day: Monday | Time: 10.00 AM TO 01.00 PM
Date: 13/05/2019 | S-2019-2697 | Max. Marks: 60

N.B:

1) All questions are **COMPULSORY.**
2) Figures to the right indicate **FULL** marks.
3) Assume suitable data if necessary.

Q. 1 State Fick's law. Describe drift and diffusion equation for potential across cell membrane in a biological tissue. **(10)**

OR

Q. 1 **a)** What is the difference between ERG and EOG? How these biosignals are recorded? List the electrodes used to record these biosignals. **(06)**

b) What is Electroneurogram? How the conduction velocity of a motor nerve is measured using ENG? **(04)**

Q.2 Draw and describe line driving amplifier and current amplifier with neat diagrams. **(10)**

OR

Q.2 List the types of chopper amplifier. Draw and describe chopper amplifier using mechanical switch. **(10)**

Q.3 What is 12 lead system used to record ECG? Describe it with neat diagram. **(10)**

OR

Q.3 List and describe the types of normal and abnormal heart sounds with waveforms. **(10)**

Q.4 Draw and discuss with the help of block diagram 8-channel EEG machine. **(10)**

OR

Q.4 What is 10-20 electrode system? Explain its representation with neat diagram. **(10)**

Q.5 Draw and discuss types and use of Spirometers. **(10)**

OR

Q.5 What are the basic types of measurements made in pulmonary clinic? **(10)**

Q.6 What are the basic types of lasers? Describe any two lasers with diagram. **(10)**

OR

Q.6 Describe 'pain relief through electrical stimulation'. **(10)**

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