

**B.TECH. SEM -V BIO MEDICAL 2014 COURSE (CBCS) : WINTER -
2017**

SUBJECT : BIOMEDICAL ELECTRONICS - I

Day : Tuesday
Date : 16/01/2018

W-2017-2169

Time : 02.30 PM TO 05.30 PM
Max. Marks : 60

N.B.

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.

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- Q.1** What is Electrocardiogram? Explain fundamentals of ECG. (10)
OR
- Q.1 a)** What is resting potential? Describe action potential in a cell. (06)
b) What are the fundamental laws for current in biological tissue? (04)
- Q.2** What are the types of Chopper amplifier and its importance in the medical field? Explain Chopper amplifier using mechanical switch. (10)
OR
- Q.2 a)** What is drift? Why drift compensation is important for operational amplifiers. (06)
b) Describe bridge amplifier to amplify any bio-signal. (04)
- Q.3** List out different types of direct and indirect methods of B.P. measurement and describe any one indirect method and its applications. (10)
OR
- Q.3 a)** Draw and describe Augmented lead configuration for ECG recording. (06)
b) What are bipolar leads and how these leads are recorded? (04)
- Q.4** Draw and describe amplitude and frequency bands for EEG. (10)
OR
- Q.4 a)** Give the constructional details of any two EMG electrodes. (06)
b) How EEG is diagnosed using sleep pattern? (04)
- Q.5** What is the principle used in NMR blood flow meter? Write the applications of NMR blood flow meter. (10)
OR
- Q.5 a)** Draw and describe types and use of 'Spirometers'. (05)
b) Describe Laser Doppler flow meter. (05)
- Q.6 a)** Categorize various types of LASERs along with their wavelengths solid or liquid, typical power and type of beam. (06)
b) What are the galvanic and faradic currents used in electrical stimulator? (04)
OR
- Q.6 a)** Describe 'plain relief through electrical stimulation. (06)
b) Write short note on "Short wave diathermy". (04)

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