

B.TECH SEM – VIII (2007 COURSE) (ELECTRONICS ENGG.)
: WINTER - 2017
SUBJECT: BIOMEDICAL ENGINEERING

Day: **Monday**
Date: **20/11/2017**

W-2017-2675

Time: **02.30 PM TO 05.30 PM**
Max. Marks: **80**

N.B.:

- 1) **Q. No. 1 and Q. No. 5** are **COMPULSORY**. Out of the remaining attempt any **TWO** questions from each section.
- 2) Figures to the right indicate **FULL** marks.
- 3) Answer to both the sections should be written in **SEPARATE** answer books.
- 4) Draw neat diagrams **WHEREVER** necessary.

SECTION-I

- Q.1** a) List the types of B.P. measurement techniques for Direct and Indirect methods. (05)
Describe sphygmomanometer method for B.P. measurement.
- b) What is the need of pacemaker? (04)
- c) List the different types of respiratory transducers and explain any one of them. (05)
- Q.2** a) What are the basic types of pulmonary measurements? (06)
- b) Draw and explain cell structures. (07)
- Q.3** a) Describe EEG electrodes with neat diagram. (07)
- b) Explain the characteristics of bioelectric amplifiers. (06)
- Q.4** a) What is the principle of electromagnetic blood flow meter? (07)
- b) What is vectorcardiography? Draw the diagram showing vectors for Bipolar and unipolar leads and explain. (06)

SECTION-II

- Q.5** a) What are the safety considerations during handling ESU in O.T? (05)
- b) What is bedside monitoring? (04)
- c) Explain the basic principle of colorimeter. (05)
- Q.6** a) Explain schematic diagram showing the use of computer in intensive care units. (07)
- b) What is objective of patient monitoring? Which is the most important physiological parameters monitored in ICU and explain its importance? (06)
- Q.7** a) Explain the importance of blood gas analyzer and brief the electrodes application in the analyzer. (07)
- b) Explain the circuit diagram of flame photometer. Give wavelength of the colors used in flame photometer. (06)
- Q.8** a) Explain the monopolar and bipolar techniques of ESU. (07)
- b) Draw with neat sketch the impact of various current levels on human body. (06)