Printed Pages : 1 **Roll No.** | | | | | | | | | | | **NIC041**

B. TECH.

THEORY EXAMINATION (SEM–VIII) 2016-17

BIOMEDICAL SIGNAL PROCESSING

Time : 3 Hours ***Max. Marks : 100***

Note : *Be precise in your answer. In case of numerical problem assume data wherever not provided.*

SECTION-A

1 Explain the following: **(10×2=20)**

a) Discuss briefly any one application of adaptive filter.
b) Explain the block diagram of biomedical signal analysis.
c) What are the dominant frequencies in sleep EEG and their nomenclature?
d) How we measure amplitude in ECG define.
e) What is adaptive wavelet detection?
f) What is ARMA methods of EEG analysis name them
g) Differentiate between general purpose microprocessors and DSP.
h) Explain the classification of Bio medical signals.
i) What is QRS detection?
j) What are the different patterns of brain wave explain

SECTION-B

2. Attempt any five of the following: **(10×5=50)**

a) Explain the Huffman coding and its uses for ECG data compression.
b) Explain QRS detection algorithm.
c) What is maximum likelihood method EEG analysis?
d) Describe heart rate variability signal using AR modeling.
e) Explain the role of computer in image reconstruction in bio medical field.
f) Describe the basics of electromyography.
g) Explain the run length coding of data reduction.

SECTION-C

Attempt any two of the following: **(15×2=30)**

3 What are the advantage of an adaptive filter? Design an adaptive filter using LMS algorithm.

4 With suitable figures describe the AR modeling of seizure EEG. Explain the steps involved in sleep stage analysis.

5 Draw the flow chat for AZTEC algorithm.