No. of Printed Pages : 03 **Roll No. .....**

CC-202

M. Tech. EXAMINATION, Dec. 2017

(Third Semester)

(Main & Re-appear)

(BME)

BME-603

SOFT COMPUTING METHODS IN BIOMEDICAL ENGINEERING

Time : 3 *Hours*] [*Maximum Marks :* 100

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt any *Five* questions. All questions carry equal marks.

1. Discuss the MATLAB features. Explain the functions performed by Image and signal processing toolbox with specific illustration of wavelet transform. **20**

2. Explain the significance of LABVIEW in biomedical applications. **20**

3. Discuss the following :

(a) Fuzzy sets and Membership functions **10**

(b) Fuzzy if-then rules. **10**

4. Write short notes on the following :

(a) Fuzzy Reasoning **10**

(b) Fuzzy Inferencing. **10**

5. Explain the error back propagation algorithm in detail. **20**

6. (a) Explain the types of neural networks. **10**

(b) Discuss the various learning rules in neural networks. **10**

7. What is the significance of Genetic Algorithms for biomedical engineers ? Also explain the selection and mutation operations of Genetic Agorithms. **20**

8. Explain the following :

(a) Natural Sources of EMI **10**

(b) Immunity to conducted EMI detectors and measurement. **10**