| BIEEE-001 |

B.Tech. – VIEP – ELECTRICAL ENGINEERING (BTELVI)

00583 **Term-End Examination**

June, 2018

BIEEE-001 : DYNAMIC SYSTEM SIMULATION

Time : 3 hours   *Maximum Marks : 70*

Note :   *Attempt any* **seven** *questions. Each question carries equal marks. Use of scientific calculator is allowed.*

1. What are the different steps in creating an m-file and saving it in MATLAB ?   *10*

2. Write down the commands for the following functions in MATLAB. Also write the results after execution of the command.   *10*

    (a) Creating the identity matrix of 4 by 4

    (b) Creating a matrix of zeros of 3 by 3

3. For the transfer function

$$R(x) = \frac{P_{(num)}}{P_{(den)}} = \frac{x^5 - 3x^4 + 5x^2 + 7x + 9}{x^6 - 4x^4 + 2x^2 + 5x + 6}$$

express the numerator and denominator in factored form, using the roots (p) function in MATLAB. *10*

4. Develop SIMULINK model of a hydraulic system using transfer function models. Explain each blockset used, in detail. *10*

5. Using MATLAB commands and SIMULINK develop the Ward Leonard speed control technique for DC shunt motor. Explain the blockset used to display the variable speed. *10*

6. Explain each step for modelling and simulation of single-phase inverter using MOSFET as switching device and PWM for firing circuit. Explain each blockset used. *10*

7. What are the different types of statistical models used in simulation ? Differentiate between discrete and continuous distributions. *10*

8. What are queueing models ? What are the general characteristics of a queueing system ? How does simulation estimate the mean measures of performance ? *10*

9. Write short notes on any *two* of the following : 2×5=10

   (a) Simulation of Auto Regressive (AR) Processes

   (b) Simulation of Discrete Time Control Systems

   (c) Interconversion of Models Between SIMULINK and MATLAB Commands

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