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**BIEEE-001**

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

00655 **Term-End Examination**

**June, 2019**

## 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. Assume missing data if any with suitable justification.*

1. Discuss various toolboxes available in MATLAB software. Also explain the functions performed by them. *10*

2. What is meant by 'concatenation of two matrices' ? Explain with suitable examples. Also discuss various matrix operations that can be performed using MATLAB. *10*

3. Given that

$$A = s^2 + 7s + 12$$

$$B = s^2 + 9$$

$$Y = s^2 + 4s + 13$$

$$Z = s^4 + 9s^3 + 37s^2 + 81s + 52.$$

Write a MATLAB program to find

$$C = AB \text{ and } X = Z/Y.$$ *10*

4. Explain each step of modelling and simulation of a Current Source-Inverter (CSI)-fed induction motor drive. *10*

5. Construct a Simulink diagram for the solution of the system equation described by

$$2\frac{d^3y}{dt^3} + 11\frac{d^2y}{dt^2} + 6\frac{dy}{dt} + 10y = u(t).$$ *10*

6. Develop a simulation model of a hydraulic system using transfer functions. *10*

7. Draw a Simulink model for the analysis of a half-wave uncontrolled rectifier circuit feeding RL load. *10*

8. Describe the following blocks available in Simulink library : *5×2=10*

   (a) MUX

   (b) Bus-selector

   (c) PowerGUI

   (d) Unit-delay

   (e) Scope

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

   (a) M-files and their creation

   (b) Markovian Models

   (c) Simulation of ARMA process