

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

Term-End Examination

December, 2015

BIEEE-001 : DYNAMIC SYSTEM SIMULATION

Time : 3 hours

Maximum Marks : 70

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

1. Explain the following elements of MATLAB software environment window : 2×5=10

(a) Command History Window

(b) Command Window

2. Use MATLAB to evaluate the following functions and create m-files : 2×5=10

(a) $5 \left(\frac{3}{4} \right) + \frac{9}{5}$

(b) $4^3 \left[\frac{3}{4} + \frac{9}{(2)3} \right]$

3. Explain the step-wise procedure to develop computer simulation of electromechanical hydraulic system using transfer function models. 10
4. Discuss the blockset based simulation of a digital control system using first order transfer function. 10
5. Using MATLAB and SIMULINK, develop the generalized machine model for an induction motor. 10
6. What do you mean by statistical model in simulation ? Prepare the simulation for a statistical model having discrete distribution. 10
7. What is the significance of using Markovian models in simulation ? Discuss the steady-state behaviour of infinite population Markov models. 10
8. Consider the two matrices,

$$A = \begin{bmatrix} -1 & 6 \\ 7 & 11 \end{bmatrix} \quad \text{and} \quad B = \begin{bmatrix} 2 & 0 \\ -1 & 7 \end{bmatrix}.$$

Write MATLAB program and create m-file for determining the following : 10

- (a) $A \times B$
- (b) $A + B$

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

- (a) Simulation of ARMA Process
 - (b) Queuing Models
 - (c) MATLAB Tool Boxes
 - (d) Single Server Queues with Poisson Arrivals
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