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BIEEE-001

00464

B.Tech DEGREE PROGRAMES

Term-End Examination

June, 2013

BIEEE-001 : DYNAMIC SYSTEM SIMULATION

Time : 3 Hours *Maximum Marks : 70*

*Note : Attempt **any seven** questions. All question carry equal marks. Assume missing data, if any.*

1. (a) What is MATLAB software environment ? 5

   (b) Explain the purpose of tf2ss, tf2zp, zp2ss, zp2tf in MATLAB. 5

2. How the "m-files" are created in MATLAB ? 10

3. Explain how the simulation of discrete time and digital control systems is done. 10

4. Convert the state space equations : 10

$$\begin{pmatrix} X_1 \\ X_2 \end{pmatrix} = \begin{pmatrix} 0 & 1 \\ -3 & -4 \end{pmatrix} \begin{pmatrix} x_1 \\ x_2 \end{pmatrix} + \begin{pmatrix} 0 \\ 1 \end{pmatrix} u \quad y = [10\,0] \begin{bmatrix} x_1 \\ x_2 \end{bmatrix} + [0]u$$

into zero-pole gain TF using 'ss2zp' function.

5. Explain use of 'SIMULINK' for development of generalized machine models for Induction motor. **10**

6. Describe steady-state behaviour of finite population models. **10**

7. Explain simulation of the ARMA process. **10**

8. Describe the simulation of the Word-Leonard system of speed-control. **10**

9. Explain use of SIMULINK for developing of Electric drive models with an example. **10**

10. Write short note on ***any two*** of the following : **2x5=10**

    (a) Tool boxes of MATLAB

    (b) Matrix operations in MATLAB

    (c) Simulation of MA processes.