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BIEEE-014

01900

B.Tech. in ELECTRICAL ENGINEERING (BTELVI)

Term-End Examination

June, 2013

BIEEE-014 : COMPUTER PROCESS CONTROL

Time : 3 hours *Maximum Marks : 70*

Note : *Attempt **any seven** questions.*
*Each question carries **equal** marks.*

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1. Explain cascade control with block diagram. What are the essential features of cascade control ? **10**

2. The transfer functions for a cascade system are given as : **10**

$G_{P1} = \frac{4}{(2S+1)(4S+1)}$; $G_{P2} = \frac{5}{(S+1)}$; $G_{L2} = \frac{1}{(3S+1)}$

G_{c1} is a P controller ; $G_{c2} = 4$; $G_{m1} = 0.05$, $G_{m2} = 0.2$.

Calculate the ultimate value of K_{p1} for primary controller for which simple feedback and cascade loop go into oscillation.

3. Explain the construction of programmable logic controllers. Also indicate some of input and output devices. **10**

4. Draw PLC ladder diagram to realize two input EX-OR gate and write ladder program for it. **10**

5. Discuss the state space model and the transfer function model for multivariable systems. **10**

6. Explain a basic MIMO feedback loop control and develop the expression for transfer function. **10**

7. When is a system said to be real time ? What are the different real time system design issue ? **10**

8. Describe the process of intertask communication and synchronization. Explain time-relative buffering and ring buffers. **10**

9. What do you mean by memory management ? Explain memory management in the task control block model. **10**

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

    (a) Batch process control

    (b) Man machine interface

    (c) Control networks

    (d) Robust stability
