

Code No: **R41101****R10****Set No. 1****IV B.Tech I Semester Supplementary Examinations, February/March - 2018****AUTOMATION OF INDUSTRIAL PROCESSES****(Electronics and Instrumentation Engineering)****Time: 3 hours****Max. Marks: 75****Answer any FIVE Questions  
All Questions carry equal marks****\*\*\*\*\***

- 1 a) Describe the elements of computer controlled process. [8]  
b) Explain the role of computers in the control of industrial processes. [7]
- 2 a) With the help of block diagram explain basic distributed control system [7]  
b) What is the use of field buses in industrial process control system? What are different types of field buses? Discuss the advantages and disadvantages. [8]
- 3 a) What is a controller tuning? Why tuning a controller is necessary? [7]  
b) With a neat diagram, explain in brief about computer aided control system design. [8]
- 4 a) Discuss about the deadbeat and Dahlin's algorithms. [10]  
b) Write a short note on Zero order Hold (ZOH) device. Also derive its transfer function. [5]
- 5 a) Explain dynamic feed forward control algorithms. [7]  
b) Explain deadbeat feed forward control algorithms. [8]
- 6 a) What are the advantages and applications of predictive control? [7]  
b) What is adaptive control? Write about the various schemes of adaptive control. [8]
- 7 a) Discuss about the statistical process control. [7]  
b) Explain (i) Analytical predictor (ii) Smith predictor. [8]
- 8 a) What is distributed digital control system? Explain DCS software configuration. [7]  
b) Explain about the DCS supervisory computer tasks. [8]