

B TECH
(SEM VIII) THEORY EXAMINATION 2017-18
COMPUTERIZED PROCESS CONTROL

Time: 3 Hours**Total Marks: 100**

- Note:** 1. Attempt all Sections. If require any missing data; then choose suitably.
 2. Any special paper specific instruction.

SECTION A

- 1. Attempt all questions in brief. 2 x 10 = 20**
- a) What are the benefits of computers in process control?
 - b) What are the elements in computer aided process control?
 - c) What are the different computers aided software?
 - d) What is operating system?
 - e) What is modelling?
 - f) Define Goal with suitable example?
 - g) What is the need of result analysis?
 - h) Write the application of cascade control strategy?
 - i) What are the different industrial applications of Computer aided process?
 - j) What are the advantages and disadvantage of Computer aided process?

SECTION B

- 2. Attempt any three of the following: 10 x 3 = 30**
- a) Discuss with a neat sketch the architecture of computeraided control system in process industries.
 - b) Describe with a neat sketch the ISO reference model forcommunication?
 - c) Why we need modelling of the system? Explain the various steps used in modellingprocess of control?
 - d) Discuss in detail about Adaptive control and Statistical control?
 - e) How thickness and flatness is measured in metal rolling mill? If it is not to a desired value of thickness and flatness, then explain the controlling of both with suitable diagram. Also explain automatic gauge (thickness) control?

SECTION C

- 3. Attempt any one part of the following: 10 x 1 = 10**
- a) Classify the computer aided process control system in detail?
 - b) Discuss the various process related interfaces in the ControlSystem.
- 4. Attempt any one part of the following: 10 x 1 = 10**
- a) Explain how a Real Time Operating System (RTOS) is used for process control application?
 - b) Explain in detail different data transfer techniques?

- 5. Attempt any *one* part of the following: **10 x 1 = 10****
- a) Explain the following with suitable sketch:
 - (i) Physical model
 - (ii) Control model
 - b) Discuss process modelling in detail?
- 6. Attempt any *one* part of the following: **10 x 1 = 10****
- a) Write note on the following:
 - (i) Cascaded control
 - (ii) Predictive control
 - b) Write note on the following:
 - (i) Inferential control
 - (ii) Intelligent control
- 7. Attempt any *one* part of the following: **10 x 1 = 10****
- a) Explain the implementation of computer aided temperature control of an electric oven?
 - b) Explain in detail about Computer Aided control of electric power generation plant?