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**BTECH**  
**(SEM VIII) THEORY EXAMINATION 2023-24**  
**COMPUTERIZED PROCESS CONTROL**

**TIME: 3 HRS****M.MARKS: 100****Note: 1.** Attempt all Sections. If require any missing data; then choose suitably.**SECTION A****1. Attempt all questions in brief.****2 x 10 = 20**

Q no.	Question	Marks	CO
a.	Discuss the role of computers in process control.	02	1
b.	What is the concept of Aided Process Control?	02	1
c.	Explain the elements of a computer aided process control system.	02	2
d.	Draw the ISO Reference Model for communication.	02	2
e.	Explain the concept of Process Modeling.	02	3
f.	Discuss the need of Process model.	02	3
g.	Discuss applications of statistical Control.	02	4
h.	Enlist the advantages of Computerized Process Control.	02	4
i.	Discuss the principle of Electric Oven Temperature Control.	02	5
j.	Explain the advantages of Furnace Temperature Control.	02	5

**SECTION B****2. Attempt any three of the following:****3 x 10 = 30**

a.	Draw and explain the computer aided process- control architecture.	10	1
b.	Discuss the different types of computer control process software in detail.	10	2
c.	Describe in detail about any two of the following. (i) Physical model (ii) Control Model (iii) Process Modeling.	10	3
d.	Describe the Predictive Control and Adaptive Control in detail.	10	4
e.	Explain Reheat Furnace temperature control in detail.	10	5

**SECTION C****3. Attempt any one part of the following:****1 x 10 = 10**

a.	Discuss the different types of Process related Interfaces in Control System.	10	1
b.	Differentiate between the centralized control system and distributed control system.	10	1

**4. Attempt any one part of the following:****1 x 10 = 10**

a.	Discuss about the Elements of a computer aided Process control System.	10	2
b.	Explain the Real time Operating System in detail.	10	2

**5. Attempt any one part of the following:****1 x 10 = 10**

a.	Define modeling and elaborate the various steps needed in modeling procedure of a system.	10	3
b.	Explain Supervisory control under the Computerized Process control.	10	3

**6. Attempt any one part of the following:****1 x 10 = 10**

a.	Discuss Homogenous Transform and its Inverse in Robot Elements.	10	4
b.	Explain Inferential Control and Cascade Control in detail.	10	4

**7. Attempt any one part of the following:****1 x 10 = 10**

a.	Describe the Computer Aided control of electric power generation plant.	10	5
b.	Describe in detail about any two of the following. (i) Model Formulation (ii) Solution Finding (iii) Results Analysis	10	5