

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
SIXTH SEMESTER B.TECH DEGREE EXAMINATION(S), DECEMBER 2019

Course Code: AE302
Course Name: PROCESS CONTROL

Max. Marks: 100

Duration: 3 Hours

PART A

Answer any two full questions, each carries 15 marks.

Marks

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|---|---|------|
| 1 | a) Explain the analysis of a typical interacting and non-interacting system? | (10) |
| | b) Briefly explain about dead time with suitable example. | (5) |
| 2 | a) Explain the linearization of equal percentage valve? | (7) |
| | b) Explain the characteristics of liquid, gas systems in terms of resistance and capacitance? | (8) |
| 3 | a) Define process gain, transmitter gain and valve gain. Discuss about time constants. | (8) |
| | b) Explain the analysis of flow control loop? | (7) |

PART B

Answer any two full questions, each carries 15 marks.

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|---|--|------|
| 4 | a) Explain the selection steps of variables for control? | (7) |
| | b) Explain the various control performance measures for common input changes? | (8) |
| 5 | a) Differentiate deadband and deadzone? | (5) |
| | b) Explain the feedback-feedforward control with suitable example ?How does it show superior performance than feedback and feedforward control individually given. | (10) |
| 6 | a) Explain the cascade control with example? | (7) |
| | b) How can we determine tuning constants for good control performance? | (4) |
| | c) Explain the features of manual and automatic control? | (4) |

PART C

Answer any two full questions, each carries 20 marks.

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| 7 | a) What is a smith predictor? | (6) |
| | b) Explain about Fuzzy graph? | (4) |
| | c) Explain about fuzzy relation and its various properties and operations ? | (10) |
| 8 | a) Explain the effect of interaction on relative gain array? | (6) |
| | b) Explain the multiloop control performance through loop pairing? | (10) |
| | c) Write about the characteristics of multivariable control? | (4) |

- 9 a) Explain about neurofuzzy networks? Draw the ANN model? (10)
- b) Explain the influence of interaction on the possibility of feedback control? (6)
- c) Explain any one of tuning method used in multiloop control? (4)
