Total No. of Questions : 12]

SEAT No. :

P2166

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[5059]-691

B.E.(Instrumentaion& control)

PROCESS INSTRUMENTATION-I

(2012 Course)(End-Semester) (406261)

Time :2½Hours] *[Max. Marks : 70*

Instructions to the candidates:

1) ***Answer Q1 or Q2,Q3 or Q4,Q5 or Q6 , Q7 or Q8,Q9 or Q10,Q.11 or Q.12.***
2) ***Figures to the right indicat full marks.***
3) ***Neat diagrams should be drawn where ever necessary.***
4) ***Use of electronic pocket calcualtor is allowed.***
5) ***Assume suitable data, if necessary.***

Q1) a) Explain incentivies of process control. **[7]**

b) Explain degree of freedom.

OR

Q2) a) Explain Dead time process with an example **[7]**

b) Also explain Interacting & Non-interacting processes with an example.

Q3) Explain SLPC & MLPC features faceplate & functions **[7]**

OR

Q4) Explain- **[7]**

a) steady state gain

b) process gain

c) Process time constant

d) Variable time constant

e) Transmitler gain

f) Variable pressure drop

g) Valve gain

P.T.O.

Q5) a) Explain elements of feedback loop **[6]**

b) Explain factors in controllce tuning

OR

Q6) a) Explain control performance measures. **[6]**

b) Find gain coefficient for PID controller for following FOPDT model where $G_p(s) = \frac{1.2\, e^{-40.1s}}{(1375+1)}$

Q7) Explain cascade control system w.r.t. Basic principles, design criteria, controller Algorithm & Tuning issues. **[16]**

OR

Q8) a) Explain Ratio control system with on example **[8]**

b) Explain split range control system with an example **[8]**

Q9) a) Explain tqultivariable control system. Explain Interaction & its effects. **[9]**

b) Explain RGA and Interaction effect on stability. **[9]**

OR

Q10) Explain tuning enhancement through Decampling & Loop pairing **[18]**

Q11) Explain segnence of design steps with an example. **[16]**

OR

Q12) a) Explain process decomposition. **[8]**

b) Explain key guidelines for process control design. **[8]**