

Que 2 Short Questions (Attempt Any Ten)

[20]

- 1 Differentiate: Discontinuous and continuous control mode.
- 2 The temperature has range of 300 to 440 K and a set point of 384 K. Find the percent of span error when the temperature is 379 K.
- 3 Suppose a process error lies within the neutral zone with $p=25\%$. At $t=0$ sec, the error falls below the neutral zone. If $K=2\%$ per second, find the time when the output saturates.
- 4 Define: Direct action and reverse action.
- 5 Enlist characteristics of integral control mode.
- 6 What are the main advantages of proportional-integral control mode?
- 7 Enlist the problems caused by water in the control lines.
- 8 Enlist the important factors for designing of an instrument air system.
- 9 Give an account of pressure level of an instrument air system.
- 10 Why gas analyzers are used in industry?
- 11 Give classification of gas analyzer on the basis of their operating principles.
- 12 Give operating principle of thermal conductivity analyzer.

Que 3 [A] Write a note on process equation and process load with necessary example. [05]

[B] Discuss two-position control mode. What is neutral zone? What is the importance of neutral zone? [05]

OR

[C] Explain Multiposition control mode. [05]

[D] Give an account of floating control mode. [05]

Que 4 [A] Write a detailed note on proportional control mode. What is offset? [05]

[B] Discuss proportional-derivative control mode. [05]

OR

[C] Give an account of integral control mode. [05]

[D] Discuss derivative control mode. [05]

Que 5 [A] Write a note on reciprocating type compressor. [05]

[B] Give an account of non-lubricated compressor and compressor cooling. [05]

OR

[C] Write a note on sliding vane rotary compressor. [05]

[D] Write on desiccant type and refrigeration type dryers. [05]

Que 6 [A] Write a note on paramagnetic oxygen analyzer with necessary diagram. [10]

OR

[B] Discuss magnetic wind instruments with necessary diagram. [10]