

Time: 3 hours

Total Marks: 80

- Note: 1) Question No.1 is compulsory.
 2) Attempt any three questions from remaining five questions.
 3) Assume suitable data if necessary.
 4) Figures to the right indicate full marks.

- Q.1) Explain in brief
- Composite controller 5M
 - I-P converter 5M
 - Pneumatic logic gates 5M
 - Electronic type temperature transmitter 5M
- Q.2) a) Explain the installation procedure of control valve. 10M
 b) Explain flapper nozzle system. Explain any two applications of flapper nozzle system for industrial use. 10M
- Q.3) a) What are the different types of hydraulic pumps? Explain with neat sketch. 10M
 b) What is the necessity of proportional control? Explain proportional controller in detail. 10M
- Q.4) a) Give the classification of compressors. Explain any two rotary compressors with diagram. 10M
 b) Draw the control valve characteristics and explain. An equal percentage valve has maximum flow of $40\text{cm}^3/\text{s}$ and a minimum flow of $4\text{cm}^3/\text{s}$. If the full travel is 3 cm, find the flow at 1 cm opening. 10M
- Q.5) a) Draw the diagram of sequence valve and explain it in detail. 10M
 b) Draw the block diagram of multichannel data acquisition system and describe the working of it. 10M
- Q.6) a) Explain methods for local pressure control with diagram. 10M
 b) What is Transmitter? Give the classification details of transmitters. Draw and Explain a process loop with transmitter. 10M
