



17561

15162

3 Hours / 100 Marks

Seat No.

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- Instructions :**
- (1) *All questions are compulsory.*
 - (2) *Illustrate your answers with neat sketches wherever necessary.*
 - (3) *Figures to the **right** indicate **full** marks.*
 - (4) *Assume suitable data, if **necessary**.*
 - (5) *Mobile Phone, Pager and any other Electronic Communication devices are **not** permissible in Examination Hall.*

Marks

1. A) Attempt **any three** of the following : (4×3=12)
- a) Define accuracy and sensitivity of an instrument.
 - b) Define thermistor. What do you mean by NTC and PTC ? Draw their characteristics.
 - c) List indirect methods of liquid level measurement. Draw diagram of capacitance level indicator.
 - d) Give the principle of piston type flowmeter.
- B) Attempt **any one** of the following : (6×1=6)
- a) Explain McLeod pressure gauge with neat sketch.
 - b) Differentiate : Open loop and Closed loop system (6 points).
2. Attempt **any four** of the following : (4×4=16)
- a) Explain cascade control system with block diagram.
 - b) How the pressure is measured with help of LVDT ?
 - c) What is valve positioner ? State two functions.
 - d) Describe the features of distributed control system (any 4).
 - e) Draw a neat labelled diagram showing architecture of programmable logic controller.
 - f) Describe working of spring diaphragm actuator.
3. Attempt **any four** of the following : (4×4=16)
- a) Draw the diagram radiation pyrometer and label it.
 - b) Draw a neat labeled diagram for air purge method of level measurement and describe its working.
 - c) Draw a diagram of dead weight test or and write its working.
 - d) Describe construction and working of ultrasonic flowmeter.
 - e) Differentiate between P, I and D action in controller (any two).

P.T.O.



4. A) Attempt **any three** of the following : (4×3=12)
- a) Explain with diagram liquid filled thermometer.
 - b) State the principle of a bimetallic thermometer. Draw its neat diagram.
 - c) With help of neat diagram, describe the working of an electromagnetic flowmeter.
 - d) Draw the neat sketch of heat transfer flowmeter (thermal flowmeter). State its principle.
- B) Attempt **any one** of the following : (6×1=6)
- a) Explain the factors to be considered for valve selection.
 - b) Give the advantages of distributed computer control system.
5. Attempt **any four** of the following : (4×4=16)
- a) Draw diagram of rotating vanemeter and state its principle.
 - b) Describe with neat diagram float type method of liquid level measurement.
 - c) State which method is used for level measurement for measuring level of liquid where no physical contact between the liquid and instrument is allowed ? Describe with neat labeled diagram.
 - d) Explain with diagram strain gauge transducer.
 - e) Show relationship between absolute, gauge and atmospheric pressure. Convert 101.325 KPag to absolute.
6. Attempt **any two** of the following : (8×2=16)
- a) What is ON-OFF control ? What is differential gap ? State any two instances where you will prefer ON-OFF control.
 - b) Define control valve. Draw the valve characteristics and state their equations.
 - c) Explain with block diagram distributed control system.
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