

# 22612

**21222**

**3 Hours / 70 Marks**

Seat No.

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15 minutes extra for each hour

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- Instructions* – (1) All Questions are *Compulsory*.
- (2) Answer each next main Question on a new page.
- (3) Illustrate your answers with neat sketches wherever necessary.
- (4) Figures to the right indicate full marks.
- (5) Assume suitable data, if necessary.
- (6) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

**Marks**

- 1. Attempt any FIVE of the following. 10**
- a) State different standards referred by piping engineer (any four)
- b) Define thermal expansion and thermal conductivity.
- c) List any four accessory materials used for insulation of pipe.
- d) State types of heat tracing system.
- e) List various piping installation work.
- f) Define pipe rack spacing.
- g) Give different fundamentals of design codes in Pipe.
- 2. Attempt any THREE of the following. 12**
- a) State selection criteria of design code for piping.
- b) Explain functions and properties of gasket.
- c) Explain heat loss through insulation.
- d) Write about different types of gaskets and their selection.

P.T.O.

- 3. Attempt any THREE of the following. 12**
- a) Explain hydrostatic and Pneumatic methods of leak testing used in piping.
  - b) Explain cold spring method used in piping installation.
  - c) Write about Installation drawing and erection planning used in piping installation.
  - d) Explain Isometric offset in piping drawing.
- 4. Attempt any THREE of the following. 12**
- a) Explain information sources for piping arrangement.
  - b) State any two insulating materials with their properties.
  - c) Explain classification of Pipe.
  - d) State any four metallic materials used for piping with their specific applications.
  - e) Explain API and ASME standards referred by piping engineer.
- 5. Attempt any TWO of the following. 12**
- a) Explain Joint alignment used in piping installation.
  - b) Draw isometric symbol of elbow, tee, cross.
  - c) Explain following accessory materials for insulation.
    - i) Acrylic Latex mastic
    - ii) Aluminium Jacketting
    - iii) Aluminium Banding
- 6. Attempt any TWO of the following. 12**
- a) Draw diagram of pipe rack drawing organisation.
  - b) Define modulus of elasticity, yield strength, hardness, toughness.
  - c) Describe layout Procedure used in Piping drawings.
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