3 Hours **Total Marks: 80**

NB: 1. Question number **one** is compulsory.
2. Attempt any three of the remaining questions.
3. Each question carries equal marks.
4. Figures to the right indicate marks.
5. Make suitable assumptions when required.

Q1 Answer any four of the following **20**

(a) Write short notes on standard and codes.
(b) Write classification of piping materials.
(c) What type of stresses occur in piping system?
(d) Explain the responsibilities of piping engineer.
(e) What is concept of strainer and trap.
(f) Explain concept of vent and drain.

Q2 **(a)** Explain classification of MoC for piping. **10**
(b) Explain in detail Piping system. **10**

Q3 **(a)** Explain with neat diagram IRON –CARBIDE phase diagram. **10**
(b) Explain with neat diagram cold and hot bending.

Q4 **(a)** Explain with neat diagram method of pipe manufacturing. **10**
(b) Write equation to calculate pressure drop, NPSH, Power requirement. What are the different energy losses takes place in piping system. **10**

Q5 **(a)** Explain different piping supports. **10**
(b) Explain any one type of valve in detail. **10**

Q6 **(a)** Explain PID in detail. **10**
(b) Explain Radiography NDT method in detail **10**