

# 17555

**11920**

**3 Hours / 100 Marks**

Seat No.

--	--	--	--	--	--	--	--

- 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) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

**Marks**

- 1. Attempt any FIVE of the following:** **20**
- a) State any four characteristics of good comparator.
  - b) Define the following term.
    - (i) Quality of design
    - (ii) Quality of conformance.
  - c) Compare x-ray and gamma rays
  - d) State the necessity of planned inspection.
  - e) State two codes for pressure vessels as per ASTM.
  - f) Explain the all weld metal test.
  - g) Explain the principle operation of Eddy current testing.

P.T.O.

- 2. Attempt any TWO of the following:** **16**
- a) Explain construction and working of pneumatic comparator with suitable sketch. State any two its advantages and disadvantages.
  - b) Explain the principle of ultrasonic inspection method to detect internal defect of welded components. State its two applications.
  - c) List state purpose of bend test its various types. Explain longitudinal bend test.
- 3. Attempt any FOUR of the following:** **16**
- a) Differentiate between line standard and end standard (atleast four points)
  - b) Define total quality management (TQM). State objectives of TQM.
  - c) State the purpose of macro etch test. Explain its procedure in short.
  - d) Explain the concept of acoustic testing.
  - e) What are DIN and IBR codes?
  - f) State duties of Inspector.
- 4. Attempt any TWO of the following:** **16**
- a) Describe procedure of x-ray radiography with labeled diagram. State advantages of x-ray radiography.
  - b) Explain charpy test procedure and reporting of results in it.
  - c) Describe the procedure (step by step) for conduct of “Fluorescent penetrant inspection”. with neat sketch

**5. Attempt any FOUR of the following:****16**

- a) State and explain Taylor's principle of Gauge design.
- b) Explain the principle of compression test with neat sketch.
- c) Describe leak test by water soluble paper with aluminium foil for welded pressure vessels.
- d) State use of any two etching reagents for the etch test.
- e) What is ISO? State the purpose of ISO-9000.
- f) Differentiate between inspection and quality control. (Four points)

**6. Attempt any TWO of the following:****16**

- a)
    - (i) Differentiate between hole base system and shaft base system.
    - (ii) Explain the concept of interchangeability as applied to mass production system.
  - b)
    - (i) State any four ASME codes for pressure vessels.
    - (ii) State any two DIN codes for pipes and any two DIN codes for pressure vessels.
  - c) Enumerate the various methods used for non-destructive testing of metals and alloys. Explain magnetic particle inspection method with neat sketch.
-