



17555

21415

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) **Use of Non-programmable Electronic Pocket Calculator is permissible.**

MARKS

1. Attempt **any five** : **(5×4=20)**
 - a) Differentiate between line standard and end standard.
 - b) State the principle of acoustic test.
 - c) What is TQM ? State objectives of TQM.
 - d) Define process inspection with advantages and disadvantages.
 - e) What is the purpose of macro-etch test ?
 - f) State any four codes for pipes as per ASME.
 - g) State the principle of magnetic particle inspection.

2. Attempt **any two** : **(2×8=16)**
 - a) Draw neat diagram of pneumatic comparator. State working principle of it. State advantages and disadvantages of it.
 - b) Describe procedure of X-ray radiography with labeled diagram.
 - c) State the procedure of Brinell Hardness test. Draw neat diagram and write formula to find out BHN.

3. Attempt **any four** : **(4×4=16)**
 - a) State any four characteristics of good comparator.
 - b) Define following :
 - a) Quality
 - b) Quality of conformance.

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**MARKS**

- c) Differentiate between inspection and quality control.
- d) Explain the procedure of testing Nick-Break test.
- e) Explain the principle operation of Eddy current testing.
- f) What are ASME and ASTM codes ?

4. Attempt any two : (2×8=16)

- a) Explain basic principle of ultrasonic inspection. State its advantages, limitations and applications.
- b) What is purpose of bend test ? Describe procedure for conduct of longitudinal bend test with neat sketch.
- c) Describe the procedure for conduct of “fluorescent penetrant inspection” with neat sketch.

5. Attempt any four : (4×4=16)

- a) What is ISO ? State the purpose of ISO-9000.
- b) State and explain Taylor’s principle.
- c) Write the duties of inspector.
- d) Compare X-ray and gamma rays.
- e) State use of any two etching reagents for the etch test.
- f) Explain the principle of compression test with neat sketch.

6. Attempt any two : (2×8=16)

- a) i) Illustrate interference fit with suitable example.
ii) State the concept of “Hole basis system” with diagram.
 - b) i) Describe the procedure of leak test under fluid pressure.
ii) Describe leak test by water soluble paper with aluminium foil for welded pressure vessels.
 - c) i) State two codes for pressure vessels as per ASTM.
ii) What are DIN and IBR ?
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