



17555

14115

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) **Use of Non-programmable Electronic Pocket Calculator is permissible.**  
(6) **Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.**
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MARKS

1. Attempt **any five:** **(4×5=20)**
- a) Differentiate between line standard and end standard.(at least four points)
  - b) State and explain Taylor's principle of Gauge design.
  - c) Differentiate between inspection and quality control.(four points)
  - d) Define TQM. State importance of TQM.
  - e) Explain with sketch preparation of test specimen for welded joint in an all weld metal Tensile test.
  - f) Explain X-ray radiography testing with neat sketch.
  - g) What are DIN and ASTM codes ?
2. Attempt **any four :** **(4×4=16)**
- a) List various hardness test. Explain any one.
  - b) Describe Leak Test by water-soluble paper with aluminium foil for welded pressure vessels.
  - c) State the necessity for planned inspection.
  - d) Define quality control. List the objectives of quality control.
  - e) Draw the neat sketch of hole basis system. Explain why it is preferred over shaft basis system.
  - f) Explain working of sigma comparator with neat sketch.
- P.T.O.**



**MARKS**  
**(4×4=16)**

3. Attempt **any four** :

- a) State any four characteristics of good comparator.
- b) Distinguish between Unilateral system and Bilateral system of tolerance.
- c) Explain concept of quality of design and quality of conformance.
- d) State the duties of inspector.
- e) Describe steps involved in fluorescent-penetrant inspection with neat sketch.
- f) Explain leak detection by gas. State its applications.

4. Attempt **any four** :

**(4×4=16)**

- a) Explain the working of the comparator which has highest magnification.
- b) Describe the procedure of leak-test under fluid pressure.
- c) Explain the concept of acoustic testing.
- d) Explain Longitudinal bend test with neat sketch.
- e) Write the major provision in DIN standard for the inspection of pressure vessels.
- f) State the two codes each for pipes and pressure vessels as per ASME.

5. Attempt **any two** :

**(8×2=16)**

- a) i) Describe how testing of non-magnetic material is carried out. State its advantages and limitations.  
ii) Explain with neat sketch principle of operation of Eddy Current Testing.
- b) Explain the following regarding magnetic particle inspection :
  - i) Basic principle
  - ii) Flaws detected
  - iii) Scope and limitations
  - iv) Sensitivity.
- c) i) Explain the procedure of testing Nick Break Test for welded joints.  
ii) Explain the principle of compression test with neat sketch.

6. Attempt **any two** :

**(8×2=16)**

- a) i) List the types of Etch test. State the purpose of Etch Test.  
ii) Describe how preparation of test specimen is carried out in Etch test.
  - b) Explain charpy test procedure and reporting of results in it.
  - c) Compare X-ray and gamma ray radiography. State safety precautions, advantages and disadvantages of gamma rays radiography.
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