

17555

11819

3 Hours / 100 Marks

Seat No.

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

Marks

1. Attempt any FIVE :

20

- (a) Define line standards and end standards with two suitable examples each.
- (b) Explain the meaning of selective assembly with a suitable example.
- (c) Define inspection and state its importance in quality control.
- (d) Define Total Quality Management and state its advantages.
- (e) Explain the 'Guided Bend Test' with a help of a neat sketch.
- (f) State the advantages and disadvantages of gamma ray radiography.
- (g) State the major provision in DIN standard for inspection of pressure vessels.

2. Attempt any FOUR :**16**

- (a) Explain the testing procedure of Rockwell Hardness test. Draw neat diagram and state formula to find Rockwell Hardness number.
- (b) State the concept, purpose and procedure of leak test of welded pressure vessels under fluid pressure.
- (c) Differentiate between inspection and quality control.
- (d) Classify inspection based on location stating objective of each inspection.
- (e) Explain the meaning of quality of conformance state the requirements for good quality of conformance.
- (f) Explain the working of electrical comparator with neat labelled sketch.

3. Attempt any FOUR :**16**

- (a) State the advantages and disadvantages of electronic comparators.
- (b) Show the essential conditions for
 - (i) Clearance fit
 - (ii) Interference fit,by means of simple diagrams representing hole and shaft. Give practical example of each fit.
- (c) Enlist the fundamental factors affecting the quality of product.
- (d) Explain the Taylor's Principle of gauge design.
- (e) Explain the concept of penetrameters in radiography testing with a suitable example.
- (f) Explain the leak testing of welded joints by gas. State its applications.

4. Attempt any FOUR :**16**

- (a) Explain the working of pneumatic comparator with a neat sketch.
- (b) Describe the leak test by water soluble paper with aluminium for welded pressure vessels.
- (c) Compare non-destructive testing with destructive testing (four points).
- (d) Compare Charpy and Izod impact tests. (four points)
- (e) Explain IBR and ASTM codes in brief.
- (f) State the two codes each for pipes and pressure vessels as per ASME.

5. Attempt any TWO :**16**

- (a) Explain the procedure of eddy current testing with its applications.
- (b) Explain the following regarding magnetic particle inspection :
 - (i) Basic principle
 - (ii) Flaws detected
 - (iii) Scope and limitations
 - (iv) Sensitivity
- (c) Explain the purpose, preparation of test specimen and procedure of Nick Break Test.

6. Attempt any TWO :**16**

- (a) (i) List types of Etch Test. State concept and purpose of Etch test.
- (ii) Explain the test procedure of Fluorescent Penetrant Inspection.

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- (b) Explain the following regarding compression test :
 - (i) Principle
 - (ii) Test specimen specifications
 - (iii) Information obtained
 - (iv) Practical difficulties involved
 - (c) Explain the basic principle of ultrasonic inspection with a neat sketch. State its advantages, limitations and applications.
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