

17555

16117

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.
 - (7) Use of steam tables, logarithmic, Mollier's chart is permitted.

Marks

1. Attempt any FIVE of the following :

20

- (a) Compare line standard and end standard.
- (b) What is meant by quality of conformance ? State the requirements for good quality of conformance.
- (c) State the necessity for planned inspection.
- (d) Explain X-ray radiography testing with neat sketch.
- (e) Explain, preparation of test specimen for welded joint in an all weld metal tensile test.

- (f) Define interchangeability. State its advantages.
- (g) What are DIN and ASTM codes ?
- (h) List various types of bend test.

2. Attempt any TWO of the following : 16

- (a) Explain the working of sigma comparator with neat labelled sketch.
- (b) Describe steps involved in fluorescent penetrant inspection with neat sketch.
- (c) What is Etch test ? How test specimen is prepared by Etch test ? Explain.

3. Attempt any FOUR of the following : 16

- (a) Draw the neat sketch of hole basis system. Explain why it is preferred over shaft basis system.
- (b) Define TQM. State importance of TQM.
- (c) State the duties of inspector.
- (d) Explain the concept of acoustic testing.
- (e) What is the purpose of macro-etch test ?
- (f) State any four codes for pipes as per ASME.

4. Attempt any TWO of the following : 16

- (a) Enumerate the various methods used for non-destructive testing of metals and alloys. Explain magnetic particle inspection method.
- (b) State need of hardness testing and explain Brinell hardness test with sketch.
- (c) Explain the principle of operation of Eddy current testing.

5. Attempt any FOUR of the following : 16

- (a) State the procedure of leak test under fluid pressure.
- (b) Explain the all weld metal test.
- (c) Define quality control. List the objectives of quality control.
- (d) State the limitations of 100% inspection.
- (e) Explain Charpy test with neat sketch.
- (f) Compare X-ray & gamma ray radiography.

6. Attempt any TWO of the following : 16

- (a) Draw hole and shaft assembly and show,
 - (i) Limits
 - (ii) Tolerance
 - (iii) Allowance
 - (iv) Deviation
 - (b) Explain ultrasonic testing, with its advantages and disadvantages.
 - (c)
 - (i) State the two codes for pressure vessels as per ASME.
 - (ii) What is meaning of ASTM A 516 M-0.6 and DIN 2609 : 1991 ?
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