

17555

21819

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.

Marks

- 1. Attempt any FIVE of the following: **20****
- a) State any four characteristics of good comparator.
- b) Explain cost of quality and value of quality.
- c) List the principles of TQM and discuss any one of them.
- d) Write duties of inspector.
- e) Compare inspection and quality control.
- f) Explain basic principle of ultrasonic inspection. State its advantages.
- g) State DIN and IBR codes?

P.T.O.

- 2. Attempt any TWO of the following:** **16**
- a) State Taylor's principle of gauge design and draw neat sketch of plug gauge showing GO end NO GO end.
 - b) Explain the following regarding magnetic particle inspection:
 - (i) Basic Principle
 - (ii) Flaws detected
 - (iii) Scope and limitations
 - (iv) Sensitivity.
 - c) Explain IZOD test procedure and reporting results in it.
- 3. Attempt any FOUR of the following:** **16**
- a) What is end standard? What are its advantages? Give example of end standard.
 - b) What is quality of conformance? What are the factors controlling quality of conformance?
 - c) List stages of inspection. Explain first piece inspection with its advantages and disadvantages.
 - d) Compare x-rays and gamma rays.
 - e) Explain with neat sketch preparation of test specimen for welded joint in an all weld metal tensile test.
 - f) State any four codes for pipes as per ASME.
- 4. Attempt any TWO of the following:** **16**
- a) Which comparator is most useful for measuring the roundness and taperness of cylinder bore? Explain its working.
 - b) Describe the procedure of X-ray radiography with labeled diagram.
 - c) (i) Describe the procedure of leak test under fluid pressure.
(ii) Explain leak detection by gas. State its applications.

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

- a) What is interchangeability? State its advantages.
- b) State the principles of Acoustic test.
- c) Describe how testing of non- magnetic material is carried out.
- d) Explain procedure of testing Nick Break Test.
- e) Explain principle of compression test with neat sketch.
- f) Write major provision in DIN standard for inspection of pressure vessel.

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

- a) (i) State the procedure of Brineu Hardness test.
(ii) Describe procedure for conduct of guided bend test with neat sketch.
 - b) Describe the procedure for “fluorescent penetrant inspection” with neat sketch.
 - c) (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.
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