



17542

15116

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) *Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.*

Marks

1. A) Attempt **any three** : **12**
i) State advantages of modern industry over traditional industry.
ii) Describe the principle of magnetic particle testing.
iii) Write any four criteria to select the component for CNC machine.
iv) Define NDT and state the NDT methods.
- B) Attempt **any one** : **6**
i) Describe the different media used to input the information for NC machine.
ii) With the help of block diagram, explain surface hardening of steel by using induction heating.
2. Attempt **any four** : **16**
i) Give any four advantages and disadvantages of induction heating.
ii) Define NC, CNC, DNC, CIM.
iii) With the help of schematic diagram, explain helical profile cutting by using EDM.
iv) List eight applications of magnetic crack detection.
v) Describe through transmission method of ultrasonic flaw detector.
vi) Describe measures of accident prevention (any 8 points).
3. Attempt **any four** : **16**
i) Describe transistorized magnetostriction oscillator circuit to generate ultrasonic waves.
ii) List any eight causes of industrial accidents.
iii) Describe any two recording techniques used in MPT.
iv) State the properties of dielectric fluid used in EDM.
v) State the principle of IR heating and microwave heating.
vi) Describe electronic acoustic method used in ultrasonic testing.

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**Marks**

- 4. A) Attempt any three :** **12**
- i) Describe circular method of magnetization with neat labeled diagram.
 - ii) State and explain types of computer aided part programming.
 - iii) Describe the importance of industrial safety.
 - iv) List and sketch different types of probes used in ultrasonic flaw detector.
- B) Attempt any one :** **6**
- i) Draw the neat diagram of basic setup of EDM. Describe its operation.
 - ii) Compare dielectric heating and induction heating (any six points).
- 5. Attempt any four :** **16**
- i) Explain incremental and absolute coordinate system used in CNC programming.
 - ii) Explain the necessity of demagnetization in MPT.
 - iii) List any eight applications of dielectric heating.
 - iv) How ultrasonic waves can be used for cleaning ? Explain with block diagram.
 - v) For which type of job localized magnetization is used. Also list the methods.
 - vi) Name four non-traditional machining. State its importance in industry.
- 6. Attempt any four :** **16**
- i) Draw neat block diagram of ultrasonic flaw detector with pulse echo method. Describe its operation.
 - ii) With neat diagram explain ultrasonic cold welding.
 - iii) State the advantages and disadvantages of EDM.
 - iv) Explain the principle of induction heating with neat diagram.
 - v) Describe with neat diagram magnaflux method used in MPT.
 - vi) Explain wet and dry method of magnetic particle inspection.
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