



17531

21415

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**.

MARKS

1. A) Attempt **any three** : **12**
- a) State the method of water purification and impurities removed.
 - b) State the importance of mechanical maintenance and give its types.
 - c) Write down four objectives of TPM.
 - d) Define wear. State the types of wear.
- B) Attempt **any one** : **6**
- a) Describe electric power distribution system with the help of neat sketch.
 - b) Classify water distribution system and explain any one with neat sketch.
2. Attempt **any four** : **16**
- a) Define Maintenance. State the objectives of machine tool maintenance.
 - b) What is repair cycle ? Explain it with suitable example.
 - c) State the necessity of maintenance manual. Write the contents of manual.
 - d) List down the benefits of TPM.
 - e) Write disadvantages of Breakdown maintenance.
3. Attempt **any four** : **16**
- a) Describe wear behavior observed due to primary wear processes.
 - b) Explain pillars of TPM in brief.
 - c) Describe in brief following wear processes :
 - i) Pitting
 - ii) Corrosive wear.
 - d) Define lubricating system. List main systems for oil lubrication.
 - e) Explain the concept of TPM in brief.

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4. A) Attempt **any three** : 12
- a) What is Earthing ? Explain any one method of earthing.
 - b) State the functions of :
 - i) Overload relays
 - ii) Circuit breakers.
 - c) State the precautions to be taken in case of electrical fire.
 - d) Define accident and list out different types of accident.
 - e) Draw history chart/sheet for a machine tool/equipment.
- B) Attempt **any one** : 6
- a) Write down the precautions you will take to avoid electric shock while working in a workshop.
 - b) Describe abrasive wear process in detail.
5. Attempt **any four** : 16
- a) List down four benefits of house keeping.
 - b) Describe with neat sketch fool proofing device for interlocking shafts at right angle.
 - c) With the help of neat sketch describe lever controlled reversal mechanism.
 - d) Write down the points to be considered while selecting lubricant as oils.
 - e) Name the equipments needed for electrical maintenance. Explain any one.
6. Attempt **any two** : 16
- a) Describe planning and scheduling of maintenance work in detail.
 - b) Write four personal protective devices used while working in workshops. How safety awareness in industry is promoted ?
 - c) Draw a neat labelled sketch showing process sequence of water treatment plant. What points should be considered while giving layout of water treatment plant ?
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