

22451

12425

3 Hours / 70 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. Attempt any FIVE of the following :

5 × 2 = 10

- (a) Enlist any four tools required for electrical maintenance.
- (b) Define abrasive wear.
- (c) Enlist any four effects of accident on employee (worker) of the industry.
- (d) List elements of industrial fire fighting system.
- (e) Define 'HAZOP'.
- (f) Give a list of plant utilities.
- (g) Give a list of any four safety provisions in Factories Act.

2. Attempt any THREE of the following :

3 × 4 = 12

- (a) Describe benefits of TPM in industries.
- (b) Draw sketch and describe splash lubrication system.
- (c) Give measures to avoid industrial accidents.
- (d) Describe any two 'Special fire suppression systems, briefly'.



3. Attempt any THREE of the following :**3 × 4 = 12**

- (a) Describe important features of TPM.
- (b) Write preventive maintenance procedure for lathe machine.
- (c) Justify importance of lubricants in reducing wear.
- (d) Recognize methods to control radioactive hazards.

4. Attempt any THREE of the following :**3 × 4 = 12**

- (a) In which conditions, use of solid lubricants can be justified ?
- (b) Give practical application for following lubrication systems :
 - (i) Bottle
 - (ii) Bath
 - (iii) Wick
 - (iv) Centralised
- (c) Suggest first aid treatment for a worker who gets severe electrical shock while doing electrical maintenance.
- (d) Prepare preventive maintenance plan for storage and handling of Nitric Acid.
- (e) Select hazard identification method for nuclear power plant with justification.

5. Attempt any TWO of the following :**2 × 6 = 12**

- (a) Describe important characteristics and chemical reaction of following hazardous chemicals :
 - (i) Ammonia
 - (ii) Caustic soda
 - (iii) Phosphoric acid

- (b) Prepare safety data sheet for –
 - (i) Chemical hazard
 - (ii) Mechanical hazard
- (c) (i) Describe following risk assessment method – FMEA.
 - (ii) Describe following hazard identification method – HAZAN.

6. Attempt any TWO of the following :

2 × 6 = 12

- (a) Prepare preventive maintenance schedule for any one plant utility.
 - (b) Statement : “There is no need of breakdown maintenance in industries.” – Do you agree or disagree with this statement ? In either case, give your answer and justify it.
 - (c) Assess the risk associated with use of heavy duty forging machine in forging industry.
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