22232

3 Hours / 70 Marks Seat No. | | | | | | | | |

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) Preferably, write the answers in sequential order.

Marks

1. Attempt any FIVE of the following : **10**

(a) Define preventive maintenance.

(b) Enlist any four objectives of maintenance.

(c) Define FMEA.

(d) Enlist any four properties of Lubricants.

(e) State any four causes of accident.

(f) State the significance of Safety Data Sheet (SDS).

(g) Enlist the causes of Fire Hazards.

2. Attempt any THREE of the following : **12**

(a) Explain the various classes of fires.

(b) Summarize equipments needed for electrical maintenance.

(c) Compare between Hazard Operability Study (HAZOP) and Hazard Analysis (HAZAN) (any four points).

(d) Enlist the type of equipments required for electrical maintenance. Explain any one.

3. Attempt any THREE of the following : **12**

(a) Describe maintenance of plant utilities.

(b) Define TPM and state any two benefits of it.

(c) Compare between sump and centralized lubrication system.

(d) Explain in brief chemical hazard.

4. Attempt any THREE of the following : **12**

(a) Compare between breakdown and preventive maintenance (any six points).

(b) Suggest personal protective equipments in following industrial hazards :

(i) Mechanical

(ii) Chemical

(iii) Ergonomic

(iv) Thermal

(c) Explain in brief prohibited and restricted hazardous chemicals.

(d) Enlist Risk Assessment Methods. Explain FTA.

(e) Describe FMEA method.

5. Attempt any TWO of the following : **12**

(a) Prepare preventive maintenance plan for a lathe machine.

(b) Select tools for mechanical maintenance of shop floor of a small scale manufacturing industry.

(c) Give practical application of following lubrication system :

(i) Wick

(ii) Pad

(iii) Sump

(iv) Centralized

6. Attempt any TWO of the following : **12**

(a) Describe following special fire suppression systems :

(i) CO_2 system

(ii) Foam system

(b) Explain construction and working of fire extinguisher.

(c) Describe the procedure of keeping history of maintenance with example.