Reg. No.															

Question Paper Code	13408

B.E. / B.Tech. - DEGREE EXAMINATIONS, APRIL / MAY 2025

Eighth Semester

Mechanical Engineering

20MEEL805 - INDUSTRIAL SAFETY AND MAINTENANCE ENGINEERING

Regulations - 2020

Duration: 3 Hours | Max. Marks: 100

PART - A (MCQ) (10 × 1 = 10 Marks)

Answer ALL Questions

		Marks	K – Level	CO
1.	In welding operations, which safety hazard is most commonly encountered? (a) Dust exposure (b) Chemical inhalation (c) Electric shock and burns (d) Noise pollution	1	K1	CO1
2.	What is the role of a safety committee in an organization? (a) To manage payroll (b) To monitor and improve safety practices (c) To oversee product design (d) To handle customer complaints	1	K1	CO1
3.	HAZOP stands for (a) Hazard Operation (b) Hazard and Operability Study (c) High Alert Zone of Protection (d) Handling Apparatus and Operations Plan	1	K1	CO2
4.	What is the first step in managing an industrial emergency? (a) Calling the media (b) Risk assessment and emergency planning (c) Announcing company profits (d) Increasing production	1	K1	CO2
5.	What device is used to protect against electrical overloads? (a) A conductor (b) A fuse or circuit breaker (c) An insulator (d) A transformer	1	K1	CO3
6.	The term “pressure vessel” refers to a container that holds fluids at (a) Zero pressure (b) Atmospheric pressure (c) Pressure higher or lower than atmospheric (d) Temperature only	1	K1	CO3
7.	MTBF stands for (a) Mean Time Before Failure (b) Maximum Time Between Failures (c) Mean Time Between Failures (d) Machine Time Before Failure	1	K1	CO4
8.	Which maintenance type is carried out before equipment failure occurs? (a) Reactive maintenance (b) Corrective maintenance (c) Preventive maintenance (d) Breakdown maintenance	1	K1	CO4
9.	On-load testing is performed when the equipment is (a) Turned off (b) Running under operational conditions (c) In storage (d) Disconnected from power	1	K1	CO5
10.	Sequential fault location involves (a) Trial and error method (b) Guesswork (c) Step-by-step logical checking (d) Skipping critical components	1	K1	CO6

PART - B (12 × 2 = 24 Marks)

Answer ALL Questions

		Marks	K – Level	CO
11.	List two benefits of employee participation in safety programs.	2	K1	CO1
12.	Mention any two safety precautions in welding operations.	2	K1	CO1
13.	List any two types of personal protective equipment (PPE).	2	K1	CO2
14.	Write any two environmental pollution control measures used in industries.	2	K1	CO2
15.	Summarize a short notes on road safety.	2	K2	CO3
16.	Explain how emergency situation in industry managed.	2	K2	CO3
17.	What is the purpose of a repair cycle in maintenance?	2	K1	CO4

18.	What is MTTR and how it is used?	*2*	*K1*	*CO4*
19.	Define Condition Monitoring.	*2*	*K1*	*CO5*
20.	Mention any two advantages of using condition monitoring in maintenance.	*2*	*K1*	*CO5*
21.	Define Industrial Hygiene.	*2*	*K1*	*CO6*
22.	Mention two uses of computers in industrial maintenance systems.	*2*	*K1*	*CO6*

PART - C (6 × 11 = 66 Marks)

Answer ALL Questions

23.	a)	How would you apply the functions of safety management in a manufacturing plant to minimize the risk of workplace accidents?	*11*	*K2*	*CO1*
		OR			
	b)	Extend the safety measures that need to be carried out during the painting operation.	*11*	*K2*	*CO1*
24.	a)	Explain the principles of layout design and material handling in relation to safety.	*11*	*K2*	*CO2*
		OR			
	b)	Describe the process of HAZOP methodology.	*11*	*K2*	*CO2*
25.	a)	Summarize how safety to be followed during material handling also explain the methods of materials handling.	*11*	*K2*	*CO3*
		OR			
	b)	Discuss the ways to control or reduce industrial pollution.	*11*	*K2*	*CO3*
26.	a)	Summarize the preventive maintenance and its types.	*11*	*K2*	*CO4*
		OR			
	b)	What is the principle of lubrication? Also explain any two types of lubrication with suitable diagram.	*11*	*K2*	*CO4*
27.	a)	Compare maintenance costs with and without condition monitoring, highlighting long-term benefits.	*11*	*K2*	*CO5*
		OR			
	b)	Explain in detail about the repair methods of material handling equipments.	*11*	*K2*	*CO5*
28.	a)	Discuss the objectives, scope and key safety regulations under the Indian Boiler Regulations.	*11*	*K2*	*CO6*
		OR			
	b)	Explain in detail about the safety and health standards.	*11*	*K2*	*CO6*