Reg. No.															

Question Paper Code	14073

M.E. / M.Tech. - DEGREE EXAMINATIONS, NOV / DEC 2025

Third Semester

M.E. - Industrial Safety Engineering

24PISPC301 - SAFETY IN ENGINEERING INDUSTRY 4.0

Regulations - 2024

Duration: 3 Hours | Max. Marks: 100

PART - A (MCQ) (10 × 1 = 10 Marks)

Answer ALL Questions

		Marks	K – Level	CO
1.	A common hazard in grinding machines is (a) Incorrect weld bead (b) Wheel burst (c) Low cutting fluid pressure (d) Tool chatter	1	K1	CO1
2.	Material handling safety in woodworking areas requires (a) Carrying heavy timber alone (b) Keeping walkways clear (c) Stacking materials randomly (d) Working without gloves	1	K1	CO1
3.	The guard type simplest in construction is (a) Electronic eye (b) Fixed guard (c) Interlock guard (d) Trip guard	1	K1	CO2
4.	Which guard activates when a worker makes contact with it? (a) Trip Guard (b) Fixed Guard (c) Fencing (d) Mechanical Stop	1	K1	CO2
5.	The main risk arising out of handling gas cylinders improperly is (a) Overheating of workpiece (b) Explosion (c) Air pollution (d) High noise	1	K1	CO3
6.	The device used to prevent reverse gas flow in gas cutting equipment is (a) Fuse (b) Regulator (c) Check valve (d) Nozzle	1	K1	CO3
7.	What hazard is common in foundry molten metal pouring? (a) Fog formation (b) Splashing of molten metal (c) Weak Sound (d) Low temperature	1	K1	CO4
8.	The main fuel used in a Cupola furnace is (a) Diesel (b) Coke (c) Methane (d) Kerosene	1	K1	CO4
9.	Regulation that governs boiler safety in India is the (a) ASME (b) API (c) IBR (d) OSHA	1	K1	CO5
10.	Improper waste disposal mainly leads to (a) Enhanced production (b) Environmental pollution (c) Reduced safety (d) Increased Salary	1	K1	CO6

PART - B (12 × 2 = 24 Marks)

Answer ALL Questions

		Marks	K – Level	CO
11.	Name any two major components of a turning machine that must be inspected regularly.	2	K1	CO1
12.	Discuss the need for dust extraction systems in woodworking shops.	2	K2	CO1
13.	Illustrate the working of an electronic eye safety device.	2	K2	CO2
14.	Compare automatic guards and trip guards.	2	K2	CO2
15.	List two hazards associated with gas cutting.	2	K1	CO3
16.	Summarize why training is essential in welding operations.	2	K2	CO3
17.	Mention any two hazards that workers face in foundries.	2	K1	CO4
18.	State the functions of a press brake.	2	K1	CO4
19.	Summarize the need for ventilation in paint shops.	2	K2	CO5
20.	Classify the various heat treatment processes.	2	K2	CO5
21.	What is meant by industrial waste disposal?	2	K1	CO6
22.	Summarize the role of housekeeping in pollution control.	2	K2	CO6

PART - C (6 × 11 = 66 Marks)

Answer ALL Questions

23.	a)	Identify causes of wheel burst and plan preventive actions to eliminate such incidents.	*11*	*K3*	*CO1*
		OR			
	b)	Employing wood cutting machine safety principles, prepare a hazard control procedure for high-speed saws.	*11*	*K3*	*CO1*
24.	a)	Illustrate the concept of guarding during maintenance with a real-world scenario.	*11*	*K2*	*CO2*
		OR			
	b)	Explain the policy requirements for achieving Zero Mechanical State (ZMS).	*11*	*K2*	*CO2*
25.	a)	Apply the various essential safety rules to develop a welding workshop safety checklist.	*11*	*K3*	*CO3*
		OR			
	b)	Choose appropriate PPE for different welding processes and justify the selection.	*11*	*K3*	*CO3*
26.	a)	Discuss point-of-operation safeguarding methods applicable for a power press used in mass production.	*11*	*K2*	*CO4*
		OR			
	b)	Illustrate a standard operating procedure (SOP) for hot bending of pipes, including hazard identification and control measures.	*11*	*K2*	*CO4*
27.	a)	Explain radiation hazards and the safety principles employed in industrial radiography.	*11*	*K2*	*CO5*
		OR			
	b)	Discuss in detail the importance and application of Indian Boiler Regulations in industry.	*11*	*K2*	*CO5*
28.	a)	Explain various welfare measures mandated in engineering industries.	*11*	*K2*	*CO6*
		OR			
	b)	Illustrate the eco-friendly disposal methods of hazardous waste in an engineering industry.	*11*	*K2*	*CO6*