


Name: Enrolment No:			
<b>UNIVERSITY OF PETROLEUM AND ENERGY STUDIES</b> <b>END SEMESTER EXAM, DEC-2022</b>			
Course: Advanced Concrete structures Program: M. Tech (Structures) Time: 03 hrs.		Semester: I PAPER- II Max. Marks: 100	
S. No.		Marks	CO
Q.1	Draw the schematic diagram of Gantry Girder with proper detailing.	4M	CO1
Q.2	How protection against noise can be done in Industrial buildings	4M	CO2
Q.3	Explain the difference between self-supporting steel & Guyed steel stack.	4M	CO1
Q.4	What are the causes of fire in Industrial building.	4M	CO3
Q.5	Discuss the type of foundation adopted for towers.	4M	CO3
<b>SECTION B</b>			
Q.6	Design the loads for steel roof truss for factory with following requirements Spacing, span & Height of truss: 4m, 15m & 3m No. of purlins including ridge & Eaves: 12 Length of shed & life of structures: 30m & 25Yrs Terrain: Category I, Class- B, Slope $< 3^{\circ}$ , Opening of Building: 20% of wall area.	10M	CO2
Q.7	A self-supporting steel chimney is 80 m high and its diameter at the top is 3 meters. Design breech (flue) opening. Adopt the wind force as per IS:875. The location of the place is such that the intensity of wind pressure up to 30 m height is $1.50 \text{ KN/m}^2$	10M	CO3
Q.8	Determine the wind coefficients for the Industrial shed to suit following data: Length of shed: 10m, Height of Shed = 10m, spacing = 4.5m, G.I Sheets = $0.18 \text{ kN/m}^2$	10M	CO2
Q.9	Explain about classification of lightening. What are the points to be considered for providing natural lightening & ventilation.	10M	CO3
	<b>OR</b> Explain why for calculating wind load in the design of industrial sheds, the sign of internal pressure coefficient is taken same as the sign of external pressure coefficient		
<b>SECTION-C</b>			
Q.10	A <b>hand</b> operated 50kN overhead crane is provided in a workshop. The details are given below: Centre to center between gantry girders = 16 m, Span of the gantry girder = 6 m, Weight of the crane = 40kN, Wheel spacing = 3 m, Weight of the crab = 10kN, Maximum edge distance = 1 m	20M	CO1
Q.11	A transmission line has a span of 150m between level supports. The conductor has c/s area of $2 \text{ cm}^2$ . The tension in conductor is 2000kg. Determine the vertical sag if the specific gravity of the conductor material is $9.9 \text{ gm/cm}^3$ & wind pressure is $1.5 \text{ kg/m}$ length	20M	CO2 & CO3
	<b>OR</b> An overhead line has a span of 150m between level supports. The conductor has cross-sectional area of $2 \text{ cm}^2$ . The Ultimate strength is $5000 \text{ kg/cm}^2$ & safety factor is 5. The specific gravity of material is $8.9 \text{ gm/cc}$ . The wind pressure is $1.5 \text{ kg/m}$ . Calculate the height of conductor above Ground level at which it should be supported if minimum clearance is 7m to be left between ground & conductor.		