

<b>Name:</b>	
<b>Enrolment No:</b>	

**UNIVERSITY OF PETROLEUM AND ENERGY STUDIES**  
**Online End Semester Examination, January 2021**

<b>Course:</b> Industrial Structures	<b>Semester:</b> I
<b>Program:</b> M.Tech Civil Engg	<b>Time:</b> 03 hrs.
<b>Course Code:</b> CIVL 7004	<b>Max. Marks:</b> 100

**Instructions: All questions are compulsory. Use of notes, codes and other reference material is permitted.**

**SECTION A (30 Marks)**

S. No.		Marks	CO
Q 1	<p>An industrial complex is to be constructed near a four- lane highway for textile industry.</p> <p>Plan the industrial complex showing location of all these units and entry /exit to site from the highway. You are free to add more units as per need. Read all questions in section A for complete understanding of question.</p> <p>The industrial complex plan with all the part of Section A can be uploaded in Question 7 in Section- B.</p> <p>The complex is required to have the following units:</p> <ul style="list-style-type: none"> <li>• Industrial shed for process operations for enough space to work for 200 workers and 2 managers at a time</li> </ul>	<b>5</b>	<b>CO1</b>
Q 2	<p>In continuation of Q1. Another unit in industrial complex is</p> <ul style="list-style-type: none"> <li>• Storage structures for raw materials</li> </ul>	<b>5</b>	<b>CO1</b>
Q 3	<p>In continuation of Q1. Another unit in industrial complex is</p> <ul style="list-style-type: none"> <li>• Steel Chimney for exhaust of flue gases</li> </ul>	<b>5</b>	<b>CO1</b>
Q 4	<p>In continuation of Q1. Another unit in industrial complex is</p> <ul style="list-style-type: none"> <li>• Flood light tower(s) for illumination during night shift</li> </ul>	<b>5</b>	<b>CO1</b>
Q 5	<p>In continuation of Q1. Another unit in industrial complex is</p> <ul style="list-style-type: none"> <li>• Godown(s) for finished products</li> </ul>	<b>5</b>	<b>CO1</b>
Q 6	<p>In continuation of Q1. Another unit in industrial complex is</p> <ul style="list-style-type: none"> <li>• Administrative office</li> </ul>	<b>5</b>	<b>CO1</b>

**SECTION B (50 Marks)**

Q 7	Upload the industrial complex plan prepared in Questions at Section –A.	<b>10</b>	<b>CO3</b>
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	<p>From the uploaded plan for the industrial complex to be constructed near Chandigarh city, design the steel chimney for exhaust of flue gases.</p> <p>Following data may be assumed</p> <ol style="list-style-type: none"> <li>Height of chimney= 40m</li> <li>Site conditions = Flat ground, terrain category 3</li> </ol> <p>Any other data considered necessary may be suitably assumed and clearly stated.</p> <p>Design as follows:</p> <p style="padding-left: 40px;">Fixing dimensions of chimney.</p>		
Q 8	In continuation of Q7 of section B. Do the following: Calculation of wind load.	10	CO3
Q 9	In continuation of Q7 of section B. Do the following: Calculation of Dead load.	10	CO3
Q 10	In continuation of Q7 of section B. Do the following: Design of straight panels of chimney.	10	CO3
Q 11	In continuation of Q7 of section B. Do the following: Design of flared portion of chimney.	10	CO3
<b>SECTION-C (20 Marks)</b>			
Q 12	<p>Assuming that the industrial complex is to be constructed near Chandigarh city, from the uploaded plan, design a free standing steel tower for flood lights.</p> <p>Following data may be assumed:</p> <ul style="list-style-type: none"> <li>• Diameter of flood lights =2.5m</li> <li>• Height of tower= 30m</li> <li>• Site conditions = Flat ground, terrain category 3</li> </ul> <p>Any other data considered necessary may be suitably assumed and clearly stated.</p> <p style="text-align: center;"><b>OR</b></p> <p>Design the roof of industrial shed as proposed in the uploaded plan of industrial complex near Chandigarh city. Assume an appropriate type of truss and sheeting for the roof. Site conditions may be taken as Flat ground, terrain category 3.</p> <p>Any other data considered necessary may be suitably assumed and clearly stated.</p>	20	CO2