

Roll No: -----

**UNIVERSITY OF PETROLEUM & ENERGY STUDIES
DEHRADUN**

End Semester Examination – December, 2017



Program/course: B.Tech/ FSE
Subject: Safety in construction
Code :FSEG 311
No. of page/s:

Semester – 5th
Max. Marks : 100
Duration : 3 Hrs

Section A - Answer all Questions

(4 x 5= 20 Marks)

1. A) Draw a diagram of Pneumatic caisson and mention various parts.
B) Mention the minimum distance to be maintained for insulated and uninsulated power line from edge of scaffolding (2*2.5= 5 Marks)
2. Explain the three specific Health effects caused due to underwater works
3. Explain the Safety Committee in Construction site.
4. What is catch platform in Construction site. Mention the minimum dimensions of Catch platform. Mention the various forces acting on a trench. (1+2.5+1.5 marks)

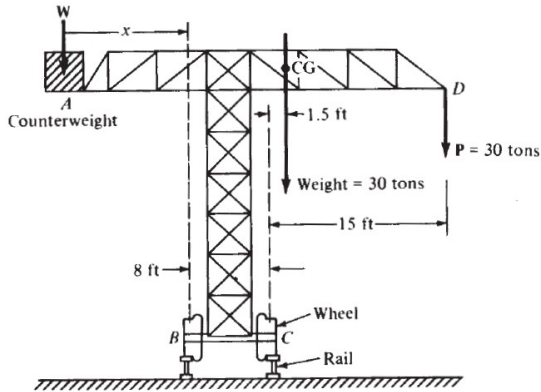
Section B - Answer all Questions

(4 x 10= 40 Marks)

5. A) What is chute? Mention the minimum requirements and usage as per BOCW Act
B) Calculate the test loads that have to be sustained for the following lifting appliances and gears. Below mentioned are the Safe working load.

Chain	30 Tonnes
Builder Hoist	500 Tonnes
Wire rope	15 Tonnes
Crane	500 tonnes
Hook	150 tonnes

- C) Assume group of workers including male and female ranging from 18 to 60 years are involved in Manual Material handling of Cement bags, Steel bars, Bricks, Paint buckets and other materials. Mention the various personal and Job risk factors involved. (3+3+4 marks)
6. A) A shipyard crane moves on rails that are 8' apart and designed to lift 30 tons. The weight of crane is 30 tons, counterweight W is located at the left end of the crane. The center gravity of the crane is at 1.5' to the right of wheel C. Find the magnitude and location of counterweight W.



7. A) Explain about the rescue team in tunneling
 B) Mention the OSHA color code for marking various line underground before doing Excavation
 C) Mention various part of Trench with Diagram. Mention the various factors influencing Cave in
 D) Explain the Various vibration ,its effects and risk level caused due to usage of tools and equipment in Construction industry (2+3+3+2 marks)
8. A) What is piling in Construction? Mention various steps involved in piling. Mention the hazards associated with piling is done. (7 marks)
 B) Mention the steps involved in Construction of Cofferdams (3 marks)

Section C - Answer Both Questions

(2 X 20= 20)

9. A) Differentiate Fiber rope and wire rope. Draw a sketch of rope sling and mention its components. Explain the desired characteristics of wire rope .Explain chain sling and visual inspection of chains sling. (10 marks)
 b) What safety factors are considered while storing, handling and use of Gas cylinders while Gas cutting. (10 marks)
10. Explain about various classification of equipment and vehicles used in Construction industry?



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Section A - Answer all Questions

(4 x 5= 20 Marks)

1. Define the following as per NBC / BOCW Act (6*2= 12 marks)
 - a) Fire Resistance rating
 - b) Construction
 - c) Floor Area Ratio
 - d) Fire Separating wall
 - e) Travel Distance
2. A) Draw a diagram of Pneumatic caisson and mention various parts.
B) Mention the minimum distance to be maintained for insulated and uninsulated power line from edge of scaffolding (2*2.5= 5 Marks)
3. Explain the three specific Health effects caused due to underwater works
4. What is catch platform in Construction site. Mention the minimum dimensions of Catch platform. Mention the various forces acting on a trench (1+2.5+1.5 marks)

Section B - Answer all Questions

(4 x 10= 40 Marks)

5. What is BOCW Act . Explain about the followings mentioned in BOCW act
 - a) Provision of first aid, Canteen, Crèche, Drinking water
 - b) Maximum load lift
 - c) Noise level
 - d) Emergency Action Plan
 - e) Temporary Electrical connection
 - f) Construction and testing of Lifting Appliances
 - g) General Safety regarding Bulldozers
6. A) What is chute? Mention the minimum requirements and usage as per BOCW Act
B) Calculate the test loads that have to be sustained for the following lifting appliances and gears. Below mentioned are the Safe working load.

Chain	30 Tonnes
Builder Hoist	500 Tonnes
Wire rope	15 Tonnes
Crane	500 tonnes
Hook	150 tonnes

- C) Assume group of workers including male and female ranging from 18 to 60 years are involved in Manual Material handling of Cement bags, Steel bars, Bricks, Paint buckets and other materials. Mention the various personal and Job risk factors involved. (3+3+4 marks)
7. A) Explain about the rescue team in tunneling
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C) Mention various part of Trench with Diagram. Mention the various factors influencing Cave in
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Section C - Answer both questions

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10. A) Differentiate Fiber rope and wire rope. Draw a sketch of rope sling and mention its components. Explain the desired characteristics of wire rope .Explain chain sling and visual inspection of chains sling. (10 marks)
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