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## UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

End Semester Examination, December 2017

Program: B Tech - FSE

Subject (Course): Safety in Engineering Industry

Course Code : FSEG 412

No. of page/s: 2

Semester – VII

Max. Marks : 100

Duration : 3 Hrs.

### Section A

Answer all the questions:

5 \* 4 = 20 Marks

1. Differentiate Fusion and Non-fusion welding processes.
2. Explain different types of flames used in oxy-acetylene gas welding and their application
3. List out four hazards of power presses, and how it can be controlled
4. Discuss the application of NIOSH lifting equation in lifting risk assessment
5. Identify legal requirements related to lifting equipment

### Section B

Answer all the questions:

4 \* 10 = 40 Marks

6. List out the different equipment and materials used in oxy-acetylene gas welding and their safety requirements.
7. Outline the classification of powered industrial trucks as per OSHA. What are the general operating instruction for safe forklift operations?
8. Outline and brief different methods of machine safeguarding
9. List and explain the occurrence and effects of various health hazards in foundry operations.

### Section C

Answer both the questions:

2 \* 20 = 40 Marks

10. What are the various safety and health hazards of cutting and welding operation and describe how each of these hazard can be controlled? (10)
  - b. What are the effects of welding fume exposure? Explain the adverse effects of exposure to any three welding fumes. And how this risk can be managed using hierarchy of control (3+3+4)
- Or
- c. What are the hazards of manual material handling? What are the different factors you will consider while assessing the risk of manual material handling? Explain the 'SMART' technique of manual material handling (3+3+4)

11. You have recently been employed in a manufacturing company. You are observing repeated violations of gas cylinder safety requirements. Prepare a report that needs to be submitted to plant head outlining legal requirements that need to be taken into account and where the company is currently failing. In the report also design a program that you will implement which will cover the steps required to address the current issues relating handling and storage of gas cylinders within the organization. (10+10)

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### Section A

**Answer all the questions:**

**5 \* 4 = 20 Marks**

1. List and explain various occupational diseases observed in foundry industry.
2. Explain different types of flames used in oxy-acetylene gas welding and their application
3. Enlist different types of conveyors used in engineering industries
4. Identify legal requirements related to lifting equipment
5. What is flashback in welding and how it can be controlled?

### Section B

**Answer all the questions:**

**4 \* 10 = 40 Marks**

6. Discuss the classification of welding processes
7. What are the requirements of good safeguard? Outline and brief different methods for machine safeguarding
8. Discuss the hazards and their causes observed while operating forklifts.
9. What are the hazards of manual material handling? Explain the 'SMART' technique of manual material handling

### Section C

**Answer both the questions:**

**2 \* 20 = 40 Marks**

10. What are the various safety and health hazards of cutting and welding operation and describe how each of these hazard can be controlled? (10)
- d. What are the effects of welding fume exposure? Explain the adverse effects of exposure to any three welding fumes. And how this risk can be managed using hierarchy of control (3+3+4)
11. List and explain various health hazards in foundry operations. And how these can be effectively controlled (10+10)