

Name:

Enrolment No:



UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

End Semester Examination, December 2019

Course: BBS & Human Factor Engineering

Program: B Tech FSE

Course Code: HSFS 2009

Semester: III

Time 03 hrs.

Max. Marks: 100

Instructions:

SECTION A

S. No.		Marks	CO
Q 1	What do you understand by PDCA cycle?	4	CO2
Q 2	Outline various lagging and leading indicators used to measure safety performance	4	CO2
Q 3	Why the 'percentile' concept is used in ergonomic designs?	4	CO3
Q 4	Differentiate safety audit and inspection	4	CO2
Q 5	Differentiate attitude and behavior	4	CO1

SECTION B

Q 6	What is hierarchy of risk control? Discuss hierarchy of risk control using suitable examples.	10	CO2
Q 7	Define confined space. What are the potential hazards in a confined space and how these hazards can be effectively managed? Or What is work permit system and explain the requirements as per OISD 105	3+3+4 3+7	CO2
Q 8	What are the objectives of accident investigation?. 'Every accident is a symptom of system failure'- Justify.	4+6	CO4
Q 9	What is the philosophy of behavior based safety? How 'ABC' model is used to improve behaviors.	4+6	CO1

SECTION-C

Q 10	Average number of employees worked per day in Avnet Industries for the year 2019 is given below. Total working days during the year was 300 and average working hours for any employee was 8 hours. It is also reported that 1500 hours of overtime works were performed during the year.	20	CO5						
	<table border="1"><thead><tr><th>Time period- 2019</th><th>Morning Shift</th><th>Night Shift</th></tr></thead><tbody><tr><td>January to April</td><td>1000</td><td>1000</td></tr></tbody></table>	Time period- 2019	Morning Shift	Night Shift	January to April	1000	1000		
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January to April	1000	1000							

	<table border="1"> <tr> <td>May to August</td> <td>2000</td> <td>1000</td> </tr> <tr> <td>Sept to Dec.</td> <td>1000</td> <td>2000</td> </tr> </table>	May to August	2000	1000	Sept to Dec.	1000	2000		
May to August	2000	1000							
Sept to Dec.	1000	2000							
	<p>The following are the injury statistics of the company for the year 2019</p> <ul style="list-style-type: none"> a) Number of fatalities - 3 b) Number of reportable accidents – 7 c) Number of lost time accidents - 15 d) Number of first Aid injuries- 20 <p>Calculate reportable accident and lost time injury frequency rates and incidence rates for the year 2017</p>								
Q 11	<p>a. What is CTD? Discuss any four specific CTD. Outline various factors contribute CTD? Explain the ergonomic measures to avoid CTD.</p> <p style="text-align: center;">Or</p> <p>b. What do you mean by Human Factor Engineering? How its effective implementation will improve the health, safety and the productivity of working population?</p>	<p>3+7+ 4+6</p> <p>5+15</p>	CO3						