

Name:

Enrolment No:



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

Course: Behavioral Based Safety Management
Program: Tech HSE & M Tech HSE+DM
Course Code: HSFS 7004

Semester: I
Time 03 hrs.
Max. Marks: 100

Instructions:

SECTION A

S. No.		Marks	CO
Q 1	ABC organization generally observes weekends as nonworking days, a worker employed here met an accident on Friday evening, owing the finger injury he left early from returned to work on Monday morning. Whether this accident need to be considered as a reportable accident? Discuss.	5	CO2
Q 2	In a company 500 workers are working in morning shift and 500 workers in night shift. Number of working days are 100 per year. Average working hours for any employee are 10 hours per day. One fatality was reported during assessment period. Calculate the reportable accident severity rate a) 1 b) 10 c) Data insufficient d) None of the above	5	CO5
Q 3	Identify the correct sequence as per Bradley- DuPont curve a) Dependent – Independent – Reactive – Interdependent b) Dependent– Independent – Proactive – Interdependent c) Reactive – Dependent – Independent – Interdependent d) Dependent– Independent – Reactive – Proactive	5	CO1
Q 4	A fire incident happened in your facility and in order to handle the situation your seek the help of fire brigade of nearby organization. This emergency is a) Level 1 b) Level 2 c) Level 3 d) Level 2 or 3	5	CO2
Q 5	The best way to modify human behavior is to control antecedents A) True B) False	5	CO2
Q 6	Occurrence arising out of, or in the course of work that could or does result in injury and ill health is called a) Accident b) Incident c) Near miss d) Risk	5	CO1

SECTION B

Q 7	<p>As the Health and Safety Adviser to a large construction organization, you have decided to develop and introduce monitoring programs to assess the effectiveness of the organization's health and safety management system.</p> <p>What are different element or indicators that you would include in your monitoring programs? and why these elements are important?</p>	10	CO2																																			
Q 8	<p>What is the philosophy of behavior based safety? Prepare a table showing possible antecedents and consequences of safe and at risk behavior related to the usage of nose masks in public spaces</p>	4+6	CO2																																			
Q 9	<p>What is hierarchy of risk control?</p> <p>You are working as a safety advisor in a chemical processing company. Your company has decided to resume operations after Covid-19 lockdown. Identify five new hazards expected while resuming the operation and prepare a HIRA register, conforming to ISO 31000 for it.</p>	3+7	CO3																																			
Q 10	<p>The table below provide recent accident data recorded at the company that manufactures components for the automotive industry is based on a single site.</p> <table border="1"> <thead> <tr> <th>Year</th> <th>No. of accidents</th> <th>No. of First-aid Accidents</th> <th>No. of near misses</th> <th>Average hours worked</th> <th>Average no. of workers</th> <th>Days lost due to accidents</th> </tr> </thead> <tbody> <tr> <td>2017</td> <td>10</td> <td>7</td> <td>4</td> <td>3520</td> <td>500</td> <td>500</td> </tr> <tr> <td>2018</td> <td>12</td> <td>8</td> <td>8</td> <td>3500</td> <td>750</td> <td>80</td> </tr> <tr> <td>2019</td> <td>12</td> <td>6</td> <td>10</td> <td>3500</td> <td>900</td> <td>600</td> </tr> <tr> <td>2020</td> <td>15</td> <td>3</td> <td>4</td> <td>500</td> <td>400</td> <td>200</td> </tr> </tbody> </table> <p>Calculate the accident frequency, severity and incidence rate for these years. Also, comment on the safety performance of the organization</p>	Year	No. of accidents	No. of First-aid Accidents	No. of near misses	Average hours worked	Average no. of workers	Days lost due to accidents	2017	10	7	4	3520	500	500	2018	12	8	8	3500	750	80	2019	12	6	10	3500	900	600	2020	15	3	4	500	400	200	10	CO5
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Q 11	<p>Heinrich's theory have greatest impact on the practice of safety and have done the most harm. Discuss</p>	10	CO4																																			

SECTION-C

Q 12

CASE STUDY

You have recently moved to a new job. You are now responsible for health and safety at a large, busy retail store that is located on the outskirts of a large town served by good roads. The store sells do-it-yourself (DIY) and hardware goods, such as tools, equipment, and hazardous chemicals, to the local businesses and the public.

The organization that owns the store has 100 stores nationally and 10 in your area. The main part of the store is open to customers to view and buy goods. At the back of the store, through an automatic-opening door, is a large warehouse, where stocks of goods are arranged on racks of shelving. Only store workers are allowed in the warehouse. Warehouse workers use forklift trucks (FLT) to move goods from delivery trucks into the warehouse. When the store is closed to customers, the goods are moved into the main part of the store to restock shelves.

You report to the overall Store and Warehouse Manager. The warehouse workforce consists of:

- 20 workers (including 2 shift supervisors) split equally between two 12-hour shifts (08:00 – 20:00 and 20:00 – 08:00) on a rota basis of 4 days on, 4 days off.

Since you started your new job, you have seen a lot of examples of rule-breaking in the warehouse. For example, you have seen goods stacked in aisles and blocking designated walkways. Workers have to avoid many obstacles as they walk through the warehouse, causing them to step into vehicle routes. Workers have told you that there are frequent near misses between FLT) and workers, and collisions with products causing damage and spillages. There are no written records of any of these.

There have been many injuries recorded over the years. Most recently, a repeat of a more serious collision occurred involving a young FLT driver. The brakes were applied too late, as the driver was distracted by their mobile phone, the FLT skidded on an oil spillage and knocked goods over onto a passing worker.

On this occasion the worker's leg was broken, which required urgent hospital treatment. The hospital is 5 miles (approximately 8km) away from the store. The worker is expected to be off work for six weeks to recover from the injury. The injured worker is seeking legal advice in order to make a claim for compensation.

Worker absence and turnover is high in the warehouse. There are no health and safety worker representatives. Warehouse workers have told you that they have complained to management about working conditions many times. They rarely see management in the warehouse. You cannot find any written records of complaints.

You have tried to convince the overall Store and Warehouse Manager that something needs to be done to improve health and safety in the warehouse. You are told that there is no money for 'that kind of thing', and even if it were available, it would cause too much disruption to business.

	<p>As a result of the recent FLT collision, you were visited by a labour Inspector who has made a formal order that requires workplace changes to improve the health and safety of the workers. The Inspector thinks it is only a matter of time before workers are more seriously injured or even killed in the warehouse. The Inspector also observed that the written risk assessments are too general and do not reflect the actual risks in the warehouse. The Inspector wants to see a more effective health and safety management system at their next visit. You have discussed with the Inspector possible improvements to health and safety in the warehouse.</p> <p>Referring to the attached case study, answer following questions</p> <p>a) You email a report to the overall Store and Warehouse Manager, in a further attempt to convince them that safety needs improving. The report contains unsafe behaviour that you have observed, unsafe behaviour associated with historic incidents and unsafe behaviour relayed to you from other workers.</p> <p>What unsafe behaviour would be included in the report? (5 Marks)</p> <p>b) Why this incident need to be investigated (5 Marks)</p> <p>c) Based on the scenario only, identify potential root causes of above accident using 4M analysis (5 Marks)</p> <p>d) What control measures you would suggest to reduce the risk of forklift collision in this warehouse (5 marks)</p>	<p>4*5</p>	<p>CO3</p>
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