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PRESIDENCY UNIVERSITY BENGALURU

**SET-A**

SCHOOL OF ENGINEERING

**END TERM EXAMINATION -MAY /JUNE 2024**

**Semester :** Semester IV - 2022

**Course Code :** PET2030

**Course Name :** Occupational Health and Safety

**Program :** B.Tech.

**Date :**  June 14, 2024

**Time :** 9:30 AM - 12:30 PM

# Max Marks : 100

**Weightage :** 50%

# Instructions:

1. *Read all questions carefully and answer accordingly.*
2. *Question paper consists of 3 parts.*
3. *Scientific and non-programmable calculator are permitted.*
4. *Do not write any information on the question paper other than Roll Number.*

**PART A**

**ANSWER ANY FIVE QUESTIONS 5QX2M=10**

1. Define health as per WHO.
2. Define the term "hazard".

(CO1) [Knowledge] (CO2) [Knowledge]

1. In respect to the type of energy resources, differentiate between two techniques of oil spill monitoring.

(CO3) [Knowledge]

1. Name any four basic oil recovery devices.

(CO3) [Knowledge]

1. Identify four common causes of non-productive time (NPT) during drilling operations.

(CO3) [Knowledge]

1. State any four hazards identification method.

(CO4) [Knowledge]

1. Draw the pictogram for the following hazards:a. High voltage; b. Biohazards; c. Hot surface hazard; d. Ionizing radiation

(CO4) [Knowledge]

**PART B**

**ANSWER ANY FIVE QUESTIONS 5QX10M=50**

1. Describe the methodology of keep good mental health according to "U.S Department of Health and Human Service".

(CO1) [Comprehension]

1. "Fault trees/ Event trees analysis is a major part of Risk assessment" Justify the above sentence in terms of Risk Analysis model.

(CO2) [Comprehension]

1. In the context of an offshore environment where oil spills can have far-reaching and long-lasting impacts, how can innovative monitoring strategies and technologies be developed and implemented to enhance early detection, improve response coordination, and mitigate environmental damage?.

(CO3) [Comprehension]

1. Imagine you are a safety engineer tasked with evaluating a new drilling operation in a remote offshore location. With the help of “Event Tree Analysis” identify the potential causes and consequences of an offshore Well Blowout.

(CO3) [Comprehension]

1. Create a comprehensive hazard control strategy that prioritizes both worker safety and operational efficiency by integrate engineering controls, administrative controls, and personal protective equipment.

(CO3) [Comprehension]

1. Evaluate the impact that integrating individual protective equipment with regular safety protocols, such as pre-checks and preventative maintenance, has on enhancing the overall safety culture and reducing the risk of accidents at a drilling site.

(CO4) [Comprehension]

1. Explore the adaptation of oil spill containment strategies to effectively handle spills of varying sizes and types of oil across diverse marine and terrestrial environments.

(CO4) [Comprehension]

**PART C**

**ANSWER ANY TWO QUESTIONS 2QX20M=40**

1. In the context of a drilling site where safety is paramount, how can safety policies be effectively communicated and ingrained within the organizational culture to ensure not only compliance but also a genuine commitment to safety from every individual, from the drill floor to the management offices? Consider the challenges of maintaining safety awareness amidst high-pressure deadlines, remote working conditions, and diverse workforce backgrounds. Additionally, explore innovative approaches or technologies that could enhance safety practices and foster a proactive safety culture across all levels of the organization.

(CO3) [Application]

1. In the aftermath of an oil spill, how can clean-up efforts be tailored and optimized to minimize environmental impact, maximize resource recovery, and address the long-term ecological consequences of the spill? Consider the challenges of selecting appropriate clean-up techniques, coordinating multi-agency response efforts, and balancing the trade-offs between immediate remediation and long-term environmental restoration. Additionally, explore the role of innovation and stakeholder engagement in driving the development and implementation of effective clean-up strategies.

(CO3) [Application]

1. In industry, various types of explosion accidents can take place any time. As an HSE, write solution in your words these industrial explosions and present the preventive measures.

(CO4) [Application]