


Name: Enrolment No:		
UNIVERSITY OF PETROLEUM AND ENERGY STUDIES Online End Semester Examination, December 2020		
Course Name: Safety in Construction Programme: B Tech- Fire & Safety Engineering Course Code: HSFS 3005		Semester: V Time: 03 Hours Max. Marks: 100
SECTION A		
1. Each Question will carry 5 Marks 2. Write only the short answers.		
Sr. No.	Question	CO
Q 1	Name different types of construction projects.	CO1
Q 2	Extend your views on “safety as capital investment”.	CO2
Q 3	Explain the employee safety concerns for the excavation activities.	CO1
Q 4	Comment on “construction sector is poorly organized sector”.	CO4
Q 5	Brief of different classification of soil.	CO1
Q 6	Distinguish legal and other requirements.	CO3
SECTION B Each question will carry 10 marks		
Q 7	A concrete slab is planned to cast at the height of 24 meter from ground. Explain the safety requirements for the said activity.	CO1
Q 8	Highlight the major reason for workers migration in construction sectors and their impact on construction safety.	CO2
Q 9	Discuss cofferdams and their types. List out the general safety measures while executing construction activities in or above water.	CO1
Q 10	Being a safety offer, select the suitable control measures for reducing accidents at construction work site.	CO4
Q 11	Design the safe system of work for underground tunnel work activities based on the condition given. Tunnel dia: 6 Mtr, Machinery used for tunneling: TBM, Number of workmen involved round the clock for this activity: 30,	CO5
SECTION C		
1. Each Question carries 20 Marks. 2. Instruction: Write long answer.		
Q 12	Being an expert, review the condition of a lifting activity as given below and do the detailed hazard identification and risk assessment for this activity: Nature of work: Construction Activity: Lifting of I- Girder of 25 MT Other details: i. The lifting activity is to be done with the help of (a) One crane (b) Two or more than two cranes ii. I Girders are to be placed on the columns casted at the edge of canal. OR A moulder, employed in a foundry, was working in the second shift. He was assigned with his regular job of sand-mix preparation at a mixer located on a platform, at a height of 3.25 m above floor level. He stopped at about 6:45 p.m. to go to the canteen for dinner. He returned to restart his work at about 7:30 p.m. One of his co-workers realized at about 8:30 p.m. that the sand-mix operation was not in progress. Hence, he went to search for the moulder. He also wanted to find	CO4

out why the routine operation was not commissioned. As there was no response from the moulder, even after shouting for him, he climbed up the cat ladder and went onto the landing platform, 0.75 m below the platform of the mixer. The co-worker was shocked to see the moulder lying awkwardly on the end unit of the conveyor belt and drum assembly. The conveyor belt was installed parallel and adjacent to the intermediate platform. It was also observed that the conveyor system had already tripped off.

Sensing the horrible situation, the co-worker shouted for help. Immediately, the assistant manager, who was in charge of the shift, and others working in the vicinity rushed to the site and tried to rescue the victim. It was very difficult as his body was partly entrapped in between the belt and the drum. There was no alternative but to cut the belt. They did so and immediately took the injured to a hospital, where he was declared dead. The sand-mix preparation plant was a highly congested place, located in one of the corners of the foundry. A cat ladder had been provided for approaching a platform at 2.5 m height. This was a landing platform with a provision of two further end steps leading to the intermediate platform, located at 3.25 m. The sand mixing equipment was installed on the same elevation but on the other side of the conveyer belt. The deceased was assigned with his routine job of preparing a batch of sand-mix to feed the mixer. It was presumed that while approaching the mixer on the other side of the conveyer or he might have had slipped on the steps leading from the landing platform to the mixer platform. Unfortunately, there was no one working with him and there was no direct witness to this mishap.

Question:

- i. Evaluate the condition of workplace share the main reason of the accident.
- ii. What could have been done to avoid this accident.