


Name:			
Enrolment No:			
UPES End Semester Examination, May 2024			
Course: Advanced safety and risk engineering Program: B.Tech.-Fire and Safety Engineering Course Code: HSFS 3036		Semester: VI Time : 03 hrs. Max. Marks: 100	
Instructions: Read the question properly and give the most relevant answer.			
SECTION A (5Qx4M=20Marks)			
S. No.		Marks	CO
Q 1	Analyze the use of HAZOP study.	4	CO4
Q 2	Define hazard and risk with an example	4	CO4
Q 3	Differentiate safety and security with an example.	4	CO2
Q 4	Explain black swan events in safety.	4	CO1
Q 5	Explain risk assessment.	4	CO4
SECTION B (4Qx10M= 40 Marks)			
Q 6	Perform a FMECA study for a food delivery process to a home through Zomato during a rainy day.	10	CO1
Q 7	Explain in detail the concept of Bayesian network and its application with a example of your choice.	10	CO2
Q 8	Discuss AHP in detail and the significance of ANP.	10	CO3
Q 9	Discuss the different steps involved in HAZOP and compare it with the Fault tree analysis. (OR) Analyze what if analysis and checklist analysis in detail with procedure, advantages and disadvantages.	10	CO1
SECTION-C (2Qx20M=40 Marks)			
Q 10	Illustrate with an example the application of LOPA in chemical process safety elaborately.	20	CO4
Q 11	Consider you must decide which client to choose over three options to the handover process safety project. While opting, consider 3 factors of your choice. Use a relevant technique, perform analysis and choose the client. Values can be chosen as per your choice. (OR) Elaborate the FTA, its procedure and how it differs from FMEA with a case study of your choice. and perform What if analysis for unloading of flammable petroleum product from truck to underground tank.	20	CO3