


Name:			
Enrolment No:			
UPES End Semester Examination, May 2023			
Course: Health, Safety & Environment Engineering Semester: VIII Program: B.Tech Geo-Informatics Engineering (GIE) Course Code: HSFS 4016		Time : 03 hrs. Max. Marks: 100	
Instructions: <u>Open Book Test (Statutory acts / rules print out, PPT used in class, Industrial safety books, and OSHA safety hazards print out can be brought for the exam).</u>			
SECTION A (5Qx4M=20Marks)			
S. No.		Marks	CO
Q 1	Define, “Competent Person” in line with the “Factories Act 1948”.	4	CO1
Q 2	Please detail the concept, “References to the time of day” as stated in the “Factories Act 1948”.	4	CO1
Q3	The Government of India has subsidized the acquisition cost for end customers of _____ in order to reduce air pollution. a) prime movers b) EV two wheelers c) humidifier d) all of the above	4	CO5
Q4	Please discuss the role that management plays in formulation and implementation of the safety policy in an organization.	4	CO3
Q5	Please assume that you are an officer working with the Chief Controller of Explosives. You visited a fire cracker factory after a minor explosion happened there, which led to a couple of casualties. Please explain the actions you can take with reference to inquiry / investigations as well as your obligations for this purpose as defined in the “Indian Explosives Act 1884”.	4	CO2
SECTION B (4Qx10M= 40 Marks)			
Q6	In 1944, a ship exploded in the Bombay Port resulting in damage to the port and a high number of casualties. Considering that fire was the cause, and the cargo carried by the ship was a mixture of explosives, cotton bales and oil; please state and explain five elements of Process Safety Management (PSM) that you consider would have helped prevent the incident. Note: a) Assume that communication regarding the cargo was not shared and proper safety training on handling of cargo was not imparted. b) Oil and cotton bales act as catalyst to fire.	10	CO4

Q7	Please define the duties of the certifying surgeon as stated in the “Factories Act 1948”. Please quote the relevant section.	10	CO1
Q8	Explain / define air pollution and state at least four strategies to control such pollution with a brief explanation for each strategy.	10	CO3
Q9	Please refer to the “Air Pollution Act 1981”, and explain the concept of, “Power of State Government to supersede the state board”. Please quote the relevant section. OR Please explain the powers of inspectors as defined in the “Factories Act of 1948”. Please quote the relevant section.	10	CO1
SECTION-C (2Qx20M=40 Marks)			
Q10	Please refer to the “Air Pollution Act 1981”, and explain the concepts of the following: a) Disqualifications; b) Vacation of seat by members; c) Meetings of the board	20	CO1
Q11	Please refer to the “Factories Act 1948”, and explain the duties of the occupier with respect to the following: a) Dust and Fume; b) Disposal of Wastes and Effluents; c) Ventilation and Temperature. OR In the Bhopal Gas tragedy Methyl Isocyanide was released accidentally / negligence of the factory owners / staff leading to a huge catastrophe. The investigation later found that many of the safety systems were not functioning, safety training was lacking, proper communication among the employees and with outside authorities was lacking resulting in non-provision of suitable relief facilities / treatments etc. as the nature of the gas and its antidote was not available. Also, methyl isocyanide was stored beyond the permissible limits. Given the aforesaid and considering that the, “Air Pollution Act of 1981”, was applicable, please state the sections and explain the powers available to the designated authority in terms of: a) Power to declare air pollution control areas; b) Restriction on use of certain industrial plants; c) Powers of entry and inspection.	20	CO3