

Name:	
Enrolment No:	

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, December 2019

Course: Safety, Health and Environment Management

Semester: V

Program: B. Tech (APE+Gas)

Time 03 hrs.

Course Code: HSFS 3015

Max. Marks: 100

Instructions:

SECTION A
(Answer all the questions)

S. No.		Marks	CO
Q 1	A conventional cyclone with diameter 1.0 m handles 3.0 m ³ /s of a standard air carrying particles with a density of 2000 kg/m ³ . For Ne = 6, determine the cut size, d _{pc} . Data: b = 0.25 m, and a = 0.5 m, μ _g = 1.81 × 10 ⁻⁵ kg/m-s	4	CO5
Q 2	Discuss about petroleum act	4	CO2
Q 3	Identify the areas to be covered in HSE policy in general	4	CO1
Q 4	Define Hazard. Mention and describe various modes of Hazards.	4	CO3
Q 5	Summarize about impact of oil spills on flora, fauna	4	CO6

SECTION B
(Answer all the questions)

Q 6	Classify the air pollutants according to source type. Discuss about them in detail	10	CO5
Q 7	Derive the expression for Reynolds number when dust layer is present on the tray for the case of gravitational settling chambers	10	CO5
Q 8	Discuss about the selection of Personnel Protective Equipment	10	CO6
Q 9	Describe about the Bhopal gas tragedy, India	10	CO4

SECTION-C
(Answer all the questions)

Q 10	(a) Illustrate the construction and working principle of the electrostatic precipitator (Wire and Pipe) with a neat diagram (b) A ventury scrubber is to be used to collect particulate matter from an industrial operation. The liquid flow rate through the scrubber is 5 gpm per 1000 ft ³ per min of the gas and the relative velocity of the gas to liquid is 200 ft/sec. The gas is air at standard temperature of 298 K and pressure of 1 atm carrying particles of density 2000 kg/m ³ . Determine the efficiency of the scrubber as a function of particle diameter. λ = 0.066 μm for standard air at 298 K and 1 atm, μ _g = 1.8 × 10 ⁻⁵ kg/m-s, K=0.2	7+13	CO5
Q 11	Classify various types of physical hazards that occur in manufacturing Industry. Discuss in detail about each one of them.	20	CO3