

Name:			
Enrolment No:			
<b>UPES</b> <b>End Semester Examination, December 2023</b>			
<b>Course: TPM &amp; TQM</b> <b>Program: M. Tech Health, Safety &amp; Environment</b> <b>Course Code: HSFS 8001</b>		<b>Semester: III</b> <b>Time: 03 hrs.</b> <b>Max. Marks: 100</b>	
<b>Instructions: All questions are compulsory. Students can bring print outs of ISO standards and refer them to answer the questions.</b>			
<b>SECTION A</b> <b>(5Qx4M=20Marks)</b>			
S. No.		Marks	CO
Q1	State true or false. a) The TQM framework of People and relationships is not inclusive of leadership, customer satisfaction, employee involvement and supplier partnership.  b) The approach of TQM includes the two concepts, continuous process improvement and performance measures with the ultimate being customer satisfaction.  c) Benchmarking, quality by design, failure mode and effect analysis, and product and service liability are less important criteria in TQM.  d) Lack of management commitment is considered an obstacle for TQM.	(1*4) 4	CO1
Q2	Define Benchmarking. Please provide one relevant example to support your answer.	4	CO1
Q3	Explain the concept of PLAN, DO, STUDY, ACT in TQM. Provide a clear diagram to support the answer.	4	CO2
Q4	Write a short note on the different losses that may exist in a chemical plant related to TPM. Provide the method of calculation used for each of the losses.	4	CO2
Q5	Write a note on the benefits and obstacles of TQM.	(2+2) 4	CO1
<b>SECTION B</b> <b>(4Qx10M= 40 Marks)</b>			
Q6	Describe KIEZEN. State how this concept is beneficial for the growth and development of any organization.	10	CO2

	<b>OR</b>		
	Write a note on the stages of failure mode and effect analysis (FMEA). Include the guidelines for severity ranking for process FMEA.		
Q7	Calculate the different losses encountered in TPM in a bottle manufacturing plant based on the following details. a) Days operation = 8 hrs./ day, 6 days a week. b) Manufacturing downtime = 510 minutes/week. c) Maintenance downtime = 230 minutes / week. Theoretical standard cycle time = 0.7 minutes / unit.	<b>10</b>	<b>CO5</b>
Q8	State the <b>seven habits</b> of highly effective people. Provide detailed explanations for each of the seven habits	<b>10</b>	<b>CO4</b>
Q9	What responsibilities does the Quality Council have? What items could be incorporated into the meeting agenda following the establishment of a TQM program?	<b>10</b>	<b>CO3</b>
<b>SECTION-C</b> <b>(2Qx20M=40 Marks)</b>			
Q10	Explain mass customization, point of customer involvement, and customer perception of quality in TQM. Provide a detailed description on all the parameters included in the aforesaid concepts.  <b>OR</b> Identify environmental aspects and impacts for the <b>pharmaceutical industry</b> . When answering the question, state the current practices and recommendations in place. Also, establish an evaluation criterion, environmental objectives and an environment management program for the significant aspects identified.  Note: To answer this question, you can refer to the related ISO standards.	<b>20</b>	<b>CO4</b>
Q 11	Explain concepts of <b>ISO 14001:2015</b> in detail. State, why risk and opportunity clause, and leadership clause has been added in the recent version of <b>ISO 14001: 2015</b> . Note: You can refer to related ISO standards for answering this question.	<b>20</b>	<b>CO5</b>