


Name:			
Enrolment No:			
<b>UNIVERSITY OF PETROLEUM AND ENERGY STUDIES</b> <b>End Semester Examination, December 2022</b>			
<b>Course: M Tech</b> <b>Program: HSE</b> <b>Course Code: HSFS 8027 (Sustainable Technology and Industries)</b>		<b>Semester: III</b> <b>Time : 03 hrs.</b> <b>Max. Marks: 100</b>	
<b>Instructions:</b> All questions are compulsory.			
<b>SECTION A</b> <b>(5Qx4M=20Marks)</b>			
S. No.		Marks	CO
Q 1	a. The SDGs are the world's to-do list for all nations by 20 ... b. How many SD Goals are there ... c. SD Goal 3 refers to ... d. "Clean water and sanitation" is the SD Goal number .....	<b>4</b> (one marks each questions)	<b>CO1</b>
Q 2	What are the 5 stages of a life cycle analysis? Explain with an example.	<b>4</b>	<b>CO1</b>
Q 3	Why is the environmental dimension so important to the world?	<b>4</b>	<b>CO1</b>
Q 4	"Limit your activities is the mantra for sustainable development". What is your view point on this statement?	<b>4</b>	<b>CO4</b>
Q 5	What was your contribution in UPES Sustainability Fair 2022? Pl also share your key learnings.	<b>2+2=4</b>	<b>CO4</b>
<b>SECTION B</b> <b>(4Qx10M= 40 Marks)</b>			
Q 6	Explain Industry 4.0 implications for sustainable development in terms of circular economy.	<b>10</b>	<b>CO2</b>
Q 7	Compare the carbon footprint of rural households and urban households.	<b>10</b>	<b>CO1</b>
Q 8	Our prime minister Mr Modi has launched <b>Mission LiFE</b> , what are the aim and objectives of this mission, how it will help to achieve SD Goals.	<b>10</b>	<b>CO3</b>
Q 9	What is sustainable livelihood? Explain different models of sustainable livelihood with examples?	<b>10</b>	<b>CO3</b>

**SECTION-C**  
**(2Qx20M=40 Marks)**

Q 10	Please do a Life Cycle Analysis (LCA) for household refrigerators.	<b>10</b>	<b>CO2</b>
Q 11	<p>We have identified and studied following topics based on the need and requirement for Global Sustainable Development Goals. <b>You need to choose two topics, one from each category.</b></p> <p>Your answer should cover following points –</p> <ol style="list-style-type: none"> <li>a. Brief introduction</li> <li>b. Objectives</li> <li>c. Working methodology to achieve objectives</li> <li>d. Interpret, critique, remarks and conclusion.</li> </ol> <p style="text-align: center;"><b><u>Category - A</u></b></p> <ol style="list-style-type: none"> <li>1) Landfill operation : Active and passive control</li> <li>2) Sustainable construction material: Geopolymer concrete</li> <li>3) Land use pattern: Urbanization &amp; Industrialization , impact on forest land</li> <li>4) Globalization of fast clothing fashion : Its impact on society, economics and environment</li> <li>5) Globalization of food habits: Its impact on society, economics and environment</li> <li>6) NEWater : A pillar of Singapore’s water sustainability strategy</li> </ol> <p style="text-align: center;"><b><u>Category – B</u></b></p> <ol style="list-style-type: none"> <li>1) Agriculture waste and its useful products for sustainable living in villages of Uttarakhand</li> <li>2) Sustainable solution to road traffic management of UPES campus</li> <li>3) Food waste management of canteen in UPES</li> <li>4) Zero discharge toilets</li> <li>5) Increasing efficiency of “Anti-Hail Gun” for western Himalayan region of India</li> <li>6) Sustainable solution for Delhi air pollution</li> </ol>	<b>15+15=30</b>	<b>CO3</b>