


Name:	
Enrolment No:	

**UNIVERSITY OF PETROLEUM AND ENERGY STUDIES**

**End Semester Examination, January 2021**

**Program: M. Tech- HSE and M. Tech-HSE+DM**

**Semester – I**

**Subject (Course): Electrical Safety**

**Max. Marks : 100**

**Course Code : HSFS 7005**

**Duration : 3 Hrs**

**No. of page/s: 2**

**SECTION A**

S. No.	Answer all the questions:	30 Marks	CO
<b>Q1.</b>	Expand the following: a. AED b. <b>ELCB</b> c. IEC d. MCCB e. OCPD	[5]	CO1
<b>Q2.</b>	Give your opinion on “It’s volts that kills you not Amps”	[5]	CO1
<b>Q3.</b>	Postulate about categories of PPEs to be used against arc flash. Also, mention the national/international standard for the same.	[5]	CO 2
<b>Q4.</b>	List various types of LV fuses along with their applications.	[5]	CO 3
<b>Q5.</b>	List any five common causes of generation/discharge of static charges in industrial processes	[5]	CO4
<b>Q6.</b>	Define the following: a. Hazardous Area b. Type-p equipment c. Spontaneous Ignition d. Non-Hazardous Area e. Type-d equipment	[5]	CO 5

**SECTION B**

	Answer all the questions:	50 Marks	CO
<b>Q7.</b>	Define ‘Electrical Shock’. Enumerate the steps in administering first aid to victim of electric shock.	[2+8]	CO 1
<b>Q8.</b>	Discuss the specifications mentioned in the label below:	[10]	CO 2



# WARNING

## Arc Flash and Shock Hazard

### Appropriate PPE Required

<b>89 inch</b>	<b>Flash Hazard Boundary</b>
<b>16.4</b>	<b>cal/cm<sup>2</sup> Flash Hazard at 18 inches</b>
<b>Class 3</b>	<b>Cotton Underwear + FR Shirt &amp; Pant + FR Coverall</b>
<b>480 VAC</b>	<b>Shock Hazard when cover is removed</b>
<b>00</b>	<b>Glove Class</b>
<b>42 inch</b>	<b>Limited Approach (Fixed Circuit)</b>
<b>12 inch</b>	<b>Restricted Approach</b>
<b>1 inch</b>	<b>Prohibited Approach</b>

Q9.	Give the steps involved in LOTO of a water cooler machine and national/international standard/reference	[10]	CO 2
Q10.	Discuss the working principle of protection device that can prevent shocks (leakage) even in unearthed conditions.	[10]	CO3
Q11.	Discuss about charge accumulation and discharge processes in case of low-conductive liquids.	[10]	CO4
<b>SECTION-C</b>			
	<b><u>Answer the following:</u></b>	<b>40</b>	
		<b>Marks</b>	
Q12.	An electrical equipment has the following things on its nameplate: “Ex ib IIC T1 Z1”. Name and explain the details of terms mentioned above. [OR] Detail all the components of HAC required for selection, instillation and/or maintenance of electrical equipment.	[5+15]	CO5