Q.P. Code:18ME0350 **R18**

Reg. No: | | | | | | | | | | |

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

B.Tech II Year II Semester Regular Examinations October-2020

THERMODYNAMICS & HEAT ENGINES

(Agricultural Engineering)

Time: 3 hours Max. Marks: 60

PART-A

(Answer all the Questions **5 x 2 = 10** Marks)

1	**a**	Define Path.	**2M**
	b	Define Zeroth Law of thermodynamics.	**2M**
	c	Define Constant Pressure Process.	**2M**
	d	Define Dry saturated steam.	**2M**
	e	What is the function of Pressure gauge?	**2M**

PART-B

(Answer all Five Units 5 x 10 = 50 Marks)

UNIT-I

2	**a**	What is the difference between open and closed system?	**5M**
	b	What do you mean by property? Difference between intensive and extensive property.	**5M**
		OR	
3	**a**	State the second law of thermodynamics.	**5M**
	b	Differentiate between cyclic and non-cyclic process.	**5M**

UNIT-II

4	**a**	What are the different modes in which energy stored in a system?	**5M**
	b	Derive the Steady flow Energy equation for Nozzle.	**5M**
		OR	
5	**a**	Define Mass balance. Derive equation for it.	**5M**
	b	During a cycle consisting of four processes, the heat transfer are a s following. $Q1 = +60KJ$, $Q_2 = -40KJ$, $Q_3 = 15KJ$, and $Q_4 = -20KJ$, Determine the net work done by the system.	**5M**

UNIT-III

6	**a**	What is Avogadro's Law?	**5M**
	b	Derive an expression for work done during isentropic process.	**5M**
		OR	
7	**a**	Explain the difference between Isothermal and Adiabatic Process.	**5M**
	b	Derive the expression for work done during isothermal process.	**5M**

UNIT-IV

8	**a**	Derive an Expression for thermal efficiency Otto cycle draw PV&TS diagram.	**4M**
	b	Explain the P-V,P-T, T-S diagram of Pure substance.	**6M**
		OR	
9	**a**	What is the Process in Diesel cycle, draw PV and TS diagram?	**4M**
	b	Derive an Expression for thermal efficiency Sterling cycle draw PV&TS diagram.	**6M**

UNIT-V

10	**a**	Explain the working of La-mount boiler with neat sketch.	**5M**
	b	Give the comparison between fire tube and water tube boilers.	**5M**
		OR	
11	**a**	What is the function of Economiser and Air preheater?	**5M**
	b	What are the advantages of artificial draught over the natural draught?	**5M**

END