DR. BABASAHEB AMBEDKAR TECHNOLOGICAL UNIVERSITY, LONERE

MGM's, Jawaharlal Nehru Engineering College, Aurangabad

Mid Semester Examination – Sept. 2019

Course: T.Y. B. Tech in Mechanical Engineering **Sem: V**

Subject Name: Applied Thermodynamics-I

Subject Code: BTMEC502

Max Marks:20 **Date: 24/09/2019** **Duration:- 1 Hr.**

Instructions to the Students:

1. Draw neat sketches wherever necessary.
2. Use of Steam table / Molier chart is permitted.

		(Level/CO)	Marks
Q. 1	**Choose the correct answer.**		**6**
1	Incomplete combustion of fuel in the furnace is judged by high ------of the flue gas. a) CO content. b) CO_2 content. c) O_2 content. d) None of these	BL1/CO1	
2	In presence of which gas is the fuel burnt to generate energy in form of heat? a) Oxygen b) Hydrogen c) Methane d) Nitrogen	BL1/CO1	
3	Which of the following is a water tube boiler.....? a) Locomotive boiler b) Lancashire boiler c) Cornish boiler d) Babcock and Wilcox boiler	BL1/CO1	
4	Which type of draught system is used in the locomotives? a) Natural draught system b) Balanced draught system c) Forced draught system d) Induced Steam draught system	BL1/CO1	
5	The net work done in a Rankine Cycle is the difference of? a) Condenser work & Boiler work b) Boiler work & Pump work	BL1/CO2	

	c) Turbine Work & Pump work d) Condenser work & Pump work		
6	Rankine cycle comprises of a) two isentropic processes and two constant volume processes b) two isentropic processes and two constant pressure processes c) two isothermal processes and two constant pressure processes d) none of the mentioned	BL1/CO2	
Q.2	**Solve Any Two of the following.**		3 X 2
(A)	Calculate atomic weights of CH_4, CO_2, CO, H_2O, N_2 and SO_2	BL2/CO1	
(B)	Write a short note on IBR laws.	BL2/CO1	
(C)	Analyze the effect of boiler pressure, condenser pressure and superheating the steam on efficiency of Rankine cycle.	BL2/CO2	
Q. 3	**Solve Any One of the following.**		8
(A)	A solid fuel consist of 80% C and 20% H_2 by mass. If 15% excess air is supplied, determine: a) A:F ratio b) % analysis of wet products on mass basis.	BL3/CO1	
(B)	A steam power plant works between a boiler pressure of 4 MPa and 300 ^{0}C and condenser pressure of 50 kPa. Assuming an ideal Rankine cycle, determine: a) The cycle efficiency b) Work ratio	BL3/CO2	
	*** End ***		