

International Islamic University Chittagong
Department of Electrical and Electronic Engineering

Final Examination Spring-2020		Program: B.Sc. Engg. (EEE)		
Course Code: ME-2301		Course Title: Fundamental of Mechanical Engineering		
Time: 5 hours (Writing 4 hours 30 minutes + 30 minutes submission time)		Full Marks: 50 (Written 30 + Viva/Viva-Quiz-20)		
[Answer each of the questions (1-5) from the followings; Figures in the right margin indicate full marks.]				
SET-D				
1(a).	Deduce relation between thermodynamic process & cycle.	CO2	An	02
1(b).	State the third law of thermodynamics. Give its limitations and importance.	CO2	R,C	02
1(c).	How can we differentiate the heat transfer and thermodynamics in practical application?	CO1	E	02
2(a).	For adjustable load how can we draw a cogeneration process?	CO2	An	02
2(b).	Discuss the function of Safety, Stop, and Feed check valves?	CO1	U	02
2(c).	Briefly explain the boiler mounting and accessories.	CO3	C	02
3(a).	Is nuclear power plant safe for our environment? Why should we be concerned about health issues from nuclear or coal plants that are far from my home?	CO3	C	02
3(b).	Are wind turbines a threat to birds or bats?	CO2	C	02
3(c).	Do we really need nuclear in order to deal with global warming?	CO1	R	02
4(a).	How can one get the optimum bleeding point in a steam turbine for regeneration?	CO2	R	02
4(b).	A refrigeration system has got temperature of 200 ⁰ C and -100 ⁰ C for the compressor and the evaporator sides respectively. Find its COP. If compressor work is 4.5Kw, find the refrigeration capacity in ton.	CO3	An	02
4(c).	Difference between the refrigeration and heat pump?	CO1	An	02
5(a).	What are the basic units of mechanical refrigeration systems?	CO2	R	01
5(b).	The roof of an electrically heated home is .3x m long, .2x m wide, and 0.25 m thick, and is made of a flat layer of concrete whose thermal conductivity is k 0.8 W/m°C. The temperatures of the inner and the outer surfaces of the roof one night are measured to be 25°C and 0°C, respectively, for a period of 10 hours.[X=last digit of your matric ID] Determine: (a) The rate of heat loss through the roof that night and (b) The cost of that heat loss to the home owner if the cost of electricity is \$0.2/kWh.	CO3	C	03
5(c).	Can air conditioning facilitates contribute in spreading coronavirus?	CO2	R	02
6.	Viva/Viva-Quiz: The time of viva/viva-quiz will be declared in google classroom.	CO4	R	20