Question Paper

Exam Date & Time: 30-Nov-2019 (09:30 AM - 12:30 PM)

MANIPAL ACADEMY OF HIGHER EDUCATION

INTERNATIONAL CENTRE FOR APPLIED SCIENCES
END SEMESTER THEORY EXAMINATION NOVEMBER/DECEMBER 2019
II SEMESTER B.Sc.(Applied sciences) in engg.
Basic Mechanical Engg. [IME 122]

Marks: 100 **Duration: 180 mins.**

Answer 5 out of 8 questions.

1)		Define Amount of superheat or enthalpy of superheat. List all the Advantages and disadvantages of Superheated Steam.	(10)
	A)		
	B)	Explain the formation of steam experiment at constant pressure, with Temperature-Enthalpy diagram.	(10)
2)		Determine the condition of steam in the following cases: (i) at a pressure of 10 bar and temperature of 200^{O}C and (ii) at a pressure of 8 bar and enthalpy of 2500kJ/kg. (iii) Steam at 20bar and 300^{O}C is cooled at constant pressure during which the heat lost by the steam is 400kJ/kg.	(10)
	A)		
	B)	With a neat labeled sketch explain the working of Babcock & Wilcox Boiler.	(10)
3)		Describe with relevant sketches any five operations that can be performed on lathe.	(10)
	A)		
	B)	With a neat schematic diagram explain the working principle of thermal power plant.	(10)
4)		Explain Pressure Velocity Changes in a Reaction Turbine With suitable sketches.	(10)
	A)		
	B)	Explain with a neat sketch any one type of Water Turbine.	(10)
5)		Describe the function of 1) Evaporator 2) Compressor or Circulating System 3) Condenser 4) Expansion valve in VCR system.	(10)
	A)		
	B)	Describe the working of a Simple Carburetor with neat labeled sketch.	(10)
6)		List out any 10 comparisons between two and four stroke engines.	(10)
	A)		
	B)	Discuss the working of four-stroke diesel engine with the help of theoretical Diesel cycle.	(10)
7)		A belt drive transmitting power between two pulleys which are 2 meters apart with a speed reduction ratio of 4 has an angle of contact of 3.91	(10)

A) radians. The diameter of the larger pulley is 120 cm and the driver pulley runs at 1600 rpm. The initial tension in the belt is 0.95KN and coefficient of friction is 0.28 Calculate the length of the belt, power transmitted and width of the belt if the permissible tension per meter of the belt is 10 KN.

B) Describe any five Pattern Making Allowances. (10)

8) Describe all three Types of Gas Welding Flames (10)

A)

B) Describe with a sketch the working of radial drilling machine. (10)

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