Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

FIRST/SECOND SEMESTER B.TECH DEGREE EXAMINATION, MAY 2019

Course Code: ME100

Course Name: BASICS OF MECHANICAL ENGINEERING

Max. Marks: 100 Duration: 3 Hours

PART A

Answer any two questions, each carries 15 marks.

			Marks
1	a)	State Zeroth law of thermodynamics. Explain its significance.	(5)
	b)	Prove the equivalency of Kelvin Planck and Clausius statements.	(5)
	C)	Write a short note on thermodynamic work.	(5)
2	a)	Compare intensive and extensive properties with examples.	(5)
	b)	With the help of a neat diagram explain the working of a reaction steam turbine clearly showing the variation of steam pressure and velocity inside the turbine.	(10)
3	a)	Compare an open cycle and closed cycle gas turbine.	(5)
	b)	With the help of a neat diagram explain the working of 4 stroke cycle diesel engine.	(10)

PART B

Answer any two questions, each carries 15 marks.

4	a)	Write a short note on the impact of refrigerants on environment.	(5)
	b)	With neat sketches explain the working of window air conditioning system.	(10)
5	a)	Derive the expression for the ratio of belt tensions.	(10)
	b)	Write a short note on the classification of gears.	(5)
6	a)	Explain various desirable properties of refrigerants.	(4)
	b)	With a neat sketch explain the working of an internal expanding shoe brake.	(6)
	c)	Write a short note on major components of automobiles.	(5)

PART C

Answer any two questions, each carries20 marks.

7	a)	With the help of a neat diagram explain the thermit welding process.	(8)
	b)	Explain the extrusion process. Compare direct and indirect extrusion process.	(6)
	c)	Write a short note on various casting defects.	(6)
8	a)	Explain powder metallurgy. Narrate various steps in powder metallurgy.	(5)
	b)	With the help of a diagram mark the parts of a drilling machine. Explain any four operations performed on a drilling machine.	(8)
	c)	With neat sketches explain the up milling and down milling process.	(7)
9	a)	Explain different desirable properties of moulding sand.	(4)

(b) Compare different rolling mills with neat sketches. (8)

(c) With a neat sketch explain the principal parts of a shaper and discuss major operations performed in a shaper. (8)

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