Reg No.:_____   Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

B.Tech Degree S1 (S,FE) S2 (S,FE) Examination May 2024 (2015 Scheme)

Course Code: ME100
Course Name: BASICS OF MECHANICAL ENGINEERING

Max. Marks: 100   Duration: 3 Hours

PART A

Answer any two questions. Each question carries 15 marks

Marks

1	a)	Explain different thermodynamic systems with examples.	(5)
	b)	Define entropy and prove that it is a property of the system.	(5)
	c)	Explain the second law of thermodynamics.	(5)
2	a)	Compare centrifugal pump and reciprocating pump.	(5)
	b)	Derive an expression for the air standard efficiency of an Otto cycle.	(10)
3	a)	With neat sketches, explain the workings of a four-stroke diesel engine.	(10)
	b)	Compare fire tube and water tube boilers.	(5)

PART B

Answer any two questions. Each question carries 15 marks

4	a)	Explain the essential properties of refrigerants.	(5)
	b)	Compare vapour absorption and vapour compression refrigeration systems.	(5)
	c)	Explain the working of domestic refrigerators.	(5)
5	a)	Define psychrometry, specific humidity, relative humidity, dry bulb, and dew point temperature.	(5)
	b)	Explain the multi-point fuel injection system	(5)
	c)	List the major components of an automobile.	(5)
6	a)	Derive an expression for the length of an open belt drive.	(10)
	b)	Explain simple gear trains	(5)

PART C

Answer any two questions. Each question carries 20 marks

7	a)	Explain the important mechanical properties of materials.	(5)
	b)	Explain different types of rolling mills.	(10)
	c)	Explain major casting defects.	(5)

8 a) Explain direct extrusion with a neat sketch.   (6)

   b) With a neat sketch, explain spot welding   (4)

   c) With a neat sketch, explain the principal parts of a drilling machine and list any four   (10)
       operations performed on a drilling machine.

9 a) With a neat sketch, explain the principal parts of a lathe   (10)

   b) Explain the important parts of a horizontal milling machine with a neat sketch.   (10)

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