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Reg No.:_____   Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
FIRST SEMESTER B.TECH DEGREE EXAMINATION, DECEMBER 2017

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.

1 a) Distinguish between open and closed systems. Quote one example each for them. (5)
   b) State zeroth law and first law of thermodynamics. What are their engineering significance? (10)
2 With the help of proper thermodynamic diagrams derive the expression for air standard efficiency of an Otto cycle. (15)
3 a) State advantages and limitations of water tube boilers. (5)
   b) With the aid of neat sketch explain the working of fire tube boiler. (10)

PART B
Answer any two questions, each carries 15 marks.

4 a) What is an automobile? Discuss the classification of automobiles. (10)
   b) Discuss the impact of refrigerants on environment. (5)
5 Draw a layout of an automobile. Explain the major components (any three) with help of neat diagrams. (15)
6 a) Describe the working of a window air conditioner with neat diagram. (10)
   b) Differentiate between a heat pump and a refrigerator. Show the relation between their COP's (5)

PART C
Answer any two questions, each carries 20 marks.

7 a) What are the major properties of engineering materials? (10)
   b) Give a brief account of different types of engineering materials. (10)
8 a) What are the important types of metal joining processes? (6)
   b) Explain any two welding operations with neat diagrams. (14)
9 a) Using a block diagram, explain components of a CNC machine. (10)
   b) Explain the mechanism of shaping machine with the help of a neat sketch. (10)

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