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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 carries20 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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