

10019

Reg. No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
FIRST/SECOND SEMESTER B.TECH DEGREE EXAMINATION, SEPTEMBER 2016

ME100 BASICS OF MECHANICAL ENGINEERING

Max. Marks: 100

Duration: 3 Hours

PART A

Answer ALL questions. Each question carries 3 marks

1. State the second law of thermodynamics.
2. Which pump requires priming? What is the need for priming?
3. The door of your refrigerator is kept open inside a room. What will happen? Justify your answer.
4. Name few hybrid vehicles in India and mention its importance.
5. Briefly describe Rolling process
6. A designer is planning to design a sand mould without a riser. Can he achieve the casting successfully using this design and validate your answer.
7. A manufacturer demanded his lathe operator to put grip on his product. Suggest an operation to operator for performing the same? And explain the process?
8. Give the differences between a shaper and a planar.

PART B

Answer any 8 Questions (2 QUESTIONS FROM EACH MODULE)

Each question carries 6 marks

MODULE I

9. Explain the significance of Clausius inequality.
10. Sketch a Diesel cycle on P-V and T-S diagram and explain.
11. An engine operating on Carnot cycle between temperature limits 20°C and 800°C rejects heat at the rate 200 KJ/s. Determine (i) the ideal thermal efficiency of the cycle. (ii) Power output of the engine.

MODULE II

12. With a suitable sketch explain the working of a gas turbine.
13. Identify and explain the engine that gives one power stroke for two revolution of crank shaft
14. With a suitable sketch explain the working of a centrifugal pump.

MODULE III

15. Explain the working of a vapour absorption refrigerator with a suitable sketch.

16. Explain the working of a domestic refrigerator with a suitable sketch.
17. Explain the working of a split air conditioner with a suitable sketch.

MODULE IV

18. List out major components in an automobile with their functions.
19. Explain the different types of power transmission drives.
20. A good fuel for an SI engine will be a bad fuel for a CI engine. Comment. .

PART C

Answer any 4 questions (ANY 2 QUESTIONS FROM EACH MODULE)

Each question carries 7 marks

MODULE V

21. With neat sketch, explain sand casting process.
22. Briefly describe different types of rolling mills with sketches.
23. Describe the forging process with sketches.

MODULE VI

24. Explain the working of a drilling machine with the help of a neat diagram.
25. Sketch a milling machine and indicate the important components in it.
26. Describe a shaper with a neat diagram.