

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
FIRST SEMESTER B.TECH DEGREE EXAMINATION (S), DECEMBER 2019

Course Code: BE101-02

Course Name: INTRODUCTION TO MECHANICAL ENGINEERING

Max. Marks: 100

Duration: 3 Hours

PART A*Answer any two questions, each carries 15 marks.*

Marks

- 1 a) Explain the following terms (8)
 - i. Intensive property ii. Extensive property. iii. System iv. Control volume
- b) State and explain the two classical statements of second law of thermodynamics along with applications. (7)
- 2 a) State the principle of increase of entropy and give its significance. (5)
- b) Explain the working of Francis turbine with sketch. Also specify the role of draft tube in a reaction turbine. (10)
- 3 a) Discuss the working of petrol engine that produces power during every single revolution of crank shaft with sketches. (8)
- b) Explain liquid propellant rockets. Write the merits and demerits of it. (7)

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

- 4 a) Write any four industrial applications of refrigeration. (4)
- b) Mention the factors controlling human comfort in air conditioning. (4)
- c) Describe the desirable properties of a good refrigerant. (7)
- 5 a) Draw aircraft wing and show aerodynamic forces. (5)
- b) Explain with neat sketch the working of turbojet engine. (10)
- 6 a) Discuss the classification of automobiles with suitable examples. (8)
- b) Explain the working of simple carburettor with diagram. (7)

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

- 7 a) Explain the processes of welding, brazing and soldering and mention their fields of application. (10)
- b) Suggest a method for grinding of plain surfaces. Explain the process with a neat diagram. (10)
- 8 a) Describe the properties of metals and alloys with reference to the relevant fields of application. (10)

- b) Explain the different destructive testing methods employed for engineering materials (10)
- 9 a) Explain forward extrusion and backward extrusion with sketches. Also mention its applications. (10)
- b) Discuss the types, properties and applications of polymers in engineering field. (10)
