

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

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| 1 | a) Explain the following terms
i. Intensive property ii. Extensive property. iii. System iv. Control volume | (8) |
| | 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.

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| 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.

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| 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)
