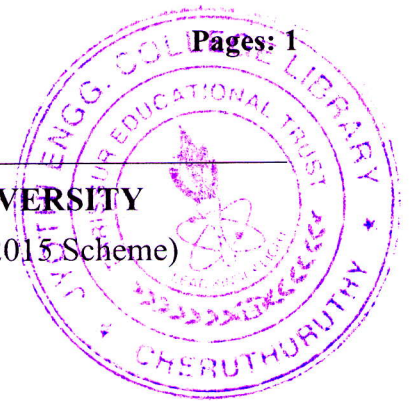


Reg No.: \_\_\_\_\_

Name: \_\_\_\_\_

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**  
B.Tech Degree S1,S2 (S,FE) Examination May 2021 (2015 Scheme)



**Course Code: ME100**

**Course Name: BASICS OF MECHANICAL ENGINEERING**

Max. Marks: 100

Duration: 3 Hours

**PART A**

*Answer any two questions. Each question carries 15 marks*

- |   |   | Marks |
|---|---|-------|
| 1 | a) Draw the P-V and T-S diagram of Carnot cycle and quote the equation for efficiency of the cycle. | (5)   |
|   | b) Explain Diesel cycle with a neat sketch. Also, derive an equation for its efficiency.            | (10)  |
| 2 | a) Give the significance of priming in centrifugal pumps.   | (5)   |
|   | b) Explain four stroke spark ignition engine with a neat sketch.                                    | (10)  |
| 3 | a) Draw a neat diagram of MPFI system and write the working   | (5)   |
|   | b) With a neat sketch explain the working of Francis turbine.                                       | (10)  |

**PART B**

*Answer any two questions. Each question carries 15 marks*

- |   |  |     |
|---|--|-----|
| 4 | a) Define different psychrometric processes with neat figure.  | (7) |
|   | b) Write the function of different parts of a Vapour compression refrigeration system with help of a neat sketch | (8) |
| 5 | a) Why clutch is needed? Explain single plate clutch with a neat sketch.   | (7) |
|   | b) Explain the major components of automobile.   | (8) |
| 6 | a) Explain belt drives with neat sketches.   | (7) |
|   | b) Define velocity ratio of gear drive. Explain different types of gear trains with neat sketches.               | (8) |

**PART C**

*Answer any two questions. Each question carries 20 marks*

- |   |   |      |
|---|---|------|
| 7 | a) What are engineering materials? Give the classification of engineering materials.              | (10) |
|   | b) What are the steps included in sand casting?   | (10) |
| 8 | a) Explain different rolling processes with neat sketches.  | (10) |
|   | b) What is powder metallurgy? What are the different steps involved in powder metallurgy process? | (10) |
| 9 | a) What are the major operations that can be done using lathe?                                    | (10) |
|   | b) Describe the working of CNC machines with a block diagram.                                     | (10) |

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