

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
Sixth semester B.Tech degree examinations (S), September 2020

Course Code: ME306

Course Name: ADVANCED MANUFACTURING TECHNOLOGY

Max. Marks: 100

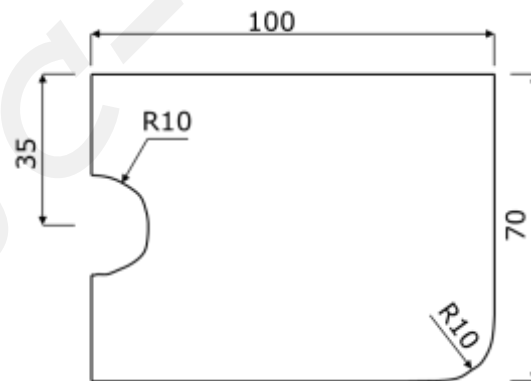
Duration: 3 Hours

PART A

Answer any three full questions, each carries 10 marks.

Marks

- 1 a) Explain the importance of micro and nano manufacturing in modern manufacturing industries. (5)
- b) What is atomization in powder metallurgy? Explain Gas atomization method in powder metallurgy. (5)
- 2 a) What are the different motion control systems in NC machine? Explain with figures. (5)
- b) Draw ladder logic diagrams for AND gate and OR gate. (5)
- 3 Write a manual part program for milling the shape given in figure .Show the tool path and explain the block .Thickness of work piece is 20 mm. All dimensions are in mm (10)



- 4 a) A simple integrator in which p is a constant is performed with a DDA integrator. Calculate the output ΔZ at the first 8 iterations. The DDA contains 3 bit register which are initially set $p = 5$ and $q = 0$. If each iteration is executed in 1 ms, draw the accumulated output ΔZ versus time. (5)
- b) Write any FIVE Post processor statement used in APT and its functions. (5)

PART B

Answer any three full questions, each carries 10 marks.

- 5 Explain the parts and functions of EDM with neat sketch. (10)
- 6 a) What are the functions of electrolyte in ECM? What are the properties to be considered while selecting electrolytes in ECM? (5)
- b) What are the process parameters affecting the performance of USM. Explain. (5)
- 7 Explain the working of IBM with sketch. Which are the factors affecting its MRR. (10)
- 8 a) Explain the mechanism of metal removal in AWJM. (5)
- b) Write the advantages of laser beam machining. (5)

PART C

Answer any four full questions, each carries 10 marks.

- 9 a) What is High velocity forming? Write its advantages and disadvantages. (5)
- b) Explain the types of elastic body waves. (5)
- 10 Draw and explain the effect of high speed on stress strain relationship of mild steel and copper. (10)
- 11 Name different types of HERF used for sheet metal work. Explain explosive forming types with neat sketches. (10)
- 12 Explain abrasive flow finishing with neat sketches. (10)
- 13 Explain the working of elastic emission machining with sketch. (10)
- 14 What is material addition process? Name different material addition processes. Explain any one process with neat sketch. (10)
