

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

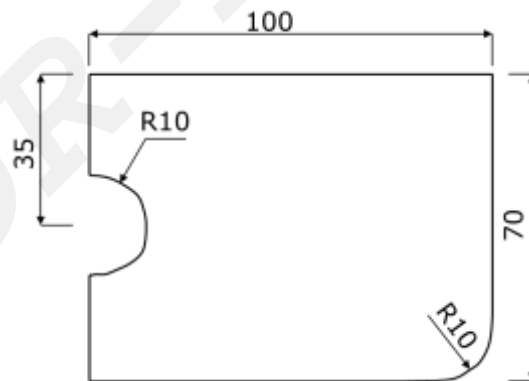
Duration: 3 Hours

**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) |



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|---|---|-----|
| 4 | a) A simple integrator in which p is a constant is performed with a DDA integrator. Calculate the output $\Delta Z$ 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 $\Delta Z$ 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)

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