

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

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

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**

Sixth Semester B.Tech Degree (S,FE) Examination May 2022 (2015 Scheme)

**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) Distinguish between absolute positioning and incremental positioning. Write their respective G codes. (5)
- b) What are the advantages and limitations of powder metallurgy? (5)
- 2 a) What are ladder diagrams? What are the rules to be kept in mind while writing a ladder diagram? (6)
- b) How does gas atomisation differ from centrifugal atomisation? (4)
- 3 a) Write any four preparatory codes and four miscellaneous codes each with their explanations. (4)
- b) Write a short note on circular interpolation. (6)
- 4 Write APT program to drill holes at positions P1 and P2 on the part shown in figure 1. (10)  
The part thickness is 1 inch and hole diameter is 0.75 inch. Use the tool home position shown, a drilling speed of 600r/min & a feed rate of 3.50 in/min. The machine that performs drilling is No: 3 and its controller is coded as DRILL.

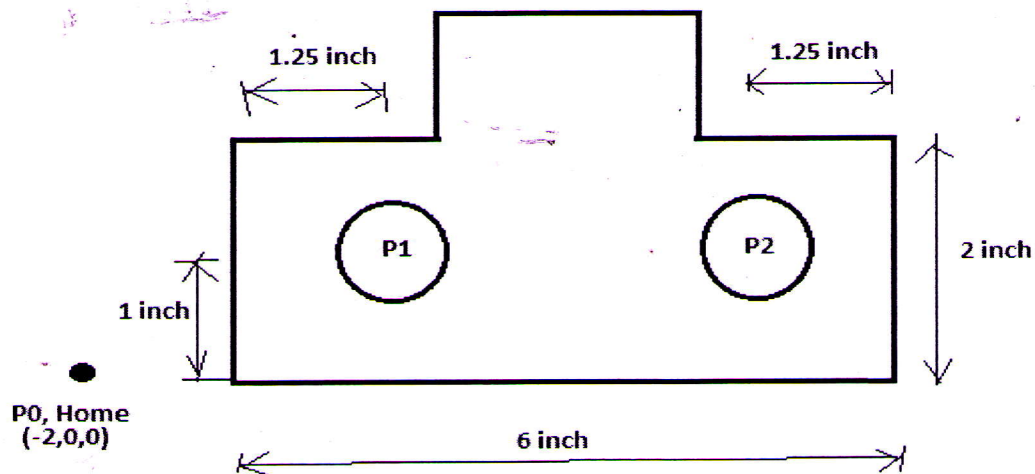


Figure 1

**PART B**

*Answer any three full questions, each carries 10 marks.*

- 5 a) Show the variation of MRR with current and frequency in EDM process. (5)  
b) What are the functions of the electrolyte used in ECM process? (5)
- 6 Explain USM process. What are its advantages and disadvantages? (10)
- 7 Explain IBM with a neat labelled diagram. How does it differ from conventional etching process? (10)
- 8 a) Explain AWJM process with a neat labelled diagram. (6)  
b) Mention the process parameters of Plasma Arc Machining (4)

**PART C**

*Answer any four full questions, each carries 10 marks.*

- 9 Mention the effects of high speed on the stress-strain relationship of Steel, Copper and Aluminium with diagrams. (10)
- 10 a) Compare high velocity forming with traditional methods (6)  
b) What is the effect of strain rate and strain distribution on high velocity metal forming? (4)
- 11 In the explosive forming of sheet metal, how does contact technique differ from standoff technique? (10)
- 12 How does stereo-lithography differ from SLS process? (10)
- 13 a) Write a short note on Magnetic Float Polishing. (6)  
b) What is the principle behind Magneto rheological finishing process? (4)
- 14 a) Explain LIGA process. (6)  
b) How 3 dimensional objects are made using a 3D printer? (4)

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