

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

B.Tech Degree S4 (S,FE) (FT/WP/PT) Examinations April/May 2026 (2019 Scheme)



Course Code: MET204

Course Name: MANUFACTURING PROCESS

Max. Marks: 100

Duration: 3 Hours

PART A

(Answer all questions; each question carries 3 marks)

	Marks
1 List out the goals of gating system?	3
2 Define Chvorinov's rule of solidification?	3
3 Differentiate soldering and brazing?	3
4 Describe the advantages and limitations of GMAW?	3
5 Differentiate hot working and cold working.	3
6 Define the term yield. Explain various yield criteria for metallic materials?	3
7 Write short notes on forging die design.	3
8 Explain swaging operation with line sketches.	3
9 Detail Concentric type of locating method.	3
10 What are the different operations in sheet metal.	3

PART B

(Answer one full question from each module, each question carries 14 marks)

Module -1

- 11 a) Why patterns are used in casting process? Explain any three types of patterns used? 7
- b) Explain the system and steps to manufacture a sand casting with neat sketch. 7
- 12 a) Explain a casting method with neat diagram for manufacturing an engine cylinder liner. 7
- b) Write a short note on i) Hot chamber die casting ii) Cold chamber die casting with neat sketches. 7

Module -2

- 13 a) Describe the types of flames used in Oxy acetylene gas welding with neat sketches. 7
- b) Explain shielded metal arc welding process with neat sketches. 7

- 14 a) Explain Heat Affected Zone (HAZ) in welding with schematic representation. 7
 b) Describe resistance welding process and any two resistance welding processes with neat sketches. 7

Module -3

- 15 a) Explain the principle of rolling with neat sketches. Also explain the roll forces in rolling process and how to reduce it. 7
 b) Explain the types of rolling mills with neat sketches. 7
 16 a) Explain any four rolling defects with neat diagram. 7
 b) Write a short note on i) ring rolling ii) Thread rolling with neat sketches. 7

Module -4

- 17 a) Describe forging operations with neat sketches. 7
 b) Explain various types of extrusion methods. 7
 18 a) Crankshaft are subjected to very high dynamic loads during engine use and high fatigue strength and wear resistance. But casting process is not applicable for manufacturing of crankshaft. Which process is used to manufacture crankshaft? Explain the process with diagram. 8
 b) Explain the forging defects with neat sketches. 6

Module -5

- 19 a) Describe 3-2-1 principle of location with neat sketches. 7
 b) Explain the locating methods based on locating surfaces. 7
 20 a) Explain the principles of clamping and discuss any two clamping methods. 7
 b) Describe the different types of shearing dies with neat sketches. 7
