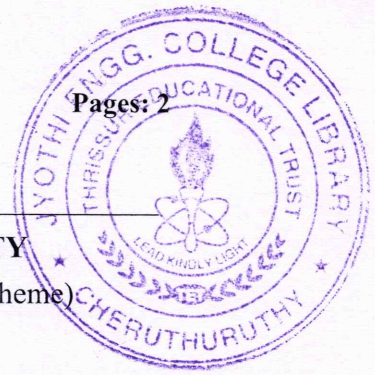


Reg No.: \_\_\_\_\_

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

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**  
 B.Tech Degree S4 (R,S) (FT/WP/PT) Exam April 2025 (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  | What are the considerations for selecting pattern materials?                      | 3 |
| 2  | Distinguish between internal chills and external chills. Which is more effective? | 3 |
| 3  | Oxidizing flame is desirable during welding of copper alloys. Comment.            | 3 |
| 4  | Draw a sketch and explain the principle of arc welding.                           | 3 |
| 5  | Derive an expression for power required per roll in rolling process.              | 3 |
| 6  | List any three methods to reduce roll forces in a rolling process.                | 3 |
| 7  | Draw a schematic diagram of a coining process and explain.                        | 3 |
| 8  | Distinguish between hot forging and cold forging.                                 | 3 |
| 9  | State three basic rules of clamping.  | 3 |
| 10 | Define and explain limiting drawing ratio in deep drawing process.                | 3 |

**PART B***(Answer one full question from each module, each question carries 14 marks)***Module -1**

- |    |  |   |
|----|--|---|
| 11 | a) Write a note on design and positioning of risers.                         | 7 |
|    | b) Sketch any three types of cores. Explain the process of core making.      | 7 |
| 12 | a) With a block diagram, explain production steps in sand casting operation. | 8 |
|    | b) Write a note on i) inspection of castings, and ii) casting defects.       | 6 |

**Module -2**

- |    |   |   |
|----|---|---|
| 13 | a) Draw a schematic of a shielded metal-arc welding process. Why is it known as stick welding? List any four practical applications of the process. | 7 |
|----|---|---|



- b) Draw the general view and cross-sectional view of a torch used in oxyacetylene welding. 7
- 14 a) Draw a neat sketch of a resistance spot welding process. Write a note on process capability of spot welding. 7
- b) What are the methods for testing defects in welds? Prepare a chart showing any three defects in welding and the corresponding method of testing of defects. 7

#### Module -3

- 15 a) Draw a neat sketch and explain the hot rolling process. Distinguish between hot rolling and cold rolling. 7
- b) Define thread rolling. With the help of schematics, explain the steps in thread rolling process. Give any two applications of thread rolling. 7
- 16 a) Write a note on i) heat generation and ii) heat transfer in metal forming. 7
- b) Draw a neat sketch and explain the metal flow pattern in bulk deformation of metals. Discuss how to calculate force and power in a typical bulk deformation process. 7

#### Module -4

- 17 a) Differentiate between hubbing, incremental forging and isothermal forging. Represent using neat sketches. 7
- b) Draw neat schematics and explain any two extrusion defects. 7
- 18 a) Define wire drawing. Derive an expression for drawing force, assuming frictionless conditions. 6
- b) Draw a neat sketch and explain rotary-swaging process. Write a note on swaging of tubes. 8

#### Module -5

- 19 a) Explain the basic principle of location using a neat sketch. 7
- b) Distinguish between hydraulic clamping and pneumatic clamping. 7
- 20 a) Draw neat sketches of any three stretch forming operations. 6
- b) Draw sketches and explain i) compound die, ii) progressive die. 8

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