

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

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

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**

B.Tech Degree S4 (S,FE) (FT/WP/PT) Examination December 2025/January 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  | Explain any three desirable properties of pattern material used in metal casting. | 3 |
| 2  | Explain the functions of riser?   | 3 |
| 3  | List any three practical applications of thermit welding.                         | 3 |
| 4  | Explain the principle of TIG welding?   | 3 |
| 5  | Differentiate between thread rolling and thread cutting.                          | 3 |
| 6  | List different ways to reduce roll force in rolling process? Give any three.      | 3 |
| 7  | Explain open and closed die forging processes?                                    | 3 |
| 8  | Differentiate between drawing and extrusion processes.                            | 3 |
| 9  | Explain stretch forming process.  | 3 |
| 10 | List any three methods to overcome spring back during bending operation.          | 3 |

**PART B**

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

**Module -1**

- |    |   |   |
|----|---|---|
| 11 | a) With neat sketch explain any two types of patterns. Write a note on selection of patterns for castings | 7 |
|    | b) Explain the hot chamber die casting process with the help of a neat sketch.                            | 7 |
| 12 | a) Compare semi centrifugal casting and centrifuge casting with line sketch.                              | 6 |
|    | b) With the help of neat sketch explain the various casting defects?                                      | 8 |

**Module -2**

- |    |   |   |
|----|---|---|
| 13 | a) With neat sketches, explain the characteristics of different types of flames used in gas welding.    | 7 |
|    | b) With the help of a neat diagram explain the submerged arc welding process.                           | 7 |
| 14 | a) Explain weldability. Briefly explain any 6 factors influencing weldability of engineering materials. | 7 |

- b) Write a note on HAZ. Draw a schematic of various regions in a fusion weld zone. 7

### Module -3

- 15 a) Draw a neat sketch and explain (i) Four high rolling mill (ii) Planetary rolling mill (iii) Cluster rolling mill (iv) Tandem rolling mill. 8
- b) Explain the ring rolling process with a neat sketch. 6
- 16 a) Differentiate between hot rolling and cold rolling operation. 6
- b) What is yield criterion? Explain Tresca and von Mises yield criteria. 8

### Module -4

- 17 a) Define deep drawing processes and explain its features and applications. 8
- b) List the various defects in forged parts. 6
- 18 a) With neat sketch explain hydrostatic extrusion and impact extrusion. 8
- b) Explain the wire drawing process with the help of a neat diagram. 6

### Module -5

- 19 a) List the different locating methods and explain any two of them. 8
- b) Explain spring back which is observed in sheet metal bending. 6
- 20 a) Explain compound die, combination die and progressive die with the help of a neat diagram 9
- b) Explain 3-2-1 principle of location. 5

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