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Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

B.Tech Degree S4 (R,S) / S4 (PT) (R,S) Examination June 2023 (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 is choke area? What is its importance?	3
2		The size of a pattern is greater than that of a casting. Why?	3
3		What is meant by weldability? What is its importance?	3
4		Write down the chemical reactions involved in a thermit welding process.	3
5		What is neutral point? What is its importance in rolling process?	3
6		Explain working of planetary rolling mill with sketch.	3
7		What is meant by forging under sticking condition?	3
8		Draw the cross section of a wire drawing die and mark entry, approach and bearing surface in it.	3
9		What are the various degrees of freedom enjoyed by an object in space?	3
10		Differentiate between pin and button locators.	3

PART B

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

Module -1

11	a)	Explain the various steps of the sand-casting process with suitable diagrams.	7
	b)	With the help of a neat sketch explain the cold chamber die casting process.	7
12	a)	Explain the squeeze casting process. What are its applications?	7
	b)	With the help of a neat sketch explain the investment casting process.	7

Module -2

13	a)	Explain the various types of flames formed in an oxy-acetylene welding process.	7
	b)	How does the resistance welding process carry out? What are its advantages and disadvantages?	7
14	a)	With a neat sketch explain the electro-slag welding process.	7
	b)	Explain the submerged arc welding process with the help of a neat diagram.	7

Module -3

15 a) Explain the various steps involved in finding out the power requirement in a rolling process. 7

b) With a neat sketch, explain the ring rolling process. 7

16 a) Sketch and explain plane stress diagrams for maximum-shear-stress and distortion-energy criteria. 7

b) Give an account of heat generation and heat transfer in metal forming process. 7

Module -4

17 a) With the help of neat sketches, explain the various steps involved in the coining process. 7

b) With the help of neat sketches, explain open die and impression die forging process. 7

18 a) With the help of neat diagrams, explain the direct and indirect extrusion processes. 7

b) Explain the various steps involved in the tube drawing process. 7

Module -5

19 a) With the help of neat sketches, explain the hydraulic and pneumatic clamping systems. 7

b) Explain the various steps in shearing operation with neat sketches. 7

20 a) With the help of neat diagrams, explain the various steps involved in deep drawing process. 7

b) How spinning process is carried out? What are its applications? 7

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