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Reg No.:_____ Name:_____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

B.Tech Degree S4 (R) (FT/WP) Examinations April 2026 (2024 Scheme)

Course Code: PEMET416
Course Name: Advanced Metal Joining Techniques

Max. Marks: 60 Duration: 2 hours 30 minutes

PART A

(Answer all questions. Each question carries 3 marks)

		CO	Marks
1	Explain the mechanism of solid-state welding.	CO1	(3)
2	Describe cold pressure welding with one application.	CO1	(3)
3	State the principle of ultrasonic welding.	CO2	(3)
4	Explain metal flow in friction stir welding.	CO2	(3)
5	Explain the working principle of Electron Beam Welding.	CO3	(3)
6	Distinguish transferred and non-transferred arc in plasma arc welding.	CO3	(3)
7	Explain principle of MIAB welding.	CO4	(3)
8	List four types of brazing processes. Write two applications of brazing	CO4	(3)

PART B

(Answer any one full question from each module, each question carries 9 marks)

Module -1

9	a)	Describe basic principle of diffusion welding with neat diagram. Explain the significance any one of process parameter of diffusion welding. Also write four applications of diffusion welding.	CO1	(9)
10	a)	What is adhesive bonding, explain with diagram. List four types of bonding material used in adhesive bonding. Also write four applications of adhesive bonding.	CO1	(9)

Module -2

11	a)	With neat diagram explain the basic principle and working of ultrasonic welding. Explain the significance any one of process parameter of ultrasonic welding. Also write four advantages of ultrasonic welding.	CO2	(9)
12	a)	With neat diagram explain the basic principle and working of Friction welding. List any four process parameter of Friction welding. Also write four applications of Friction welding	CO2	(9)

Module -3

13	a)	Draw the neat schematic diagram of a laser beam welding and explain its working. List any two type of lasers used in laser beam welding.	CO3	(9)
14	a)	With neat schematic diagram explain the working of Plasma Arc Welding. Also write four applications of Plasma Arc Welding	CO3	(9)

Module -4

15	a)	Explain about Torch brazing and Furnace brazing with neat diagram	CO4	(9)
16	a)	Explain about wet under water welding and dry under water welding with neat diagram	CO4	(9)

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