

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
SIXTH SEMESTER B.TECH DEGREE EXAMINATION, APRIL 2018

Course Code: ME366

Course Name: ADVANCED METAL JOINING TECHNOLOGY

Max. Marks: 100

Duration: 3 Hours

PART A

Answer any three full questions, each carries 10 marks.

Marks

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|---|--|-----|
| 1 | a) Explain working of Electron beam welding (EBW) with help of a diagram | (7) |
| | b) List major process parameters of EBW | (3) |
| 2 | a) Compare advantages of Laser beam welding over EBW | (7) |
| | b) Explain how key hole formation is achieved in LBW. | (3) |
| 3 | a) Explain working principle of diffusion welding. | (7) |
| | b) List and explain process parameters in diffusion welding | (3) |
| 4 | a) Compare the joints formed by EBW, LBW and diffusion welding | (7) |
| | b) What are the major limitations of diffusion welding? | (3) |

PART B

Answer any three full questions, each carries 10 marks.

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|---|---|-----|
| 5 | a) Explain explosive welding procedure with help of a diagram | (7) |
| | b) List different types of explosives used in explosive welding | (3) |
| 6 | a) Draw the schematic representation of Ultrasonic welding and list major processes parameters. | (7) |
| | b) Explain the major advantage of Ultrasound welding over conventional welding methods. | (3) |
| 7 | a) Explain major adhesive bonding theories. | (7) |
| | b) Describe the adhesive bonding procedure | (3) |
| 8 | a) Explain advantageous, disadvantageous and application of vacuum brazing. | (7) |
| | b) List major equipment's used for vacuum brazing. | (3) |

PART C

Answer any four full questions, each carries 10 marks.

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| 9 | a) Differentiate TIG Torch and Plasma torch with help of diagrams | (7) |
| | b) Explain transferred and non-transferred arc techniques in PAW | (3) |
| 10 | a) Explain effect of various process parameters of PAW on weld quality | (7) |

- b) Write a short note on under water welding methods (3)
- 11 a) Explain the magnetically impelled arc butt welding process (7)
- b) Draw different types of joints that can be welded using PAW (3)
- 12 a) Differentiate friction welding and Friction Stir welding with examples (7)
- b) Explain mechanism of bonding in friction stir welding (3)
- 13 a) List and explain different types of friction welding (7)
- b) What are the major process parameters in friction welding (3)
- 14 a) Explain friction stir welding processes (7)
- b) List major application of friction welding (3)
