

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
SIXTH SEMESTER B.TECH DEGREE(S) EXAMINATION, DECEMBER 2019

Course Code: ME366

Course Name: Advanced Metal Joining Technology

Max. Marks: 100

Duration: 3 Hours

PART A

Answer any three full questions, each question carries 10 marks.

Marks

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| 1 | a) List out the process parameters which are needed to be controlled during EBW? | (5) |
| | b) What are the main parts of electron gun? List out and explain its functions. | (5) |
| 2 | Explain the different types of Lasers | (10) |
| 3 | a) Describe the theory and principle behind the diffusion welding process | (5) |
| | b) List the key process variables in diffusion welding process | (5) |
| 4 | a) With the help of neat sketch explain the equipment and setup of cold pressure welding | (7) |
| | b) List the advantages of deformation welding | (3) |

PART B

Answer any three full questions, each question carries 10 marks.

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| 5 | a) Compare oblique and parallel explosion welding processes. | (5) |
| | b) List the advantages and limitations of explosion welding process. | (3) |
| | c) Explain the importance of detonation velocity in explosion welding. | (2) |
| 6 | a) With the help of neat sketch explain the failure mechanisms of adhesive bonding | (5) |
| | b) What are the major classifications of adhesive used in adhesive bonding? | (5) |
| 7 | a) Explain the main process parameter in Ultrasonic welding. | (5) |
| | b) Describe the theory and working principle of Ultrasonic welding with neat sketches. | (5) |
| 8 | a) Explain the key features of vacuum brazing furnace. | (5) |
| | b) List the advantages and limitations of Vacuum brazing. | (5) |

PART C

Answer any four full questions, each question carries 10 marks.

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| 9 | a) Explain in detail the equipment and tooling used in Plasma Arc Welding. | (7) |
| | b) Write a short note on Needle Arc Micro Plasma welding. | (3) |
| 10 | a) With the help of a neat sketch explain hyperbaric welding. | (7) |
| | b) List the demerits of underwater welding. | (3) |

- 11 a) Explain the principle of Magnetically Impelled Arc Butt welding process. (5)
b) Compare transferred and non - transferred arc technique in PAW. (5)
- 12 a) With the help of neat sketch explain the different stages of friction welding. (5)
b) Describe the influence of process parameters in friction welding. (5)
- 13 a) Explain Influence of Tool Geometry on Material Flow Pattern in Friction Stir Welding Process. (7)
b) List out the materials that can be friction stir welded. (3)
- 14 a) Draw the different shapes of probes used in friction stir welding. (5)
b) List the application of friction stir welding. (5)
