

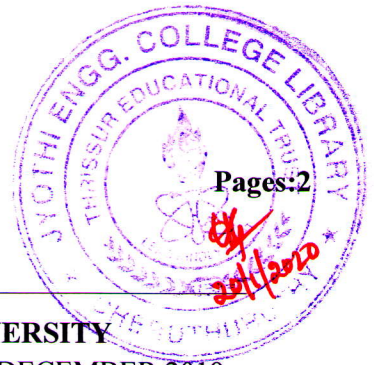
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**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY**  
**SIXTH SEMESTER B.TECH DEGREE(S) EXAMINATION, DECEMBER 2019**

**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

- 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.*

- 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.*

- 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)

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