

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
Sixth semester B.Tech degree examinations (S), September 2020

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) What are the safety measures associated with Laser Beam Welding? | (4) |
| | b) Explain the different process parameters affecting Laser Beam Welding | (4) |
| | c) What are the different types of lasers used in LBW? | (2) |
| 2 | a) With neat sketch explain the principle of operation and components of Electron Beam welding. | (7) |
| | b) What are the classifications of Electron Beam gun? | (3) |
| 3 | a) Explain the Diffusion welding process with neat sketches | (6) |
| | b) What is meant by Deformation welding? | (2) |
| | c) What are the different materials that can be joined by Diffusion welding process? | (2) |
| 4 | a) What is the role of dies in Cold Pressure welding? | (4) |
| | b) List the advantages and disadvantages of Cold Pressure welding. | (6) |

PART B

Answer any three full questions, each carries 10 marks.

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| 5 | a) Explain the different components involved in Explosive welding process? | (5) |
| | b) Explain the major Adhesive bonding theories. | (5) |
| 6 | a) Explain the different tests performed to assess the quality of weld in Explosive welding? | (5) |
| | b) What are the different steps in Adhesive bonding? | (5) |
| 7 | a) Explain Vacuum brazing process with the help of neat sketch | (6) |
| | b) What are the advantages and disadvantages of Vacuum brazing? | (4) |
| 8 | a) With the help of neat diagram, explain Ultrasonic welding process. | (6) |
| | b) What are the process parameters affecting Ultrasonic welding process. | (4) |

PART C

Answer any four full questions, each carries 10 marks.

- 9 a) Explain the principle of operation of Needle Arc Micro Plasma welding with the help of neat diagram. (5)
- b) With the help of neat diagram, explain the components used in Plasma arc welding. (5)
- 10 a) Explain the process of dry and wet underwater welding. (5)
- b) Explain the principle of operation of Magnetically Impelled Arc Butt welding. (5)
- 11 a) List the disadvantages and risk of Underwater welding. (5)
- b) What are the advantages and disadvantages of Plasma Arc welding? (5)
- 12 a) Explain the process of Friction welding with neat sketch. (5)
- b) What are the different stages in Friction welding? (3)
- c) List any two applications of Friction welding. (2)
- 13 a) Discuss the process variants of Friction Resistance welding. (6)
- b) Explain Friction Stir welding. (4)
- 14 a) What are the applications of Friction Resistance welding? (4)
- b) What are the advantages and disadvantages of Friction welding? (6)
