Subject Code: MTME033

PAPER ID-411582

Roll No: | | | | | | | | | | | | | |

MTECH
(SEM II) THEORY EXAMINATION 2023-24
ADVANCED WELDING TECHNOLOGY

TIME: 3 HRS **M.MARKS: 70**

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. 2 x 7 = 14

a.	Explain weldability.
b.	Discuss brazing.
c.	Describe weld distortion.
d.	Discuss the principle of ultrasonic welding.
e.	Discuss the advantages of diffusion bonding.
f.	Describe the meaning of mechanization of welding.
g.	Describe a robot.

SECTION B

2. Attempt any *three* of the following: 7 x 3 = 21

a.	Illustrate: (i) Lamellar tearing (ii) Hydrogen embrittlement
b.	Explain the principles of sound weld design.
c.	Describe explosive welding with neat sketch. Discuss its advantages, limitations and applications.
d.	Discuss the importance of mechanization in welding.
e.	Explain: (i) Microelectronic welding and soldering (ii) Use of robots for car body welding

SECTION C

3. Attempt any *one* part of the following: 7 x 1 = 7

a.	Illustrate weldability. Explain the effect of alloying elements on weldability.
b.	Explain: (i) Pre and post welding heat treatments (ii) Heat affected zone and its characteristics

4. Attempt any *one* part of the following: 7 x 1 = 7

a.	Illustrate different types of weld joints with neat sketches. Also discuss any one non-destructive testing method for welds.
b.	Explain various types of welding defects, their causes and remedies with neat sketches.

5. Attempt any *one* part of the following: 7 x 1 = 7

a.	Illustrate friction welding with neat sketch. Discuss its advantages, limitations and applications.
b.	Explain the principle of plasma arc welding. Describe the types of plasma arc welding with neat sketches.

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6. Attempt any *one* part of the following: 7 x 1 = 7

a.	Illustrate about rotating table positioners in welding.
b.	Discuss the manufacturing of longitudinal welded pipes.

7. Attempt any *one* part of the following: 7 x 1 = 7

a.	Illustrate the robotic welding, its advantages, limitations an application.
b.	Explain: (i) Efficiency of robotics in welding (ii) Programming of welding robots