Printed pages: 01 **Sub Code: MME259**

Paper Id: **240259** **Roll No:** | | | | | | | | | | |

M.TECH
(SEM-II) THEORY EXAMINATION 2017-18
ADVANCED WELDING TECHNOLOGY

Time: 3 Hours ***Total Marks: 70***

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

SECTION A

1. Attempt *all* questions in brief. **2 x 10 = 20**

a) Discuss Importance of welding.
b) Explain the Life prediction of welded structures
c) Why is important to clean the surfaces to be welded?
d) Name the testing methods for quality weld.
e) What are the advantages of constricting plasma in PAW?
f) Name any four weld defects.
g) Write short note on weld positioners.
h) Explain the reverse and straight polarity.
i) What is advantage of welding?
j) What are the effects of gases in welding?

SECTION B

2. Attempt any three of the following: **10 x 3 = 30**

a) Explain the welding stresses and what do you mean by heating-rate and cooling rate and that how it affects the properties of weld?
b) Explain the discontinuities in welds and their causes and remedies
c) Describe principle, working and applications of high frequency induction welding. What are the possible difficulties in it and how it can be dealt with?
d) A "I" beam (arc weld) is to be welded. Describe the welding processes involved and the welding tools required for it.
e) Explain the robot design and applications in welding.

SECTION C

3. Attempt any *one* part of the following: 10 x 1 = 10

a) Micro alloyed steels are better in their HAZ properties than plain carbon steels. Why?

b) Explain the weld testing standards.

4. Attempt any *one* part of the following: 10 x 1 = 10

a) Explain the weld joining characteristics. What is Weld throat thickness?

b) Briefly describe the various defects and distortion in welding and its causes and remedies?

5. Attempt any *one* part of the following 10 x 1 = 10

a) How different process parameter influence Laser Beam welding?

b) Explain with neat labeled sketch the working of Explosive welding with advantage and application.

6. Attempt any *one* part of the following 10 x 1 = 10

a) Explain the TIG welding of spiral welded pipes and also differentiate between the soldering and brazing process.

b) Draw symbols and sketches and write the design considerations for Flat-joint and circular –joint. How life prediction estimation can possibly be done?

7. Attempt any o*n*e parts of the following: 10 x 1 = 10

a) Explain the self alignment by current arc variation and new generation of welding robots.

b) Describe the self alignment by current arc variation in robotics.