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Total Number of Pages: 01

**B.Tech.
PEMT5404**

7th Semester Regular/Back Examination 2017-18

Joining of Materials

BRANCH : METTA, MME

Time: 3 Hours

Max Marks: 70

Q.CODE: B439

**Answer Question No.1 which is compulsory and any five from the rest.
The figures in the right hand margin indicate marks.**

- Q1 Answer the following questions: (2x10)**
- a) What is flux? Why is it essential to use it in some welding situations?
 - b) How is an arc obtained in arc welding?
 - c) Why is tungsten inert gas welding preferred for welding Aluminium plates? Give reasons.
 - d) What are the differences between brazing and soldering?
 - e) How AC/DC weld affect the weld?
 - f) Give two examples of solids state welding process.
 - g) Write different classifications of welding joint.
 - h) Give two examples of heterogeneous welding process?
 - i) Write three examples of nondestructive testing used in inspection of welding defects.
 - j) What is oxidizing flame in gas welding?
- Q2 a) Briefly explain the MIG welding process with schematic diagram. (5)**
b) What are different types of welding defects? (5)
- Q3 a) In a given welding operation, the power source is at 20 V and 300 amp. If the welding speed is 6 mm/s and transfer and melting efficiency are 0.8 and 0.3. Calculate the heat input? (5)**
b) Explain plasma arc welding in details. (5)
- Q4 a) What is weld decay? Explain (5)**
b) Discuss defects in welding. Give a reasons for each defect. (5)
- Q5 a) Explain the metallurgical principles involved in welding of Aluminum alloys. (5)**
b) Difference between TIG welding and MIG welding (5)
- Q6 a) Write a short note on Welding pool Solidification. (5)**
b) Why solid-state welding is preferred over fusion welding in case of dissimilar metals & alloys? Why a threshold deformation is required before the joints develop any strength? (5)
- Q7 Why the inclusion content is considered as one of the major factors controlling the microstructure of weld metal. Now a day, HAZ cracking due to hydrogen is less severe than weld metal cracking– explain. Discuss the possible ways of minimizing hydrogen induced cracking. (10)**
- Q8 Write short answer on any TWO : (5 x 2)**
- a) Explosive welding
 - b) Brazing
 - c) Heat affected zone
 - d) Fusion welding processes.