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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? (2)
- b) How is an arc obtained in arc welding? (2)
- c) Why is tungsten inert gas welding preferred for welding Aluminium plates? Give reasons. (2)
- d) What are the differences between brazing and soldering? (2)
- e) How AC/DC weld affect the weld? (2)
- f) Give two examples of solids state welding process. (2)
- g) Write different classifications of welding joint. (2)
- h) Give two examples of heterogeneous welding process? (2)
- i) Write three examples of nondestructive testing used in inspection of welding defects. (2)
- j) What is oxidizing flame in gas welding? (2)

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.