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GUJARAT TECHNOLOGICAL UNIVERSITY **BE - SEMESTER-VII EXAMINATION - WINTER 2015**

Date: 09/12/2015

Subject Code: 172103 **Subject Name: Metal joining Processes** Time: 10:30am to 1:00pm **Total Marks: 70 Instructions:** 1. Attempt all questions. 2. Make suitable assumptions wherever necessary. 3. Figures to the right indicate full marks. (a) Define welding. Discuss the factors which are considered in choosing a 0.1 02+05Welding process for a specific application. Explain different joint design and edge preparation with neat sketch 07 **(b)** What is Arc welding? Explain MIG/MAG with neat sketch **Q.2** 02+05Explain with schematic different mode of metal transfer in arc welding **07** processes. OR (b) Explain the phenomena for the formation of porosity and inclusions in 04+03weld metal also suggest the necessary precautions for the same. With necessary diagram show welding arc and discuss its characteristics. 0.3 04+03(a) Briefly discuss how residual stresses and distortion occur in welded 04+03Structures? How this stress could be minimized and eliminated? OR What the functions of flux are in submerge arc welding and explain it in **Q.3** 03+04(a) Explain how gas-metal and slag-metal reactions takes place in welding. **(b) 07** (a) List different methods for arc initiation. Explain GTAW process 02+050.4 Write a short note on: 1. Friction Stir welding 2. Ultrasonic welding **(b) 07** What is hydrogen embrittlement? How does it occur? **Q.4** 03+04What is weldability? Explain in brief about weldability of Al-alloy & Ti-**(b)** 02+05alloys. Q.5 Explain Laser welding process its advantages and limitations. 02+05(a) What is Electroslag welding? Explain its operation in detail. **(b)** 02+05OR Define soldering. Write in brief about Soldering alloys and it's applications Q.5(a) 02+05What is brazing process? Enlist different brazing Techniques and give 02+03+02 different brazing materials
