

Prince of Songkla University

Faculty of Engineering

Midterm examination: Semester 1

Academic year: 2005

Date: 6 August 2005

Time: 13.30-16.30

Subject: 226-304 Welding processes

Room: A400

ทฤษฎีในการสอบ โทษขั้นต่ำคือพักการเรียน 1 ภาคการศึกษาและปรับตกในรายวิชาที่ทฤษฎี

Instruction: Attempt all questions each of which has 10 marks, totaling 100 marks.

1. Describe the advantages of welding as compared to other joining processes, such as mechanical joints or adhesive joints.
2. Explain the reason that a pure metal and an alloy will have different microstructure zones formed in their fusion welds.
3. Analyze the reason that oxy-acetylene welding has been the most widely used gas welding process.
4. Give a critical comparison between the gas tungsten arc welding and the plasma arc welding.
5. Describe the principle of explosion welding; also outline the advantages and the limitations of the explosion welding as compared to other welding processes.
6. Analyze the difference between the pressure gas welding and the upset welding; also compare their advantages.
7. Discuss the main characteristics of submerged arc welding, as well as its limitations.
8. Comment the following statement: "It is recommended that the DCRP mode, rather than the more common DCSP mode, should be used for welding thin sections of aluminum during the gas-tungsten arc welding".
9. Considering figure 3.36 in page 89 of the book, explain the reason that various welding processes shown yielded different weld- profiles.
10. Classify types of manufacturing processes; also state their main characteristics and advantages.

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