

Prince of Songkla University

Faculty of Engineering

Midterm examination: Semester 1

Academic year: 2006

Date: 5th August 2006

Time: 13.30-16.30

Subject: 226-304 Welding processes

Room: R 200

ทฤษฎีในการสอบ โทษขั้นต่ำคือพักการเรียน 1 ภาคการศึกษาและปรับตกในรายวิชาที่ทฤษฎี

Instructions : 1. Attempt all questions, totaling 100 marks.

2. All materials are allowed.

1. Discuss the advantages and disadvantages of welding as compared to other joining processes, such as mechanical joints or adhesive joints. (10 marks)
2. Compare the advantages and disadvantages between manual metal arc (MMA) welding and oxy-acetylene gas welding. (10 marks)
3. Referring to figure 1.14 on page 8 of the Welding processes handbook by Klas Weman, explain the reason why each of the four different welding methods yields such a different penetration profile. (10 marks)
4. Give a critical comparison between the gas tungsten arc welding (or TIG) and the plasma welding. (10 marks)
5. One of the well-known problems of arc welding is the magnetic arc blow. Explain the possible causes, the defective results and the recommended measures. (10 marks)
6. Describe the drooping characteristic of power source in arc welding, and explain the reason that it is most suited for the manual metal arc (MMA) welding. (10 marks)
7. Discuss the main characteristics of submerged arc welding, its limitations, as well as the effect of the welding parameters. (10 marks)
8. Give concise discussion on the following topics: (30 marks, 6 marks each)
 - 8.1 Arc types for different current and voltage conditions.
 - 8.2 Benefits and drawbacks of welding with flux cored wire.
 - 8.3 Common weld defects in manual metal arc welding (MMA).
 - 8.4 Shielding gases employed in TIG and MIG welding.
 - 8.5 Inverter as the increasingly popular welding power unit.

Phichit Rerngsangvatana

