

Prince of Songkla University

Faculty of Engineering

Midterm examination: Semester 2

Academic year: 2005

Date: 12<sup>th</sup> December 2005

Time: 13.30-16.30

Subject: 226-211 Welding and Joining Technology

Room: หัวหุ่น

ทฤษฎีในการสอบ โทษขั้นต่ำคือพักการเรียน 1 ภาคการศึกษาและปรับตกในรายวิชาที่ทฤษฎี

Instruction: Attempt all questions, totaling 100 marks.

1. Describe the advantages of welding as compared to other joining processes, such as mechanical joints or adhesive joints. (10 marks)
2. Classify types of manufacturing processes; also state their main characteristics and advantages. (10 marks)
3. Explain the reasons that oxy-acetylene welding has been the most widely used gas welding process. (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 risks of weld defects. (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 welding power unit.

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