

Prince of Songkla University

Faculty of Engineering

Final Examination : Semester 1

Academic year : 2005

Date : 9th October 2005

Time : 9.00-12.00

Subject : 226-304 Welding Processes

Room : R303

ทฤษฎีในการสอบโทษขั้นต่ำคือ ปรับตกในรายวิชาที่ทฤษฎี และพักการเรียน 1 ภาคการศึกษา

Instruction: Attempt all questions which have the total marks of 100.

1. Explain the phenomenon of weld-decay or intergranular corrosion in austenitic stainless steel weld. Discuss the problem encountered, the causes as well as the remedies. (10 marks)
2. Discuss factors that influence the residual weld stress and the resulted distortions. (10 marks)
3. Give comments on the advantages and limitations of various non-destructive testing of welds as appeared in heading 16.5 on pages 182-183 from the welding processes handbook. (10 marks)
4. Elaborate the statement "The geometry of the weld is more important than the static strength of the parent metal (and of the filler metal), in determining its fatigue strength." (10 marks)
5. Discuss the difference between a pure metal weld and an alloy weld. (10 marks)
6. Describe the friction welding, covering the principle, variation, its advantages and limitations. (10 marks)
7. Explain the causes of blow holes in the weld and how to prevent or minimize them. (10 marks)
8. Summarize the influence of chemical composition and welding heat input upon bond embrittlement. (10 marks)
9. Discuss causes and the prevention of hot cracking within the weld zone. (10 marks)
10. Analyze the susceptibility to stress relief annealing cracking of weld zone for the following steels in the Thai textbook:
 - (a) HT80 steel with the composition in figure 3.16 of page 66.
 - (b) Steel in figure 3.25 of page 73.
 - (c) HT60 Steel in figure 3.26 of page 74.
 - (d) Type A and type B steels in figure 3.34 of page 84. (10 marks)

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Instructor

