

**PRINCE OF SONGKLA UNIVERSITY
FACULTY OF ENGINEERING**

**Final Examination : Semester II
Date : February 21, 2009
Subject : 226-306 Tools Engineering**

**Academic year : 2008
Time : 13.30-16.30
Room : A201**

ทูลรตใการสอบ โทษขันต่ำปรบตกใรยวษานัน
และพัทการเรยน 1 ภาคการศีกษา

Instruction :

- Answer all questions in the answer book.
 - All notes, books and calculators are not allowed.
 - Total score is 100.
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Questions:

1. Describe the main parts of a milling fixture. (4 marks)
2. What is the advantage of using a rocking jaw on a three-saw chuck? (3 marks)
3. Sketch an expanding mandrel and explain how does it work. (3 marks)
4. What are the major advantages of magnetic and vacuum milling fixtures? (3 marks)
5. What is the rule of thumb for the correct gripping area of chuck jaws? (3 marks)
6. What precautions should be taken when designing external broaching fixtures? (3 marks)
7. What is the bolster plate of a press? (3 marks)

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8. What effect does the bolster plate have on the shut height of a press?
(3 marks)
9. What is meant by a single-, two-, or four-point suspension of a press?
(3 marks)
10. What are the advantages of hydraulic-press drives? (3 marks)
11. How is the shut height of a mechanical press varied? (3 marks)
12. Describe the cutting action in punch and die operations. (4 marks)
13. Describe the characteristic appearance of edges of parts produced by piercing and blanking. (3 marks)
14. In sheet-metal piercing and blanking what is meant by penetration?
(3 marks)
15. What is the result of insufficient die clearance? (3 marks)
16. What determines the correct amount of die clearance? (3 marks)
17. Is the die clearance placed on the punch or die opening for a piercing operation? Why? (3 marks)
18. Why is die clearance increased for harder materials? (3 marks)
19. What factors contribute to the amount of force needed to strip material from punches? (3 marks)
20. What methods are used to reduce cutting forces on a press?
(3 marks)
21. What is the difference between the feed distance and the advance distance of a progressive die?
(3 marks)

22. What are the major advantages of compound dies? (3 marks)
23. What is meant by foolproofing a die block? (3 marks)
24. Why are sectional dies used? (3 marks)
25. What is meant by slug pulling? (3 marks)
26. What is the purpose of the primary stop (sometimes called starting stop)? (3 marks)
27. What is the major difference between fixed-limit gages and indicating gages? (3 marks)
28. What are go-not-go gages? (2 marks)
29. What is the difference between master gage blocks, inspection gage blocks, and working gage blocks? How are they used? (3 marks)
30. Select gage blocks to build up dimension 5.3927-inch. (3 marks)
31. How are unilateral tolerances applied to (a) plug gages and (b) ring gages? (3 marks)
32. Explain the principle of pneumatic gaging. (3 marks)
33. What are the major advantages of pneumatic gages? (3 marks)

Pichit Pitsuwan
February, 2009.