

**PRINCE OF SONGKLA UNIVERSITY
FACULTY OF ENGINEERING**

**Final Examination : Semester II
Date : February 19, 2008
Subject : 226-306 Tools Engineering**

**Academic year : 2007
Time : 13.30-16.30
Room : A201**

ทฤษฎีในการสอบ โทษขั้นต่ำปรับตกในรายวิชานั้น
และพักการเรียน 1 ภาคการศึกษา

Instruction :

- Answer all questions in the answer book.
- All notes, books and calculators are not allowed.
- Total score is 100 (45%).

Questions:

1. How can the accuracy of contact between bearing surfaces of the mill fixture and the workpiece resting upon it be checked? (3 marks)
2. What is a rocking jaw? Give an example. (3 marks)
3. What is a knock off mandrel? Explain. (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? (2 marks)
6. Sketch and explain an expanding mandrel. (3 marks)
7. What is the bolster plate of a press? (3 marks)

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8. What is meant by a single-, two-, or four-point suspension of a press? (3 marks)
9. What are the advantages of hydraulic-press drives? (3 marks)
10. How is the shut height of a mechanical press varied? (3 marks)
11. Describe the characteristic appearance of edges of parts produced by piercing and blanking. (3 marks)
12. In sheet-metal piercing and blanking what is meant by penetration?
13. What is the result of insufficient die clearance? (3 marks)
14. What determines the correct amount of die clearance? (3 marks)
15. Is the die clearance placed on the punch or die opening for a piercing operation? Why? (3 marks)
16. What methods are used to reduce cutting forces on a press? (3 marks)
17. What is the difference between the feed distance and the advance distance of a progressive die? (3 marks)
18. What are the major advantages of compound dies? (3 marks)
19. Why are sectional dies used? (2 marks)
20. What is meant by slug pulling? (2 marks)
21. What is the purpose of the primary stop (sometimes called starting stop)? (2 marks)
22. What is the major difference between fixed-limit gages and indicating gages? (3 marks)

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23. What are go-not-go gages? (3 marks)
24. What is the difference between master gage blocks, inspection gage blocks, and working gage blocks? How are they used? (3 marks)
25. Select gage blocks to build up dimension 3.4572-inch. (3 marks)
26. How are unilateral tolerances applied to (a) plug gages and (b) ring gages? (3 marks)
27. Explain the principle of pneumatic gaging. (3 marks)
28. What are the major advantages of pneumatic gages? (3 marks)

(Design problems next page.)

A handwritten signature in black ink, appearing to be 'A. W. R.', located at the bottom right of the page.

29. Design a jig to drill all the holes in the workpiece shown in fig. I. Assume that all surfaces have been previously machined. (10 marks)
30. Design a milling fixture to mill the 1.625 -in.slot of the workpiece shown in fig. I. Assume that the holes and all surfaces have been previously machined. (10 marks)

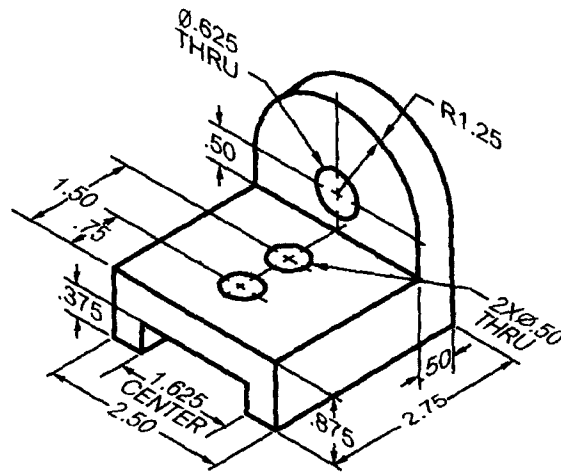


Fig. I.

Pichit Pitsuwan
February, 2008.

Pichit Pitsuwan