

PRINCE OF SONGKLA UNIVERSITY  
FACULTY OF ENGINEERING

Final Examination : Semester 2

Academic Year : 2004

Date : February 22, 2005

Time : 13.30 - 16.30

Subject : 226-306 Tools Engineering

Room : A 203

ทฤษฎีในการสอบโทษขั้นต่ำ คือ ปรับตกในรายวิชาที่ทฤษฎี และ  
พักการเรียน 1 ภาคการศึกษา

Instruction :

1. Answer all questions in the answer book.
2. A calculator with programming capability is allowed.
3. All notes and books are not allowed.
4. Total mark is 100 (45%) ( 3 marks each, except question 25,26,27).

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ผศ.พิจิตร พิศสุวรรณ

ผู้ออกข้อสอบ

กุมภาพันธ์ 2548

*S. P. P.*

**Questions :**

1. What are the common methods of locating from circular surfaces?
2. How is unevenness compensated for when locating against an irregular surface with more than three locating points?
3. What are diamond pins, and how are they used?
4. What are the four essential requirements of clamps and clamping devices?
5. What is a spherical washer, and when is it used?
6. What is the advantage of tumble jigs?
7. What are the three ways chips are removed from drill jigs?
8. Why should a drill jig stand on four legs rather than three?
9. What methods are used when two or more holes are so close together that it is impossible to have an individual standard bushing for each hole in the workpiece?
10. Why are keys mounted to the base of mill fixtures?
11. How can the accuracy of contact between bearing surfaces of the mill fixture and the workpiece resting upon it be checked?
12. What precautions should be taken when designing external broaching fixtures?
13. What is the advantage of using a rocking jaw on a three-jaw chuck?
14. How is the shut height of a mechanical press varied?
15. In sheet-metal piercing and blanking what is meant by penetration?
16. What is the result of insufficient die clearance?
17. Why is die clearance increased for harder materials?
18. What methods are used to reduce cutting forces?
19. What are the major advantages of compound dies?
20. What is the minimum number of screws and dowels necessary to accurately position a die component and hold it in place?
21. Why are sectional dies used?
22. What is meant by slug pulling?
23. What is the advantage of indirect pilots?
24. What is stock pusher, and how is it used?

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27. Sketch a die block and a punch to blank the workpiece shown in fig.(c). Show (a) the die opening dimensions,(b) the punch cutting-face dimensions,(c) location of holes for cap screws and (d) location of dowel holes.

(10 marks)

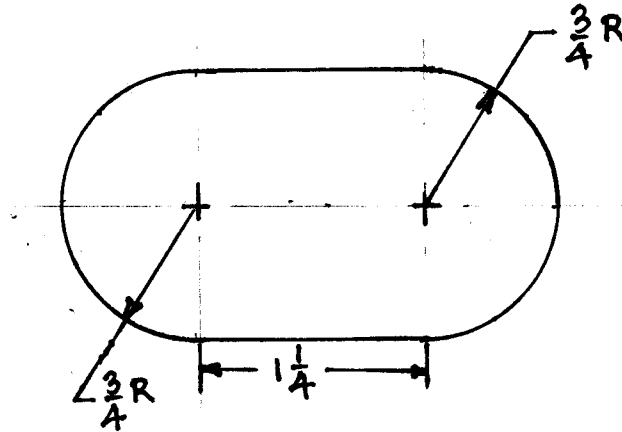


fig.(c)

stock thickness =  $\frac{1}{16}$  in., die clearance = 10 %

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Pichit Pitsuwan

February ,2005

*Pichit Pitsuwan*