

PRINCE OF SONGKLA UNIVERSITY
FACULTY OF ENGINEERING

Final Examination : Semester 2

Academic Year : 2004

Date : February 23 ,2005

Time : 09.00- 12.00

Subject : 226-304 Production Technology II

Room : R300

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 (30%).

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ผศ. พิจิตร พิศสุวรรณ

ผู้ออกข้อสอบ

กุมภาพันธ์ 2548

Sapth

Questions :

1. What is the difference between conventional and climb milling ?
When is it proper to use each ? (4 marks)
2. Discuss the various methods which may be used to mill a chamfer,
or an angle on a workpiece. (4 marks)
3. Given a shaft 3 in. in diameter with a $\frac{3}{8}$ - in. square key, find : (a)
the height of the incomplete arc ; (b) the depth of the keyway in
the shaft ; (c) the depth of the keyway in the bore ; (d) the distance
from the depth of the keyway in the shaft to the opposite side of
the shaft ; (e) the distance from the bottom of the keyway in the
bore to the opposite side of the bore. (5 marks)
4. Explain the difference between direct and simple indexing. (3 marks)
5. Find the movement of the index handle when simple-indexing the
following divisions:(a) 20; (b) 25; (c) 30. (5 marks)
6. Find the gears and the movement of the index handle needed to
differential-index 121 divisions. (4 marks)
7. A spur gear has 26 teeth and an outside diameter of 2 in. Find : (a) the
diametral pitch ; (b) the pitch diameter ; (c) the full depth of the tooth
and (d) the root diameter. (5 marks)
8. Explain the three motions which make the radial drill press more flexible
than the standard drill press. (3 marks)
9. What mechanisms are used to drive the spindle of a drill press without
loss of vertical motion ? (3 marks)
10. What is a core drill ? When is it advisable to use a core drill ? (3 marks)
11. When are left-hand helixes used on reamers ? Why is their use
important ? (3 marks)
12. How does the counterbore operation differ from the spot-facing
operation ? (3 marks)



13. How do serial taps differ from a set of starting-plug-bottoming taps ?
(3 marks)
14. Describe the procedure for fastening two plates with a $\frac{3}{4}$ -10 socket head screw.
(5 marks)
15. Explain the transmission of power from the bull wheel to the ram in a crank shaper.
(5 marks)
16. Describe the procedure for roughing and finishing a $\frac{5}{8}$ in. keyway in a 1-in. hole. Your description should include all calculations, the setup, and the cutting operation. Using a $\frac{3}{8}$ in. tool as a roughing tool. (5 marks)
17. Given a 60 female dovetail with a 5-in. dimension across the corners at the small width and a depth of 1 in., find: (a) the dimension across the corners at the bottom of the dovetail; (b) the best wire size; (c) the measurement over the wires. (5 marks)
18. Describe the two methods used to hitch feed the grinding wheel across the surface of the work on a surface grinder. (4 marks)
19. Describe two methods used for grinding holes. (4 marks)
20. There are two types of magnetic chucks used on a surface grinder. Make a sketch of the essential parts of these chucks, and illustrate how they are capable of holding a piece of steel. (5 marks)
21. Explain the principle of through feed on a centerless grinder. (3 marks)
22. Explain the principle and describe the method used to crush-dress a grinding wheel. (3 marks)

23. What are the five factors used to describe a grinding wheel ? What function does each of the five factors perform during the grinding operation ? (5 marks)

24. How is the grit size of a grinding wheel determined ? (3 marks)

25. What is the meaning of the word 'grade' when referring to grinding wheels ? State and explain some of the conditions under which a soft, medium, and hard grade would be used. (5 marks)

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**Pichit Pitsuwan
February,2005**

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