Prince of Songkla University

The Faculty of Engineering

Midterm Examination Semester 1 **Year 2005**

Date : 31 Jul 2005 **Time : 9:00-12:00**

Subject : 226-341 Maintenance Engineering **Room : R300**

Name : .....

Student code : .....

Part	1	2	3	4	Total
Full score	**10**	**12**	**48**	**10**	**80**
Score					

<u>คำสั่ง</u>

1. นำตำราหรือเอกสารใด ๆ เข้าห้องสอบได้
2. นำ Dictionary และ เครื่องคิดเลขเข้าห้องสอบได้ ทุกชนิด ใช้ดินสอได้
3. ข้อสอบนี้ มีทั้งหมด 4 ส่วน คะแนนเต็ม 80 คะแนน คะแนนแต่ละส่วนไม่เท่ากัน ตรวจสอบก่อนเริ่มทำ ***(ให้ทำในกระดาษคำตอบเท่านั้น ตอบนอกกระดาษคำตอบไม่มีคะแนน)***
4. เขียน ชื่อ <u>**หรือ**</u> รหัส ในกระดาษคำตอบทุกหน้าก่อนเริ่มทำ เพื่อป้องกันความสับสนในกรณีกระดาษคำตอบหลุดจากฉบับ

ทุจริตในการสอบ โทษขั้นต่ำปรับตกในรายวิชานั้น

และพักการเรียน 1 ภาคการศึกษา

03

Name :.....Student Code : .....

Part 1 Answer all questions. Please determine whether these following sentences are correct or incorrect. One point (1 point) will be given for the right answer. Minus half point (-0.5 point) will be given for the wrong answer. (Total 10 points)

Question no.	Correct ✓	Incorrect ✗	Question
1			The probability of occurrence of failures in automated equipment is smaller than that in equipment of simple mechanism.
2			Handling of most storeroom charges should be distributed to maintenance cost by dollars spent.
3			In the case of equipment manufactured within the plant, the total cost after close-out of the job can be handled like an invoice with no need for processing through accounts payable.
4			Dismantling expense includes the cost of repair used machine.
5			Maintenance-department overhead covers all expenses that cannot be directly charged to specific work units.
6			In most plants maintenance overhead can be divided into two general categories- "operating" and "maintenance" cost.
7			In the CBM system, each machine is considered individually by making unfixed interval condition check to obtain a quantitative value of the health of the machine.
8			A main function of machine condition diagnosis technology (CDT) is to provide the information about the machinery present condition, and of its rate of change.
9			To implement TPM effectively, top executives should solely participate to TPM program.
10			In the design of maintenance organization, the key point is how to locate the maintenance department.

Name :.....Student Code : .....

Part 2 Answer all questions. Please select suitable words (in A or B) for these following sentences. Each question has 1 points. (Total 12 points)

No.	Answer		Questions
	A	B	
1			CBM (III) is the most **A. complex ; B. simple** and expensive condition based maintenance system.
2			In **A. theory X, B. theory Y** proposed by Douglas McGregor, manager assumes that people are fundamentally hard-working, responsible
3			Supervisory overhead, as well as operating cost of a maintenance shop and its equipment, is generally distributed on the basis of **A. man-hours spent; B. dollar-spent**.
4			During the initial stage, failure rate of machine is **A. high, B. low.**
5			In **A. central type, B. departmental type** organization, maintenance persons are placed under the supervision or each production department's manager.
6			Among the inspection items, the daily inspection job should be allotted to the **A. operator, B. maintenance man** as possibly.
7			CBM (I) has the highest performance but also the highest cost, so this grade CBM should be applied to the critical plant where production loss due to **A. unexpected; B. expected** failures is. very large
8			70% to 90% of the problems **A. can not be; B. can be** solved with only the simple techniques.
9			In **A. TBM; B. CBM** system, a plant is withdrawn from service at constant intervals for repair.
10			The pattern of machine failure rate is similar to **A. bathtub, B. exponential.**
11			**A. Central type B. Area type** maintenance organization is suited to be applied for the case where the equipment for plural products series exists in the large-scale plant area
12			Some **A. large, B. small** plants had central shops to cope with mobile repairs and large repairs.

Name :.....Student Code : .....

<u>Part 3.</u> Answer all questions. Each question has 3 points. Total score for this part is 48 points.

1. What are the advantages when time based preventive maintenance is adopted?

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2. What is the benefit of "Preventive maintenance"?

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3. In the design of maintenance organization, why should we consider the "geographic disperse of a plant or equipments"?

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4. What are the causes of failure during initial stage of machine operation?

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04

Name :.....Student Code : .....

5. What are the advantages of breakdown maintenance?

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6. What does "Human relations skills" mean?

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7. What is "upkeep maintenance"?

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8. How can we apply "theory X" and "theory Y" proposed by Douglas McGregor in maintenance organization?

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9. How does the operator in production department get involved with maintenance works?

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10. Why is the CBM system set up cost getting cheaper now?

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11. How can we apply the concept of "maintenance prevention" to the CNC machine in the Industrial Engineering Department?

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12. How can we apply "corrective maintenance" to the centrifugal machine for the latex factory?

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13. How does "absolute deterioration" differ from "comparative deterioration"?

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14. How can we improve craftsman human relations skills?

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15. Why is the stratification of maintenance data important?

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16. Why are "challenging assignment" effective to exert motivation force?

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Name :.....Student Code : .....

Part 4 How can we apply the theories in chapter 1 to 4 in maintenance engineering subject to the maintenance work in the department of Industrial Engineering, in PSU? (10 points)

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 GOOD LUCK Dr. Klangduen Pochana