

Prince of Songkla University
The Faculty of Engineering

Midterm Examination Semester 1

Year 2008

Date : 27 July 2007

Time : 13:30-16:30

Subject : 226-341 Maintenance Engineering

Room : R201

Name :

Student code :

Part	1	2	3	Total
Full score	20	15	55	90
Score				

คำสั่ง

- นำคำราหรือเอกสารใด ๆ เข้าห้องสอบได้ ห้ามยืมเอกสารหรือสิ่งของใดๆในห้องสอบ
- นำ Dictionary และ เครื่องคิดเลขเข้าห้องสอบได้ ทุกชนิด ใช้ดินสอได้ แต่ต้องเขียนให้อ่านได้ชัดเจน
- ข้อสอบนี้ มีทั้งหมด 3 ส่วน คะแนนแต่ละส่วนไม่เท่ากัน ตรวจสอบก่อนเริ่มทำ (ให้ทำในกระดาษคำตอบเท่านั้น ตอบนอกกระดาษคำตอบไม่มีคะแนน)
- เขียน ชื่อ หรือ รหัส ในกระดาษคำตอบทุกหน้าก่อนเริ่มทำ เพื่อป้องกันความสับสน ในกรณีกระดาษคำตอบหลุดจากฉบับ

ทูลริติในการสอบ โทษขันตำปรับตกในรายวิชานั้น
และพักการเรียน 1 ภาคการศึกษา

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 20 points)

Q no.	Correct ✓	Incorrect x	Question
1			The corrective action for chronic loss of machine is normally done by specialists e.g. process engineering, quality assurance and maintenance people.
2			Logistic loss is the loss that impedes human work efficiency.
3			Chronic Loss of machine is normally easy to establish a remedial measure.
4			With Planned Maintenance we evolve our efforts from a proactive to a reactive method.
5			Predictive maintenance system is one of the steps in Planned maintenance.
6			Poka-yoke is one of the techniques that is used in quality maintenance.
7			Predictive maintenance is time based maintenance.
8			In TPM system, It is not sufficient to know only "Know-How" the operator and maintenance should also learn "Know-why".
9			Reduce accidents is one of Indirect benefits of TPM
10			After cleanup step in JISHU HOZEN, problems that can be solved by operators are identified with white tags.
11			Kaizen activities are normally limited to production areas and should not be implemented in administrative areas.
12			The frequency of occurrence of Sporadic Loss is low and occasional.
13			The highest phase of employee's skill indicates the ability of employee in teaching and writing machine instruction (know-how).
14			Speed loss (operating at low speeds) is the loss that obstructs effective use of production resources.

Name : Student Code :

Q no.	Correct ✓	Incorrect ✗	Question
15			TPM is one of maintenance type that includes maintenance prevention activity.
16			One of the differences between preventive maintenance and maintenance prevention is time for repair work.
17			Maintenance man normally proud to do all menial jobs- furniture building painting, road repairing, aligning machinery, and testing electronic circuits.
18			Bolts, nuts and washers should be controlled as non-permanent articles.
19			A bearing that is prepared against sudden failure should be controlled as non-permanent articles.
20			In TBM system, a plant must be stopped for maintenance at constant intervals.

Name :Student Code :

Part 2. Answer these following questions shortly in the provided space. (1.5 point each, total 15 points)

No	Question	Answer
1	What type of maintenance aims to improve reliability or maintainability of machine?	
2	What type of maintenance includes function test activity?	
3	What is the key principle of TPM?	
4	What was the Japanese company that introduced TPM?	
5	What is the routine maintenance of equipment that is carried out by the operators?	
6	What is the minimum value of OEE for world class factory?	
7	What type of maintenance organization suits for a large scale factory with multiple products? And why?	
8	In what type of maintenance organization, maintenance man usually has higher skill in a particular machine than others?	
9	What type of maintenance that aims to maximize plant and equipment effectiveness to achieve optimum life cycle cost of production equipment?	
10	What type of maintenance should be involved with machine diagnosis technology?	



Name : Student Code :

Part 3 You are assigned to be a team member of consultant for maintenance activity in Industrial Engineering department (IE), PSU. Answer these following questions. Each question has different score. Total score for this part is 55 points. Clear explanation and reason must be given in your answers.

1. What is your suggestion on maintenance organization that suits for IE? (5)

2. How can IE motivate maintenance men in IE? (5)

3. How should IE manage their maintenance material store? (5)



Name : Student Code :

4. What is your suggestion on designing autonomous maintenance system for Lathe machine? (10)

5. What should IE do to implement a pillar of "Quality maintenance" (for TPM)? (10)



Name : Student Code :

6. What should IE do to implement a pillar of “Education and training” (for TPM)? (10)

7. What is the step of implementing TPM in IE? (10)

GOOD LUCK

Dr. Klangduen Pochana



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