ชื่อ.....รหัส.....

PRINCE OF SONGKLA UNIVERSITY

FACULTY OF ENGINEERING

Midterm Examination: Semester II **Academic year : 2015**

Date : 28 February, 2016 **Time : 09.00 – 12.00 AM**

Subject : 231-472 PETROCHEMICAL TECHNOLOGY **Room : A203**

รายละเอียดการทำข้อสอบ

1. ห้ามนำข้อสอบบางส่วนหรือ ทั้งหมดออกจากห้องสอบ
2. นำหนังสือหรือเอกสาร เครื่องคิดเลขเข้าห้องสอบได้
3. ห้ามหยิบยืมเอกสารใดๆ และพูดคุยกับนักศึกษาอื่นขณะทำข้อสอบ
4. ข้อสอบมีทั้งหมด 6 ข้อ มีจำนวนทั้งหมด 7 หน้า
5. อนุญาตให้ทำข้อสอบด้านหลังกระดาษคำตอบแต่ละข้อได้
6. กรอกชื่อและรหัสนักศึกษาด้านหน้าข้อสอบและกรอกรหัสนักศึกษาทุกหน้าของกระดาษ

ทุจริตในการสอบโทษขั้นต่ำ คือ ปรับตกในรายวิชาที่ทุจริตและพักการเรียน 1 ภาคการศึกษา

ข้อที่	คะแนนเต็ม	คะแนนที่ได้
1	20	
2	20	
3	20	
4	20	
5	20	
6	20	
รวม	120	

รศ.ดร.จันทิมา ชั่งสิริพร

ผู้ออกข้อสอบ

รหัส.....

1. The origin of the oil and gas field and exploration (20 marks)

1.1 Petroleum oil and natural gas are dilled from earth to produce energy for human. Explanation for how the petroleum oil and gas originally formed.

Ans. .....

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1.2 Most exploration of oil and gas depends on sophisticated technology to detect and determine the extent of the oil and gas deposits. What are the exploration technologies by step using for recover oil and gas? Ans. .....

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1.3 Explanation for four geological factors that have to be presented for a prospect of oil and gas.

- A source rock Ans. .....

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- Migration Ans. .....

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- Reservoir rock Ans. .....

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- Trap Ans. .....

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1.4 When a prospect has been identified and evaluated and passes the oil company's selection criteria, an exploration well is drilled. Explanation for the step of drilling the oil well.

Ans. .....

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2. Oil and gas composition analysis (20 marks)

2.1 What kind of hydrocarbons and other organic compounds are containing in crude oil?

Ans. .....

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2.2 What are the most important properties determining a crude's value? Show grading of the crude oil by using these properties.

Ans. .....

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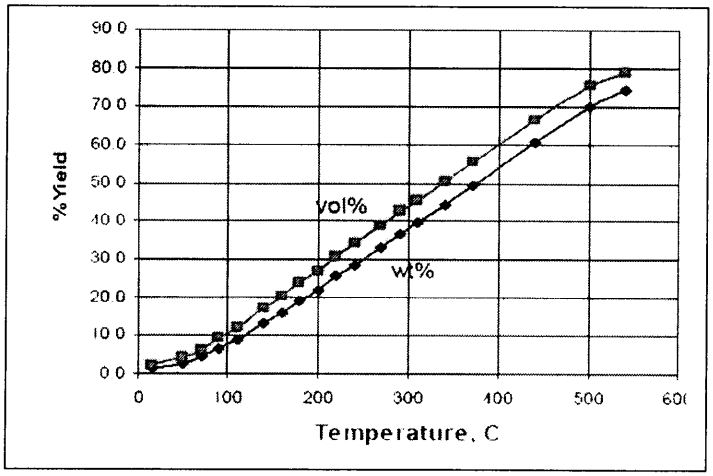
2.3 From this True Boiling Point curve, answer following question:



- %wt of product at boiling range of 200-400°C

Ans. .....

- %wt of residue from TBP distillation

Ans. .....

- Boiling range of light product from initial to 30% yield

Ans. .....

2.4 Explain for the following measuring descriptive characteristic of oil

- Flash point Ans. .....

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- Pour point Ans. .....

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3. Gas separation plant (20 marks)

3.1 What are all products from gas separation plant and the application of them?

Ans. .....

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3.2 Explanation for gas separation process to separate non-hydrocarbon components?

Ans. .....

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3.3 Explanation for gas separation process to separate hydrocarbon components.

Ans. .....

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3.4 How can they transport the sale gas to customer?

Ans. .....

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4. Low Boiling Point Products (20 marks)

4.1 Show the different item between LPG and Gasoline as using for vehicle.

Ans. .....

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4.2 What is CNG and advantage of it?

Ans. .....

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4.3 How can refinery produce gasoline?

Ans. .....

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4.4 What is octane rating?

Ans. .....

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4.5 A refinery has a crude distillate with an octane rating of 73. What percentage of ethanol by mass would refinery need to increase the octane rating of the distillate to gasoline (a octane rating of 95)?

Ans. .....

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5. Cracking and reforming process (20 marks)

5.1 What are the objectives of cracking process?

Ans. .....

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5.2 Explanation for the 3 basic functions in catalytic cracking process.

Ans. .....

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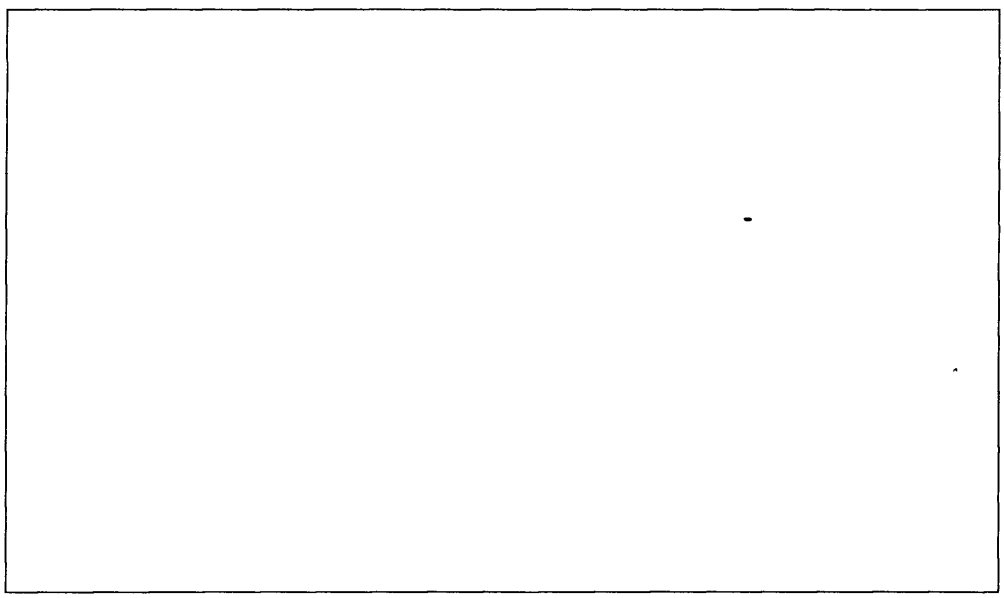
5.3 Draw the diagram of FCC in following block and explain for the process.



Ans. .....

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5.4 What is the objective of reforming process? Show all final products from the reforming process.

Ans. .....

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6. Petroleum product from refinery (20 marks)

6.1 What is diesel and specification of the diesel fuel?

Ans. .....

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6.2 What different between biodiesel and diesel?

Ans. .....

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6.3 What are the disadvantages of biodiesel?

Ans. .....

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6.4 What is jet fuel and the spécification?

Ans. .....

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6.5 Show 3 kinds of additive to improve jet fuel quality.

Ans. .....

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6.6 What does petroleum product blending achieve?

Ans. .....

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6.7 Show all refining end-products (not less than 7 products)

Ans. .....

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