

PRINCE OF SONGKLA UNIVERSITY  
FACULTY OF ENGINEERING

Final Examination: Semester II

Academic year: 2014

Date : 12 May 2015.

Time : 13.30-16.30

Subject : 231-472 PETROCHEMICAL TECHNOLOGY Room : A401

## รายละเอียดการทำข้อสอบ

1. ห้ามนำข้อสอบบางส่วนหรือทั้งหมดออกจากห้องสอบ
2. นำสมุดโน้ต เอกสาร และอุปกรณ์แปลภาษาเข้าห้องสอบได้
3. ห้ามหยิบยืมเอกสารใดๆ และพูดคุยกับนักศึกษาอื่นขณะทำข้อสอบ
4. ข้อสอบมีทั้งหมด 4 ข้อ มีจำนวนทั้งหมด 7 หน้า
5. ใช้ดินสอหรือปากกาทำข้อสอบได้

กรอกชื่อและรหัสนักศึกษาในหน้าแรกและกรอกรหัสทุกหน้ากระดาษของข้อสอบ

ข้อที่	คะแนนเต็ม	คะแนนที่ได้
1	35	
2	25	
3	35	
4	25	
รวม	120	

อ.จันทิมา ชั่งสิริพร  
ผู้ออกข้อสอบ

1. Cracking and reforming process of petroleum refinery. (35 Marks)

1.1 What is the function of catalytic cracking process on the petroleum feedstock?

Ans. .....

.....

.....

.....

1.2 What different between fluid and moving bed catalytic cracking?

Ans. .....

.....

.....

.....

1.3 What kind of catalyst normally uses in the fluid catalytic cracking unit? And why they use this of catalyst?

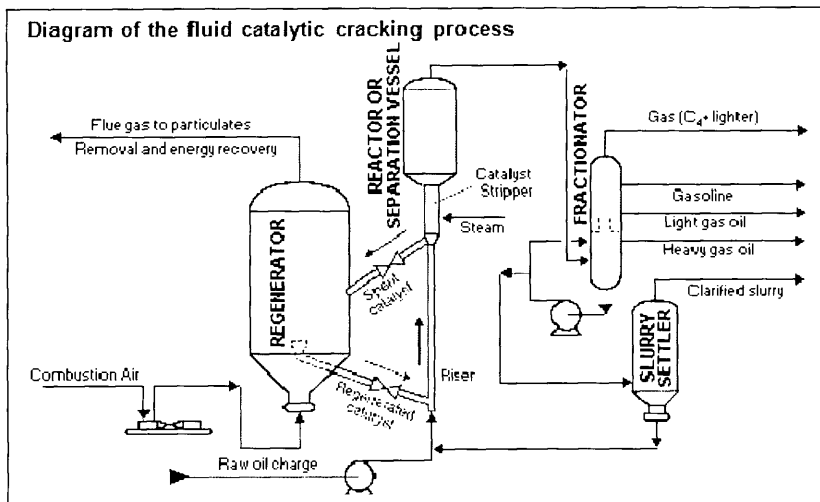
Ans. .....

.....

.....

.....

1.4 Explain for the following units of the process by filling in the blank.



- Feed .....

- Product .....

- Regenerator .....

.....

- Riser .....

.....

- Slurry Settler .....

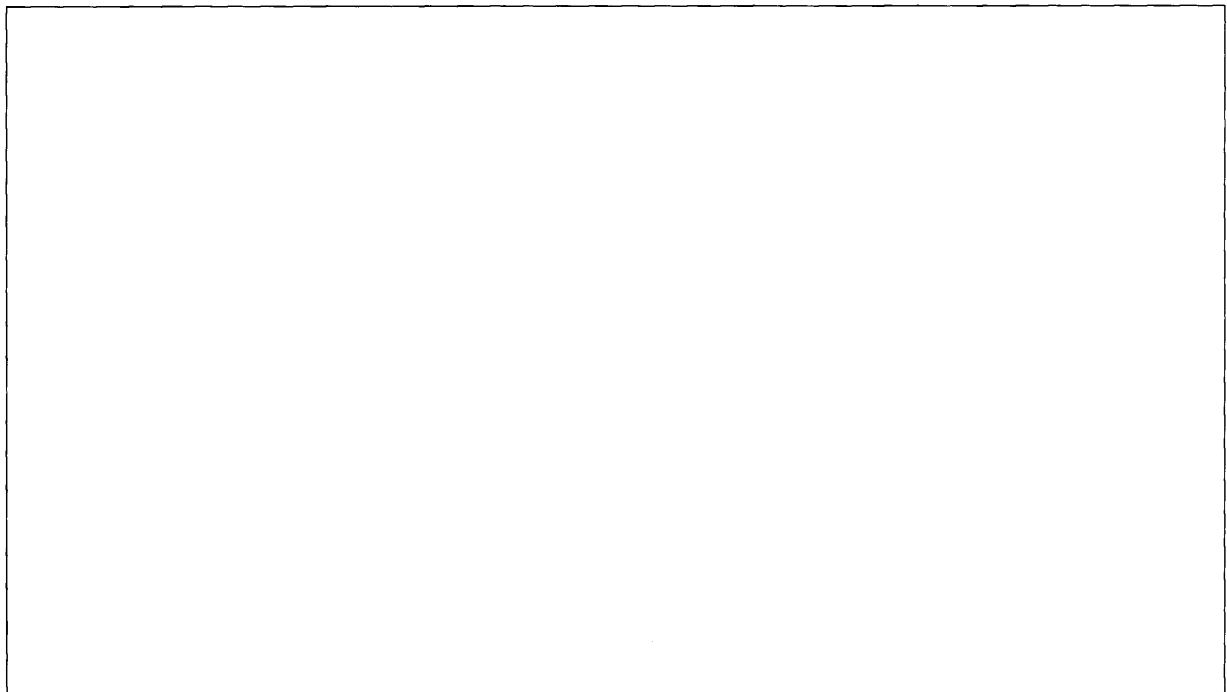
.....

1.5 What is the function of reforming process on the refinery?

Ans. .....  
.....  
.....  
.....

1.6 Explain for the process of catalytic reforming and draw the diagram of this process.

Ans. .....  
.....  
.....



1.7 What are the main reactions occur during reforming process and write 2 reactions?

Ans. .....  
.....  
.....  
.....

1.8 How can the reforming unit operate when the fixed bed reactor is regenerated?

Ans. .....  
.....  
.....  
.....

2. Petrochemical and polymerization (25 Marks)

2.1 What are the raw materials of the petrochemical industries?

Ans. .....  
.....  
.....

2.2 What are the primary petrochemical products from naphtha?

Ans. .....  
.....  
.....

2.3 Show 4 olefin intermediates products from Intermediate Petrochemical Industry.

Ans. .....  
.....  
.....

2.4 How can we classify the polymers and explain for the meaning of each?

Ans. .....  
.....  
.....

2.5 What is the relating of physical properties to the stronger of polymer?

Ans. .....  
.....  
.....

2.6 Explain for the Emulsion polymerization.

Ans. .....  
.....  
.....

2.7 What are the disadvantages of the solution polymerization?

Ans. .....  
.....  
.....

2.8 What are the steps of production of rubber goods?

Ans. .....  
.....  
.....

2.9 What are the main properties of natural rubber?

Ans. .....  
.....  
.....

3. Plastic and global warming problem. (35 Marks)

3.1 What is plastic?

Ans. .....  
.....  
.....  
.....

3.2 What is Injection moulding process and application of the products from this process?

Ans. .....  
.....  
.....  
.....

3.3 What are the purposes of fillers in the plastic production?

Ans. .....  
.....  
.....  
.....

3.4 What are the pollution problems of plastics to human?

Ans. .....  
.....  
.....  
.....

3.5 What can we do for the plastic waste problem?

Ans. .....  
.....  
.....  
.....

3.6 What consequently happen if there are too many plastic in landfills?

Ans. .....  
.....  
.....  
.....

3.7 Write the plastic identification code and properties in the following table.

Type of plastic polymer	Plastic identification code	Properties
High Density Polyethylene		
Polypropylene		

3.8 What are the advantage of reuse and recycle of plastics?

Ans. .....

.....

.....

.....

3.9 What is the difference between “global warming” and “climate change”?

Ans. .....

.....

.....

.....

3.10 Show for 3 kinds of greenhouse gas and explain for the sources of them.

Ans. .....

.....

.....

.....

3.11 Explain for the processing plant of recycled plastic.

Ans. .....

.....

.....

.....

.....

4. Renewable energy (25 Marks)

4.1 What is biogas and advantage of it?

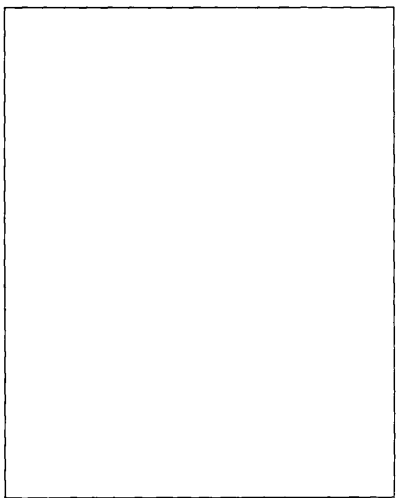
Ans. .....  
.....  
.....

4.2 Explain for the final step of biogas production by anaerobic digestion.

Ans. .....  
.....  
.....

4.3 Draw the up draft gasification unit and explain for the process.

Ans. .....  
.....  
.....  
.....  
.....  
.....  
.....  
.....



4.4 How can nuclear power plants produce energy?

Ans. .....  
.....  
.....

4.5 What is alternative energy mean?

Ans. .....  
.....  
.....

4.6 What are advantages to hydroelectric power?

Ans. .....  
.....  
.....