

FORMAT PENYEDIAAN SOALAN PEPERIKSAAN AKHIR

Format of Final Examination

A. Format Umum (General Format)

- Font : **Times New Roman**
- Font Size : **12**
- Line Spacing : (a) English Version : **1.5 line spacing** (b) Versi Bahasa Melayu : **Single spacing**
- Page Number : **Bottom of Page and Center**
- Begin with English Version and followed by Versi Bahasa Melayu at new page
- English : UK

B. Muka Depan (Front Cover)

- Instruction to Student : **Bilingual (English and Bahasa Melayu)**–See **Appendix 1**

C. Format Soalan (Question Format)

Capital Letters, Bold, Times New Roman, Font 12

ENGLISH VERSION } *one and half line spacing*

QUESTION 1 (15 Marks)

CO	CO1	CO2	<i>Capital Letters, Bold, Times New Roman, Font 12</i>
	(a)	(b)	<i>Small Letters, Bold, Times New Roman, Font 12</i>
Marks	5	10	

Times New Roman, Font 12, one and half line spacing

One of the steps in the manufacture of ethanol from biomass fermentation is a distillation process. The distillation column is operated under a continuous steady state at a feed rate of 1500 kg/h. The feed is mainly water with 8.0 wt % ethanol. Product streams emerge at the top and bottom of the column. The top product contains 90 wt % ethanol and represents 80 % of the.... } *Justify*

(a) Draw and label the process flow diagram completely. **(5 Marks)**

(b) Calculate the molar flow rate of Ethanol at the top product stream and the mass fraction of Ethanol at the bottom product stream. **(10 Marks)**

Bold, Times New Roman, Font 12, Circle Brackets

QUESTION 2 (15 Marks)

CO	CO1	
	(a)	(b)
Marks	5	10

Two kilograms (2 kg) of air at temperature 30 °C is contained in a rigid well insulated tank with a volume of 0.6 m³. The tank is fitted with a paddle wheel that transfers energy to the air at a constant rate of 10W for 1 hour (Figure 1).

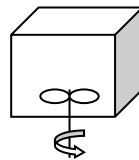


Figure 1: Rigid well insulated tank

Figure Caption must be written just below figure/object/photo, Bold for figure number, Times New Roman, Font 12

If no changes in kinetic or potential energy occur, determine

- a) The initial pressure in the tank **(10 Marks)**
- b) The energy transfer by work in kJ **(5 Marks)**

Capital Letters, Bold, Times New Roman, Font 12

VERSI BAHASA MELAYU

SOALAN 1 (15 Markah)

one and half line spacing

CO	CO1	CO2
	(a)	(b)
Markah	5	10

Capital Letter, Bold, Times New Roman, Font Size 12

Small Letter, Bold, Times New Roman, Font Size 12

Times New Roman, Font 12, single line spacing

Salah satu langkah penghasilan etanol daripada fermentasi bio-jisim ialah proses penyulingan. Turus penyulingan beroperasi dalam keadaan mantap pada kadar suapan 1500 kg/h. Suapan mengandungi terutamanya air dengan 8.0 wt % etanol. Aliran produk keluar pada atas dan bawah turus. Aliran produk atas mengandungi 90 wt % etanol dan mewakili 80 % daripada...

Justify

- (a) Lakar dan lebel carta aliran proses dengan lengkap. **(5 Markah)**
- (b) Kira kadar alir molar Etanol pada aliran produk atas dan pecahan jisim Etanol pada aliran produk bawah. **(10 Markah)**

Bold, Times New Roman, Font 12, Circle Brackets

D. Borang Analysis Peperiksaan Akhir (Final Examination Analysis Form)

a. Course Outcome Analysis. (*Lampiran B1*)

b. Bloom's Taxonomy Analysis (*Lampiran B2*)

c. Analysis Summary (*Lampiran B3*)

E. Borang Penyediaan Kertas Soalan Peperiksaan Akhir (Preparation of Final Examination Form) (*Lampiran C*)



UTM
UNIVERSITI TEKNOLOGI MALAYSIA

**Fakulti Kejuruteraan Kimia dan Kejuruteraan
Tenaga**
Faculty of Chemical and Energy Engineering

PEPERIKSAAN AKHIR SEMESTER II

FINAL EXAMINATION SEMESTER II

SESI 2015/2016

SESSION 2015/2016

KOD KURSUS <i>COURSE CODE</i>	: SKKK 4433 <i>SKKK 4433</i>
KURSUS <i>COURSE</i>	: KEJURUTERAAN SISA AIR BUANGAN <i>WASTEWATER ENGINEERING</i>
PROGRAM <i>PROGRAMME</i>	: SKKK
MASA <i>TIME</i>	: 2 JAM 30 MINIT <i>2 HOURS 30 MINUTES</i>
TARIKH <i>DATE</i>	: 14 JUN 2016 <i>14 JUNE 2016</i>

ARAHAN KEPADA CALON (INSTRUCTIONS TO STUDENT) :

- 1. Jawab semua soalan**
Answer all questions
- 2. Pelajar tidak dibenarkan merujuk sebarang buku dan nota**
Students are not allowed to refer any books and notes

DILARANG MENIRU SEMASA PEPERIKSAAN
CHEATING IS STRICTLY PROHIBITED DURING EXAMINATION

**KERTAS SOALAN INI TERDIRI DARIPADA __ MUKA SURAT BERCETAK TERMASUK
MUKA SURAT INI**

THIS EXAMINATION PAPER CONSISTS OF 8 PRINTED PAGES INCLUSIVE OF THIS PAGE