
UNIVERSITI SAINS MALAYSIA

Peperiksaan Semester Kedua
Sidang Akademik 2007/2008

April 2008

IUK 304 – PENGURUSAN KUALITI INDUSTRI
[Industrial Quality Management]

Masa: 3 jam
[Duration: 3 hours]

Sila pastikan bahawa kertas peperiksaan ini mengandungi TUJUH muka surat yang bercetak sebelum anda memulakan peperiksaan ini.

Jawab EMPAT soalan. Semua soalan boleh dijawab dalam Bahasa Malaysia ATAU Bahasa Inggeris.

[Please check that the examination paper consists of SEVEN pages of printed material before you begin this examination.]

Answer FOUR questions. All questions can be answered either in Bahasa Malaysia OR English.]

Bahagian A. Jawab DUA soalan.

1. Lengkapkan ayat berikut dengan jawapan terbaik.

- (a) Satu proses didefinisikan sebagai sebarang set atau set yang bekerja bersama untuk menghasilkan sesuatu
- (b) Carta kawalan didefinisikan sebagai kaedah untuk menilai samaada proses berada atau tidak berada dalam keadaan
- (c) Proses kawalan diperolehi melalui penyingkiran Penambahbaikan sesuatu proses tercapai melalui bagi.....
- (d) Satu proses dikatakan berada diluar kawalan jika atau lebih poin berturutan jatuh disatu bahagian garis tengah.
- (e) Had kawalan bagi Carta – C ialah

$$UCL = \dots\dots\dots$$

$$LCL = \dots\dots\dots$$

(25 markah)

2. Pilih jawapan terbaik

- (a) Had atas toleransi lazim ialah
- (i) $a = \mu + 3\sigma$
- (ii) $a = \mu + 2\sigma$
- (iii) $a = \mu + \sigma$
- (b) Had spesifikasi ditentukan oleh
- (i) kehendak pelanggan
- (ii) kehendak syarikat
- (iii) kehendak pereka

- (c) Carta –C digunakan untuk mengesan jumlah
- (i) tak -konform dalam sampel bersaiz tetap
 - (ii) konform dalam sampel bersaiz tetap
 - (iii) konform dan tak-konform dalam sampel bersaiz tetap
- (d) Had kawalan perbaikan ditentukan jika
- (i) sampel poin diluar kawalan dikesan
 - (ii) sampel poin diluar kawalan masih tak dikesan
 - (iii) proses berada dalam kawalan statistik
- (e) Punca biasa wujud selagi proses
- (i) berubah
 - (ii) tak berubah
 - (iii) kedua a dan b

(25 markah)

3. Kelembapan relatif dalam rumah hijau dijangkakan berada antara 65 % dan 85 %. Sample rawak yang diambil dalam masa seminggu menghasilkan nilai berikut 60, 78, 70, 84, 81, 80, 85, 60, 88, 75.
Cari proses keupayaan index (C_p)

(25 markah)

Bahagian B. Jawab DUA soalan.

4. Jawab semua bahagian soalan ini.
- (a) Bezakan secara terperinci antara jaminan mutu dan kawalan mutu.
(12 markah)
- (b) Organisasi anda memproses gula, krimer dan kopi segera untuk menghasilkan sacet kopi 3 dalam 1. Bagaimanakah anda memulakan sistem jaminan mutu bagi organisasi anda?
(13 markah)
5. Jawab semua bahagian soalan ini.
- (a) Jelaskan secara ringkas “*A system of profound knowledge*”.
(10 markah)

- (b) Setelah memeriksa senarai kedatangan bulanan pelajar yang dihantar oleh pensyarah, pihak Universiti mendapati penurunan pada jumlah pelajar yang hadir kuliah dari melebihi 90 % kepada kurang dari 70 %. Pihak Universiti berhasrat untuk menambahbaik jumlah pelajar yang hadir kuliah. Jelaskan secara ringkas kegunaan kitaran PDCA untuk menyelesaikan masalah ini?

(15 markah)

6. Jawab semua bahagian soalan ini.

- (a) Apakah pendekatan proses?

(8 markah)

- (b) Klausula 4.1 pada standard ISO 9001:2000 menyatakan “ *The organization shall establish, implement and maintain a quality management system and continually improve its effectiveness in accordance with the requirements of this international standard*”. Terangkan secara ringkas klausula ini.

(17 markah)

Part A. Answer TWO questions.

1. Complete the following statements with the best answer

- (a) A process is defined as any set of or set of which work together to produce a given
- (b) A control chart is defined as a method for evaluating whether a process is or not in a state of
- (c) Control of a process is achieved through the elimination of Improvement of a process is accomplished through the of
- (d) A process is assumed to be out of control if or more consecutive points fall to one side of the center line.
- (e) The control limits for C-Chart are

$$UCL = \dots\dots\dots$$

$$LCL = \dots\dots\dots$$

(25 marks)

2. Select the best answer

- (a) Upper natural tolerance limit is

(i) $a = \mu + 3\sigma$

(ii) $a = \mu + 2\sigma$

(iii) $a = \mu + \sigma$

- (b) Specification limits are determined by

(i) The needs of the customer

(ii) The needs of the company

(iii) The needs of the designers

- (c) C-chart is used to track the total number

(i) Nonconformities in samples of constant size

(ii) Conformities in samples of constant size

(iii) Both conformities Nonconformities in samples of constant size

- (d) *Revised control limits are determined if*
- (i) *Out-of-control sample points are detected*
 - (ii) *Out-of-control sample points have not detected yet*
 - (iii) *The process in state of statistical control*
- (e) *Common causes exists as long as the process is*
- (i) *changed*
 - (ii) *unchanged*
 - (iii) *both a and b*

(25 marks)

3. *The relative humidity in a greenhouse is expected to be between 65% and 85%. Random variable samples taken over a span of one week yield the following values 60, 78, 70, 84, 81, 80, 85, 60, 88, 75. Find the process capability index (C_p)*

(25 marks)

Part B. Answer TWO questions.

4. *Answer all parts to this question.*

- (a) *Differentiate in details between quality assurance and quality control.*

(12 marks)

- (b) *Your organization processes sugar, creamer and instant coffee to produce 3 in 1 coffee powder in sachet. How would you start a quality assurance system for your organization?*

(13 marks)

5. *Answer all parts to this question.*

- (a) *Describe briefly "A system of profound knowledge"*

(10 marks)

- (b) *After checking the monthly attendance sheets of students submitted by lecturers, the University discovers a decline in the number of students attending lectures from more than 90 % attendance to less than 70 %. The University has decided to improve the number of students attending lectures. Describe briefly the use of PDCA cycle to solve this problem?*

(15 marks)

7. *Answer all parts to this question.*

(a) *What is process approach?*

(8 marks)

(b) *Clause 4.1 of ISO 9001:2000 states that "The organization shall establish, implement and maintain a quality management system and continually improve its effectiveness in accordance with the requirements of this international standard". Briefly explain this clause.*

(17 marks)