

POLITEKNIK
Jabatan Pengajian Politeknik

EXAMINATION AND EVALUATION DIVISION
DEPARTMENT OF POLYTECHNIC EDUCATION

(MINISTRY OF HIGHER EDUCATION)

ELECTRICAL ENGINEERING DEPARTMENT

FINAL EXAMINATION

JUNE 2012 SESSION

EC503: OPERATING SYSTEM

DATE :20 NOVEMBER 2012(TUESDAY)

DURATION : 2 HOURS (11.15 AM - 1.15 PM)

This paper consists of **SIX (6)** pages including the front page.

Section A: Subjective (10 questions – answer all)

Section B: Essay (3 questions – answer all)

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BY THE CHIEF INVIGILATOR**

(The CLO stated is for reference only)



SECTION A**SUBJECTIVE (40 marks)****INSTRUCTION:**

This section consists of **TEN (10)** structured questions. Answer **ALL** questions.

QUESTION 1

- a) Define Operating System. [CLO1:C1] (2 marks)
- b) State **TWO (2)** main functions of operating systems. [CLO1:C1] (2 marks)

QUESTION 2

- a) Define System Call. [CLO1: C1] (1 mark)
 - b) Give **THREE (3)** types of system call. [CLO1: C1] (3 marks)
- (2 marks)
(2 marks)

QUESTION 3

Define the terms below:

- i. Graphical user interface (GUI) [CLO1: C1]
- ii. Menu Interface [CLO1:C1]

QUESTION 4

Distinguish between a logical record and a physical record in an input/output process. [CLO 1 : C2]

(4 marks)

QUESTION 5

Explain the concept of virtual memory in an operating system.[CLO1: C2] (4 marks)

QUESTION 6

Calculate the average waiting time for the processes in Table 1 below by using Shortest Job First scheduling. Assume the arrival time for all processes start at time 0 ms. [CLO1:C3]

Process	Burst Time
P ₁	6
P ₂	8
P ₃	7
P ₄	3

Table 1

(4 marks)

QUESTION 7

Describe the following file structures with the help of suitable diagrams.[CLO1: C1]

- i. unstructured (byte sequence) (2 marks)
- ii. structured (record sequence) (2 marks)

QUESTION 8

Give a brief explanation on how caching is used to enhance file system

performance. [CLO1: C2] (4 marks)

QUESTION 9

Explain briefly these types of operating system installation methods:

[CLO1 : C2] (2 marks)

- i. Typical installation (2 marks)
- ii. Custom installation.

QUESTION 10

- a) Define NTFS. [CLO1: C1] (1 mark)
- b) Describe NTFS. [CLO 1 : C1] (3 marks)

SECTION B**ESSAY (60 marks)****INSTRUCTION:**

This section consists of **THREE (3)** essay questions. Answer all questions.

QUESTION 1

a) Explain **FIVE (5)** differences between Command Line Interface (CLI)

and Graphical User Interface (GUI) from the aspects of

- i. Ease of use
- ii. Control
- iii. Multitasking
- iv. Appearance
- v. Speed

[CLO1: C2]

(10 marks)

b) Explain bootstrap process where a system has to choose among

multiple Operating Systems (e.g Windows XP, RedHat and Minix)

on disk. [CLO1: C2]

(10 marks)

QUESTION 2

- a) Give **FOUR (4)** conditions for a Deadlock to occur. [CLO1: C2]

(4 marks)

- b) Draw a Gantt chart to show Shortest Job First Scheduling for

Table 2 below. [CLO1: C1]

Process	Burst Time
P ₁	6
P ₂	8
P ₃	7
P ₄	3

Table 2

(4 marks)

- c) Explain briefly the scheduling algorithms below: [CLO1:C2]

- i. First In First Out (FIFO)
- ii. Shortest Job First
- iii. Round Robin

(12 marks)

QUESTION 3

A customer asked you to repair a computer system package with a corrupted operating system installed. As a technical expert,

- a) List **FOUR (4)** basic options that are available for the installation of a new operating system to the computer.[CLO1:C1]

(4 marks)

- b) Explain the options listed in question 3(a) above.[CLO1:C2]

(16 marks)