UNIVERSITI COLLEGE TATI

FINAL EXAMINATION QUESTION	
COURSE CODE	: BCS 1333
COURSE	: OPERATING SYSTEM
SEMESTER/SESSION	: 2 - 2024/2025
DURATION	: 3 HOURS

Instructions:

1. This booklet contains 5 questions. Answer **ALL** questions.
2. All answers should be written in the answer booklet.
3. Write legibly and draw sketches wherever required.
4. If in doubt, raise up your hand and ask the invigilator

DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO

THIS BOOKLET CONTAINS 5 PRINTED PAGES INCLUDING COVER PAGE

QUESTION 1

a) Overall, describe the operating system. (2 marks)

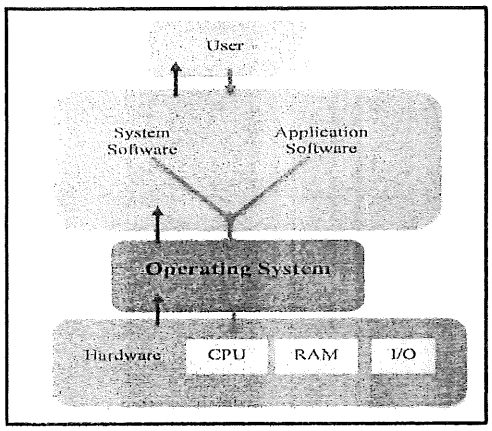

Figure 1: Software Interaction.

b) Based on the figure 1 above, examine the correlations between users, the operating system, and the hardware itself. (5 marks)

QUESTION 2

a) Based on Figure 2 below, from the monolithic system structure, explain the possible procedure that reflects the user mode and kernel mode environments. (7 marks)

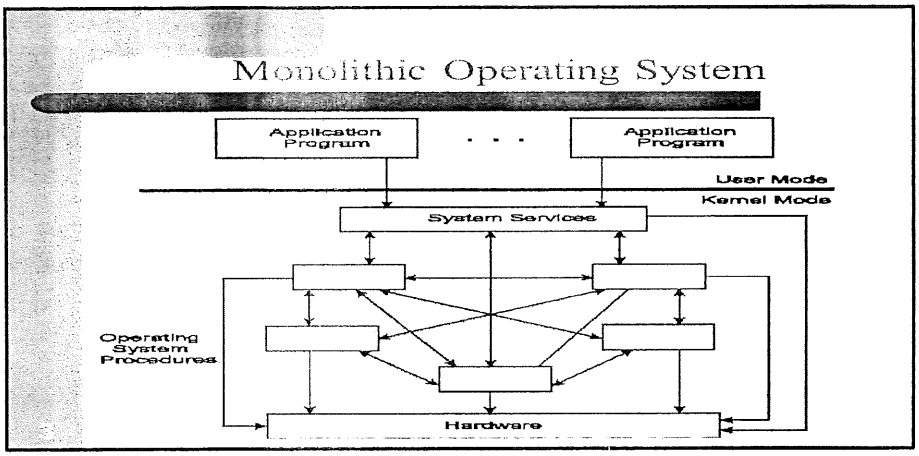

Figure 2: Switches the matching from user task to kernel mode.

QUESTION 3

a) Declare the booting process needed in Operating System. (6 marks)

b) Based on the OS procedure based on figure 3 below: (6 marks)

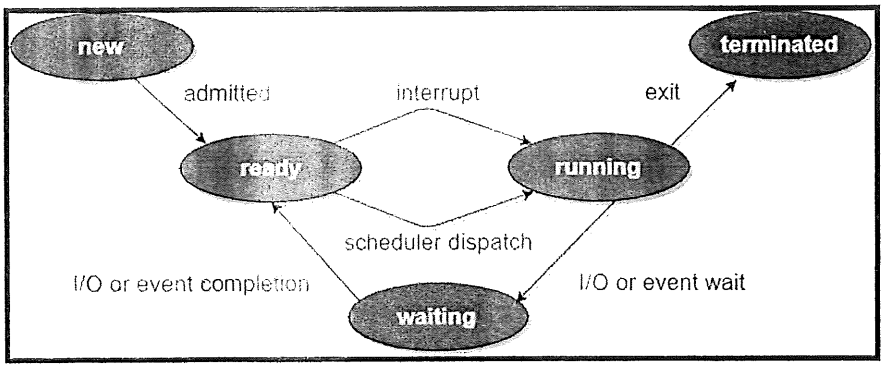

Figure 3: Process in Operating System.

c) Based on figure 4 below, refine the process of multitasking that involved swapping in an operating system. (6 marks)

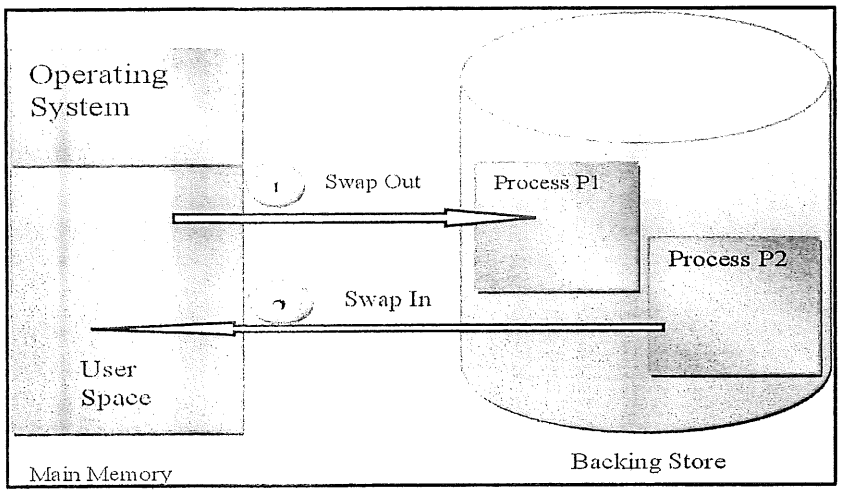

Figure 4: Swapping in multitasking computers.

d) Detached between the logical address and the physical address. (4 marks)

e) Provide a short answer term on each term below: (8 marks)

i. Relocatable (2 marks)
ii. Binding (2 marks)
iii. Compiler (2 marks)
iv. Load (2 marks)

f) Segregate between deadlock and starvation. How do they sway from each other? (4 marks)

g) Describe swapping concepts. (6 marks)

h) Justify the main problem for the Dynamic Storage Allocation Problem. (3 marks)

QUESTION 4

a) Based on Figure 5 below, explain the producer-consumer pattern issues. (4 marks)

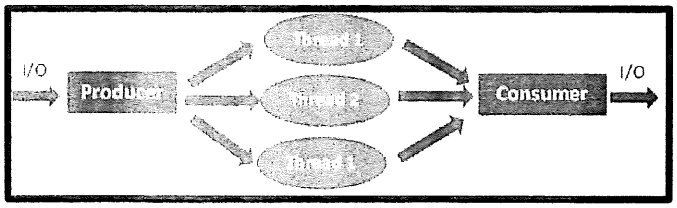

Figure 5

b) State **FOUR (4)** scheduling algorithms in Operating System. (4 marks)

c) Describe the scheduling queues in Operating System. (6 marks)

d) State **FOUR (4)** examples based on real situations on the scheduling algorithm. (4 marks)

e) Simplifies the Operating System scheduling method that has been mentioned below.

i. First come first served (4 marks)
ii. Shortest job first (3 marks)
iii. Shortest remaining time (3 marks)

QUESTION 5

a) Elaborate on methods to retain the security area on the operating system and how many stages are involved? (6 marks)

b) List **FOUR (4)** attacks in security towards the operating system. (4 marks)

c) Give **TWO (2)** way to intensify password proficiencies. (2 marks)

d) Itemise **THREE (3)** security ways when entering the Operating System. (3 marks)

---------- END OF QUESTIONS ----------