UNIVERSITY COLLEGE TATI

UNIVERSITY COLLEGE TATI (UC TATI)

FINAL EXAMINATION QUESTION	
COURSE CODE	: BCS 1333
COURSE	: OPERATING SYSTEM
SEMESTER/SESSION	: 1 - 2022/2023
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 THE COVER PAGE

QUESTION 1

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

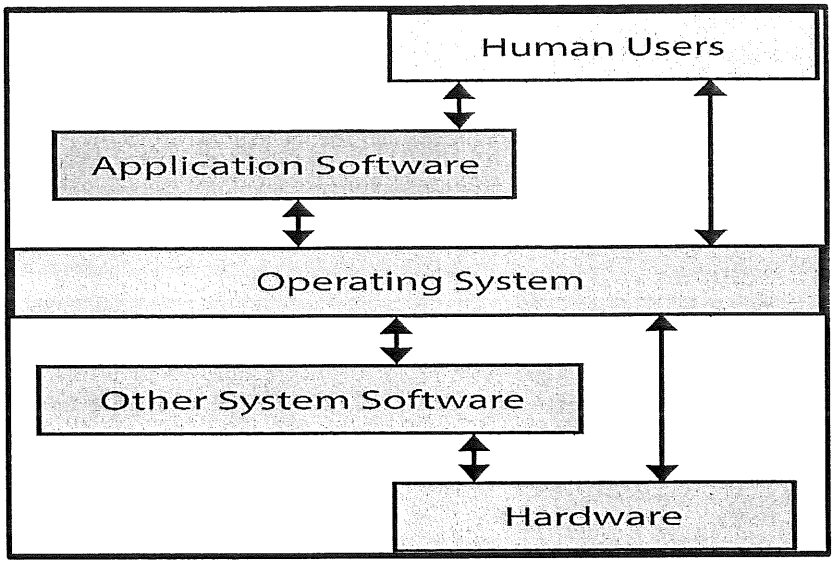

Figure 1

b) From figure 1 above, examine the correlations between human users, the operating system, and the hardware. (5 marks)

QUESTION 2

a) Based on Figure 2 below, from the monolithic kernel; (7 marks)

i) Explain **FOUR (4)** features and **THREE (3)** limitations to the user and kernel space environments. (4 marks)

ii) Explain **THREE (3)** limitations to the user and kernel space environments. (3 marks)

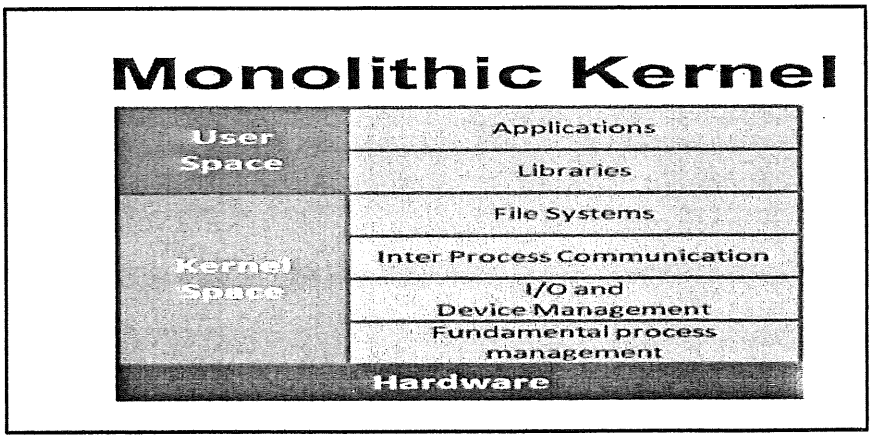

Figure 2.

QUESTION 3

a) Declare the execution process needed in Operating System and the theories that apply to the operating system. (6marks)

b) What is the process and explain the OS procedure based on Figure 3 below: (6 marks)

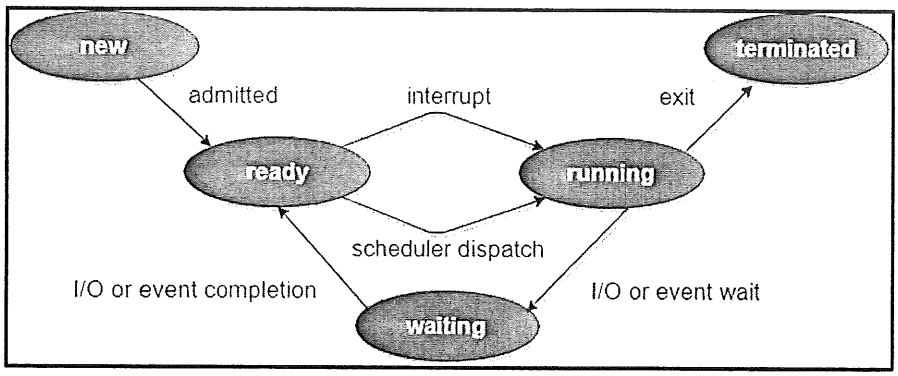

Figure 3: Process in Operating System.

c) From Figure 4 below, clarify the process of multitasking that involved swapping in the operating system. (6 marks)

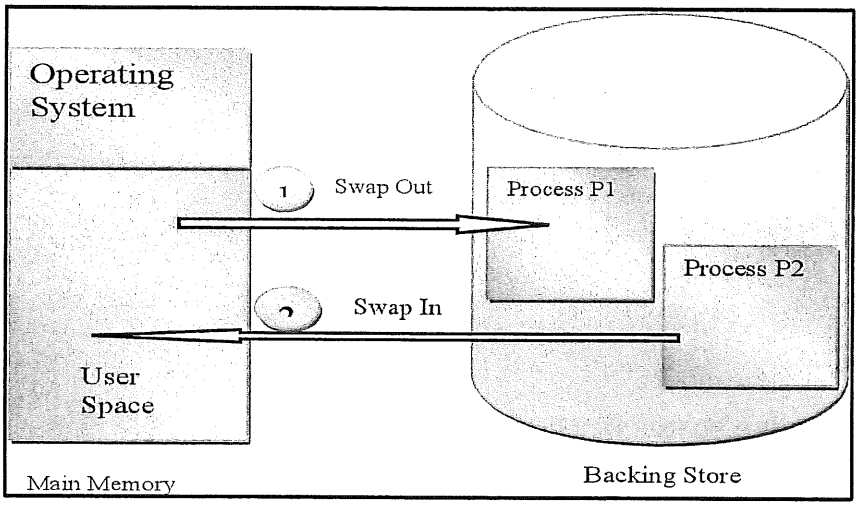

Figure 4: Swapping in multitasking computers.

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

e) Briefly describe each term below: (8 marks)

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

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

g) Discuss swapping process concepts. (6 marks)

h) List **THREE (3)** solutions for the Dynamic Storage Allocation Problem. (3 marks)

QUESTION 4

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

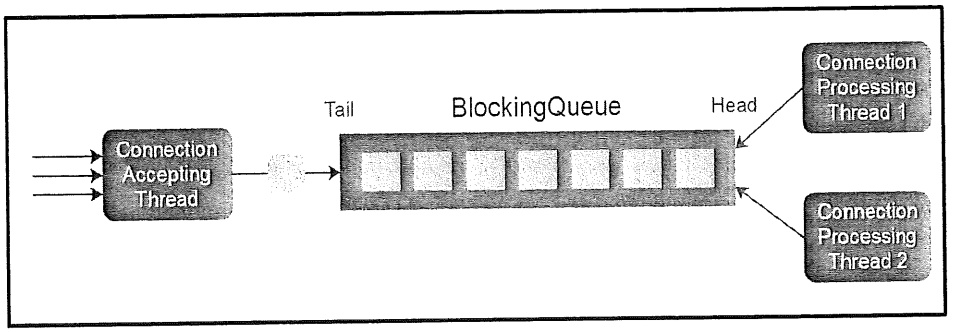

Figure 5: Producer consumer-pattern issues

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 the 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) Why password validation is needed on the operating system and provides the best way to intensify password proficiencies. (4 marks)

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

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