QUESTION 1

a) Define an operating system (4 marks)

b) Describe the kinds of programs that can be multithreaded. (6 marks)

c) Distinguish between a process and a thread. (4 marks)

d) Discuss the concept of a process control block (PCB). (6 marks)

[Total: 20 Marks]

QUESTION 2

Explain the following;

a) Concept of a Process (5 marks)

b) Memory Management (5 marks)

c) FCFS (5 marks)

d) Pre-emptive and non-pre-emptive resources (5 marks)

[Total: 20 Marks]

QUESTION 3

a) Describe context switching. (4 marks)

b) With the aid of a diagram, discuss the five state process model. (8 marks)

c) Distinguish JOB from CPU schedulers. (8 marks)

[Total 20 Marks]

QUESTION 4

a) Discuss the following management techniques.

i) Deadlock Prevention (4 marks)

ii) Deadlock Avoidance (4 marks)

iii) Deadlock Detection (4 marks)

iv) Deadlock Recovery (4 marks)

b) In relation to Deadlock Prevention, discuss the process of each of the conditions required for a deadlock to occur. (4 marks)

[Total: 20 Marks]

QUESTION 5

a) Explain the following:

i) Priority Scheduling (5 marks)

ii) Round Robin (5 marks)

iii) Multilevel Queue (5 marks)

b) Differentiate Virtualization from cloud computing. (5 marks)

[Total: 20 Marks]

QUESTION 6

a) Explain the purpose of the command interpreter (4 marks)

b) State the four (4) principle events that lead to process creation. (8 marks)

c) Outline four (4) reasons that may lead to process termination. (8 marks)

[Total: 20 Marks]

QUESTION 7

a) Define thrashing. (5 marks)

b) Describe the essential properties of the following operating systems;

i) Parallel Operating Systems (5 marks)

ii) Distributed Operating Systems (5 marks)

c) State five (5) services provided by an operating system. (5 marks)

[Total: 20 Marks]