Question 1
a. Describe the generations of Operating System
b. A process is defined as “the animated spirit of a procedure”. Explain.
c. Describe the structure of the Nucleus of Operating System
d. State 5 functions of the Nucleus of Operating System that are related to process handling

Question 2
a. i. What is an Interrupt and how is it generated?
ii. State the sequences of actions that occur in order to handle an interrupt
b. Give an example for each of the six types of interrupt
c. What is the significance of Program Status Words in interrupt handling?
d. In modern Operating System, why are major parts of the Nucleus placed in Microcode

Question 3
a. i. What is threading?
ii. How are threads similar to processes?
b. Explaining the following Operating System Concepts
i. A Trap ii. Asynchronous process iii. Spawning iv. Interrupt clock
v. Serially reusable resources vi. Reentrant code vii. Spooling viii. Shared resources
c. i. What is a PCB?
ii. Mention 9 information contained in the PCB

Question 4
a. Explain the levels of scheduling
b. State 10 objectives of scheduling
c. Explain 3 pre-emptive scheduling techniques. State the strengths and weaknesses of these techniques
d. i. What is priority?
ii. Differentiate between Static and Dynamic priorities

Question 5
a. Scheduling in Operating System can be described using the basic queuing model. Explain.
b. The scheduling of a uniprocessor system is described as a Poisson process. If the mean arrival rate is 3.5s and the mean service time is 6s
i. Calculate the traffic intensity
ii. What is the implication of the traffic intensity computed?
iii. Calculate the second moment of the service distribution if the mean residual life of the service time is 8s
iv. Calculate the waiting time if the scheduling algorithm is shortest job first
v. Calculate the number of process waiting in the queue

Question 6
a. What do you understand by virtual storage? How is it different from cache memory?
b. With the aid of diagram, describe the following:-
i. Coalescing ii. Storage Compaction
c. Describe the main problem with fixed-partition multiprogramming
d. A variable partition memory system has at some point in time, the following hole-sizes in the given order: 100k, 300k, 200k, 400k. A new process of size 150k is to be loaded into the memory, which hole size would be filled using best - fit, first - fit and worst - fit respectively