QP CODE	2033512804

Reg. No | | | | | | | | | | |

DMI-ST. EUGENE UNIVERSITY

ZAMBIA

DEGREE EXAMINATION – JUNE 2024

Semester: III **351HE28 OPERATING SYSTEM**

Time: 3:00 Hours **Max. Marks: 100**

Answer any FIVE Questions (5 x 20 = 100 Marks)

1. a) Define an Operating System and explain to objectives of the operating system. **(5 Marks)**
   b) Describe a real time system and list FOUR examples of its application. **(5 Marks)**
   c) Describe Five services the Operating system provides to the users. **(10 Marks)**
2. a) With the aid of diagram explain the states of a process. **(10 Marks)**
   b) Briefly explain unbounded consumer producer problem and bounded consumer producer problem. **(5 Marks)**
   c) The concurrent processes executing in the operating system may be either independent processes or cooperating processes. Explain the difference. **(5 Marks)**
3. a) Distinguish between deadlock and starvation. **(5 Marks)**
   b) Write a short note on Methods for handling Deadlocks? **(5 Marks)**
   c) Describe the concepts of semaphores. **(10 Marks)**
4. a) Explain the following allocation algorithms: **(10 Marks)**
      i. First-fit
      ii. Best-fit
      iii. Worst-fit
   b) Explicate the following: **(10 Marks)**
      (i) FIFO Page Replacement
      (ii)Optimal Page Replacement
5. a) Explain Five Characteristics of I/O Devices. **(10 Marks)**
   b) Describe the domain structure. **(10 Marks)**
6. a) Describe Five categories systems programs. **(10 Marks)**

b) Briefly explain Operating System debugging. **(10 Marks)**

7. a) With the aid of a net diagram expalain paging and conversion of virtual addresses in paging. **(10 Marks)**

b) Briefly describe the following allocation methods outlining any advantage. **(10 Marks)**

i. Contiguous Allocation

ii. Linked Allocation

iii. Indexed allocation.