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**DMI-ST.EUGENE UNIVERSITY  
DEGREE EXAMINATION – JANUARY – 2023**

**SEM: IV**

**351 CS 43 OPERATING SYSTEMS**

Time: 3 Hours

Max. Marks: 100

**Answer any Five questions (5 x 20 = 100 Marks)**

1. a) Describe in detail about operating system structure. (8 Marks)  
b) Discuss about various types of operating systems? (10 Marks)  
c) Define operating systems (2 Marks)
2. a) Discuss about necessary conditions for dead lock. (8 Marks)  
b) Explain in detail about recovery from deadlock. (10 Marks)  
c) What is meant by RAG? (2 Marks)
3. a) Explain in detail about Swapping. (10 Marks)  
b) Discuss about fragmentation in OS. (10 Marks)
4. a) What is meant by demand paging? (2 Marks)  
b) Describe in detail about directory structure. (10 Marks)  
c) What are all the operations can be performed in file systems? Explain. (8 Marks)
5. a) Discuss in deep about authentication? (10 Marks)  
b) What is free space management in OS? Explain (10 Marks)
6. a) What are the advantages and disadvantages of Virtual Machines (8 Marks)  
b) Explain in brief about process control block. (4 Marks)  
c) A detailed study on scheduling algorithms. (8 Marks)
7. a) Explain in detail about Inter-process Communication (10 Marks)  
b) Differentiate preemptive and non-preemptive Scheduling (8 Marks)  
c) What is meant by spooling in OS? (2 Marks)