Progressive Education Society's
Modern College of Arts, Science & Commerce Ganeshkhind, Pune – 16
(Autonomous)
End Semester Examination: March /April 2025
Faculty: Science and Technology

Program: BSc (Comp05) **Semester: VI** **SET: A**
Program (Specific): (Computer Science) **Course Type: DSEC-III**
Class: T.Y.BSc (Computer Science) **Max.Marks: 35**
Name of the Course: Advanced Operating System **Time: 2Hr**
Course Code: 24CS361
Paper: I

Instructions to the candidate:

1) *There are 4 sections in the question paper. Write each section on a separate page.*
2) *All Sections are compulsory.*
3) *Figures to the right indicate full marks.*
4) *Draw a well labeled diagram wherever necessary.*

SECTION: A

Q1) Multiple Choice Question **[5×1=5]**

1) Which one of the following is the deadlock avoidance algorithm?
   a) Bankers algorithm b) Round-robin algorithm
   c) Elevator algorithm d) none of the above

2) Android is based on which of the following languages?
   a) Java b) C++
   c) C d) JVM

3) Distributed system have_____
   a) High security b) Better resource sharing
   c) Better system utilization d) both a & b

4) SSTF algorithm, like SJF _____of some request
   a) May cause starvation b) Will cause starvation
   c) Does not cause starvation d) Causes aging

5) The directory can be viewed as _____translates file name into their directory entries.
   a) Symbol table b) Partition
   c) Swap space d) Cache

Q2) Answer any 4 of the following in one sentence. **[4×1=4]**

1) List all deadlock recovery methods.
2) Define a distributed system.
3) Give the advantages of windows mobile OS?
4) Define a safe state?
5) List file attribute.
6) State disk allocation methods.

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SECTION: B

Q3) Answer any 4 of the following. **[4×2=8]**

1) Write a short note on directory structure.
2) Discuss file allocation methods.
3) Give features of mobile O.S.
4) Calculate total head movement for First-Come First-Served (FCFS) scheduling for the disk queue with requests for I/O to blocks on cylinders 98, 183, 37, 122, 14, 124, 65, 67 in that order, If the disk head is initially at cylinder 53.
5) Write a short note on Scalability
6) The resource allocation graph contains cycles but not deadlock: Comment.

SECTION: C

Q4) Answer any 4 of the following. **[4×2=8]**

1) Write Bankers algorithm.
2) Discuss Directory operations.
3) State the problem with the Scan algorithm.
4) Write a note on cluster computing systems.
5) Define. i) Seek time ii) Rotational latency
6) Write any two special service requirements of the mobile operating system.

SECTION: D

Q5 Answer any 2 of the following. **[2×5=10]**

1) Discuss types of distributed system
2) Describe Android Architecture with suitable diagrams.
3) Consider a system with 7 processes A to G and Six types of resources R to W with one resource. For each type.
   A holds R and wants S
   B holds nothing but wants T
   C holds nothing but wants S
   D holds U and wants S and T
   E holds T and wants V
   F holds W and wants S
   G holds V and wants U.
   Is the system in a deadlock? If yes then which processes are involved?
4) Explain disk allocation methods?