

FACULTY OF ENGINEERING**B.E. 3/4 (CSE) I – Semester (New) (Main) Examination, Nov. / Dec. 2012****Subject : Operating Systems****Time : 3 hours****Max. Marks : 75****Note:** Answer all questions from Part–A and answer any **FIVE** questions from Part–B.**PART – A (25 Marks)**

1. What is a system call? Give any two examples. (3)
2. What is i-node? Give its structure. (3)
3. List the necessary conditions for a deadlock to occur. (2)
4. What is a thread? How is it different from a process? (2)
5. What is belady's anomaly? (2)
6. What is the difference between : (3)
 - a) Protection and security b) Paging and segmentation
7. Define the following terms : (3)
 - a) Throughput b) Turn around time
8. What is a critical section? (2)
9. What is a semaphore? What is its application? (3)
10. What is multiprogramming? How is it different from time sharing? (2)

PART – B (50 Marks)

- 11.a) What is difference between policy and mechanism? (3)
- b) What is a process? Discuss the concept of process state with the help of a diagram. (4)
- c) Discuss the concept of round robin CPU scheduling algorithm with the help of an example. (3)
12. Calculate the average waiting time and average turn around time for the following data using the policy : (10)
 - a) Pre-emptive SJF b) Non-preemptive c) FCFS

Process	Burst time	Arrival time
P ₁	25	0
P ₂	30	2
P ₃	10	4
P ₄	5	6

- 13.a) Discuss the concept of dining philosophers problem. (3)
- b) What is a semaphore? Where is it used? (4)
- c) What is atomic action? (3)
- 14.a) Discuss the concept of the following access methods. (7)
 - i) Direct Access ii) Sequential Access
- b) List any five common file types in Unix. (3)
15. Discuss the concept of the following disk scheduling algorithms with the help of an example : (10)
 - i) SSTF ii) SCAN iii) C-Scan iv) Look
- 16.a) Discuss the process scheduling strategy adopted by Linux operating system. (5)
- b) List and explain the various components of Linux. (5)
17. Discuss the concept and algorithm of the following : (3)
 - a) Resource-allocation graph algorithm
 - b) Banker's algorithm

FACULTY OF ENGINEERING
B.E. 3/4 (CSE) I – Semester (Main) Examination, November 2013

Subject: Operating Systems

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Note: Answer all questions from Part A. Answer any five questions from Part B.

PART – A (25 Marks)

1. Differentiate process and thread. (2)
2. Define the following terms: (3)
 - i) Throughput ii) Waiting time iii) Turnaround time
3. What is demand paging? (2)
4. List the methods used for file access. (2)
5. What is a semaphore? Explain the operations that can be performed on it. (3)
6. What is resource allocation graph? (3)
7. What is the purpose of stable storage? (2)
8. Write a short note on STREAMS. (3)
9. List the design principles of UNIX. (3)
10. What is hardware abstraction layer? (2)

PART – B (50 Marks)

11. (a) What is PCB? Explain the purpose of PCB. (3)
- (b) Discuss threading models. (3)
- (c) Explain multi-level feedback queue scheduling algorithm. (4)
12. Find average waiting time and average turn around time for the following example in (i) FCFS, (ii) RR (Time slice = 2 M), (iii) SJF and (iv) SRTF. (10)

Process	Burst time	Arrival time
P1	25	0
P2	28	2
P3	8	4
P4	4	6

13. (a) Explain classical problems of synchronization. (5)
- (b) Explain Banker's Algorithm for deadlock avoidance. (5)
14. Explain disk scheduling algorithms with an example. (10)
15. (a) Explain DMA. (5)
- (b) Explain segmentation with a neat diagram. (5)
16. (a) How process management is performed in LINUX? Explain. (5)
- (b) Explain the architecture of WINDOWS – XP. (5)
17. Write a short note on any two: (10)
 - a) Directory implementation
 - b) RAID
 - c) Page replacement algorithm.



12. a) Explain paging with the help of neat diagram. 8
b) What is thrashing ? Explain the methods used to deal with thrashing. 2
13. a) What is Dining philosophers problem ? Explain the solutions by using monitors. 7
b) Write a brief note on deadlock prevention. 3
14. Explain Disk scheduling algorithm with an example. 10
15. a) Explain process scheduling in LINUX. 5
b) Explain environmental subsystem in WINDOWS-XP. 5
16. a) Explain Banker's Algorithm for Deadlock avoidance. 5
b) Discuss about file allocation methods. 5
17. Write short notes on **any two** of the following : 10
a) UNIX file system
b) Access matrix
c) DMA.
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FACULTY OF ENGINEERING
B.E. 3/4 (CSE) I Semester (Suppl.) Examination, July 2014
OPERATING SYSTEMS

Time: 3 Hours]

[Max. Marks: 75

Note : Answer **all** questions of Part – **A** and answer **any five** questions from Part – **B**.

PART – A

(25 Marks)

1. List the methods used for inter process communication. 2
2. Discuss the criterion used to evaluate CPU scheduling algorithms. 3
3. Define Internal and External fragmentation with an example. 3
4. Give a short note on free space management. 3
5. What is critical section ? 2
6. Define the necessary conditions for Deadlocks to occur. 3
7. Define seek time and Rotational latency. 2
8. Draw a neat diagram for the levels of RAID. 3
9. What are the design principle of LINUX ? 2
10. What is the use of plug-and-play manager in Windows-XP ? 2

PART – B

(50 Marks)

11. a) Explain the role of schedulers with the help of process transition diagram. 5
b) Explain CPU scheduling Algorithms :
 - i) FCFS
 - ii) SJF
 - iii) Priority
 - iv) RR for the following example. 5

Process	Burst Time	Arrival Time	Priority
P ₁	25	0	3
P ₂	5	2	1
P ₃	10	3	2

Timeslice = 2 ms.