

Sant Gadge Baba Amravati University, Amravati Summer 2020 Examination

H.V.P.Mandal's College Of Engineering & Technology Amravati

Course: Computer Science & Engineering

BE Four Year Sixth Semester (Computer Science & Engineering) Summer 2020 Exam

6KS01 Operating Systems

Assignment ONLY FOR BACKLOG STUDENTS

Marks: 20

Note:

1. Solve any Two Questions.

2. Each Question carries 10 Marks

Question No1.(10 Marks)

- | | |
|--|------|
| a) Define Operating System. | (2M) |
| b) Define Turnaround time. | (2M) |
| c) Calculate the number of page faults for the following reference string for 3 frames using FIFO page Replacement algorithm
Reference String: 1,2,3,4,1,2,5,1,2,3,4,5
Number of Frames: 3 | (2M) |
| d) List the various File Attributes | (1M) |
| e) On a disk with 200 Cylinders numbered 0 to 199,
compute the number of tracks the disk arm must move to satisfy all the request in the disk queue Using FCFS disc Scheduling Algorithm
The current head position is at 53.
the Queue in FIFO order contains I/O request : 98,183,37,122,14,124,65,67 | (2M) |
| f) Which one of the following is core of Linux operating system?
(Write the appropriate option from the following
1.Kernel 2.Shell 3.Terminal 4.Command) | (1M) |

Question No.2.(10 Marks)

- | | |
|---|------|
| a) Draw the Process state Transition diagram | (2M) |
| b) List the four necessary conditions for deadlock to occur in the system. | (2M) |
| c) Calculate the number of page faults for the following reference string for 3 frames using LRU page Replacement algorithm.
Reference String: 1,2,3,4,5,3,4,1,6,7,8,7,8,9,7,8,9,5,4,5,4,2
Number of Frames: 3 | (2M) |
| d) List the various File Operations | (1M) |
| e) Define seek time. | (1M) |
| f) What are the three Primary Components of Linux Operating System | (2M) |

Question No3.(10 Marks)

- a) List the three major activities of an operating system in regards to secondary storage management? (2M)
- b) For the following processes (2M)
- | <u>Process</u> | <u>Burst Time</u> |
|----------------|-------------------|
| P1 | 24 |
| P2 | 3 |
| P3 | 3 |
- Calculate turnaround time of each process and average turnaround time for First come first serve (FCFS) Scheduling Algorithm.
- c) Consider a paging system with 80 percent hit ratio, (1M)
if it takes 20 nanoseconds to Search TLB and 100 nanoseconds to access memory, calculate the effective access.
- d) List the five types of Logical Directory Structures (2M)
- e) List Six disc Scheduling Algorithms (2M)
- f) Linux is a _____ User and _____ Tasking Operating System (1M)

Question No 4 .(10 Marks)

- a) List the three major activities of an operating system in regards to Main-Memory management? (2M)
- b) List the three requirements that must be satisfied by critical-section problem solution. (2M)
- c) Consider a logical-address space of eight pages of 1,024 words each, mapped onto a physical memory of 32 frames. (2M)
- i. How many bits are in the logical address?
- ii. How many bits are in the physical address?
- d) List the three types of Disc Allocation Methods (1M)
- e) What are the three reasons for which buffering is done (2M)
- f) Which one of the following provide command interpreter environment? (1M)
(Write the appropriate option from the following
1.Kernel 2.Shell 3.CPU 4.Hardware)