R15

Code No: 125EH

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech III Year I Semester Examinations, November/December - 2017

OPERATING SYSTEMS

(Common to CSE, IT)

Time: 3 hours **Max. Marks: 75**

Note: This question paper contains two parts A and B.
Part A is compulsory which carries 25 marks. Answer all questions in Part A. Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks and may have a, b, c as sub questions.

PART - A

(25 Marks)

1.a)	Describe about control card in batch-system.	[2]
b)	Define Real time operating systems.	[3]
c)	What do you turn around Time?	[2]
d)	Define Process Control Block.	[3]
e)	Describe about hashed page table.	[2]
f)	What do you mean by external fragmentation?	[3]
g)	Describe about File Allocation Table.	[2]
h)	Mention two important functions of Virtual File System. (VFS) Layer.	[3]
i)	Describe about resource allocation Graph.	[2]
j)	List the necessary conditions to occur the Deadlock.	[3]

PART - B

(50 Marks)

2.a) Define operating system? Elaborate the operating system operations with examples?
b) Discuss in detail the main advantage of the layered approach to system design? What are the disadvantages of using layered approach? [5+5]

OR

3. Explain the following terms with examples and neat diagrams: [5+5]
a) Java Virtual Machine b) Para-Virtualization

4.a) Differentiate between Long terms, Short term, Medium term Scheduler.
b) By illustrating the structure of process P1, explain the Petersons solution to critical section problem. [5+5]

OR

5.a) Discuss in detail about the Dining –Philosophers solution using monitors.
b) Illustrate the semaphore functions with examples. [5+5]

6.a) Perform optimal page replacement on the following reference string:
-7,0,1,2,0,3,0,4,2,3,0,3,2,1,2,0,1,7,0,1 find number of page faults and define optimal page replacement?

b) Define thrashing? Explain its causes and write any two solutions to increase CPU utilization in case of thrashing. [5+5]

OR

7. What is fragment? Explain the difference between internal and external fragments. Explain how best fit allocation scheme minimized the fragment size? [5+5]

8.a) What are the disadvantages of single contiguous memory allocation? Explain.

b) Explain and compare the FCFS and SSTF disk scheduling algorithms. [5+5]

OR

9. Illustrate the following terms with examples.
a) Bit vector
b) Swap space management. [5+5]

10. Describe in detail the implementation methods of Access matrix. [10]

OR

11. How does deadlock avoidance differ from deadlock prevention? Write about deadlock avoidance algorithm in detail. [10]

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