Roll No. :.

Total Printed Pages :

B. Tech. (Sem. V) (Mercy Back) Examination, November 2018 Computer Sc. & Engineering

SCS5A Operating Systems (CS, IT)

Time: 3 Hours

Total Marks: 80

Min. Passing Marks: 24

Attempt any five questions, selecting one question from each unit. All Questions carry equal marks. Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used / calculated must be stated clearly.

Use of following supporting material is permitted during examination. (Mentioned in form No. 205)

NIL

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UNIT - I

- What is the need of BIOS ? Explain Boot strap loader also. 1 (a)
 - (b) How an operating system works as a resource manager and virtual machine?

OR

Explain the architecture of operating system. 1 (a)

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What do you mean by processor scheduling? Explain the various levels (b) of scheduling.

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UNIT - II

2 (a) Describe the solution of Dining-Philosophers problem.

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(b) Consider the following set of processes with arrival time and CPU burst time given in ms.

Process	Arrival time	Burst time
\mathbf{P}_{1}	0	8
P_2	1	1 2 mg 4
P_3	2	`9
P_4	3	5

What is the average waiting time for these processes with preemptive SJF scheduling?

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OR

- 2 (a) What do you understand by Semaphores? Can it be useful to solve reader-writer problem? Explain.
 - (b) What are different algorithmic solutions of Critical Section problem ? Explain.

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UNIT - III

- 3 (a) What is deadlock? What are necessary conditions for deadlock to occur?
 - (b) Consider the following snapshot of system. The given jobs are of memory size 13 kB, 5 kB only.

Address	Size of
Address	Free space
005	2
070	28
105	12
279	82
395	15

Compare best fit, worst fit and first fit memory allocation schemes. Show the allocated addresses and free spaces after every job for all 3 schemes.

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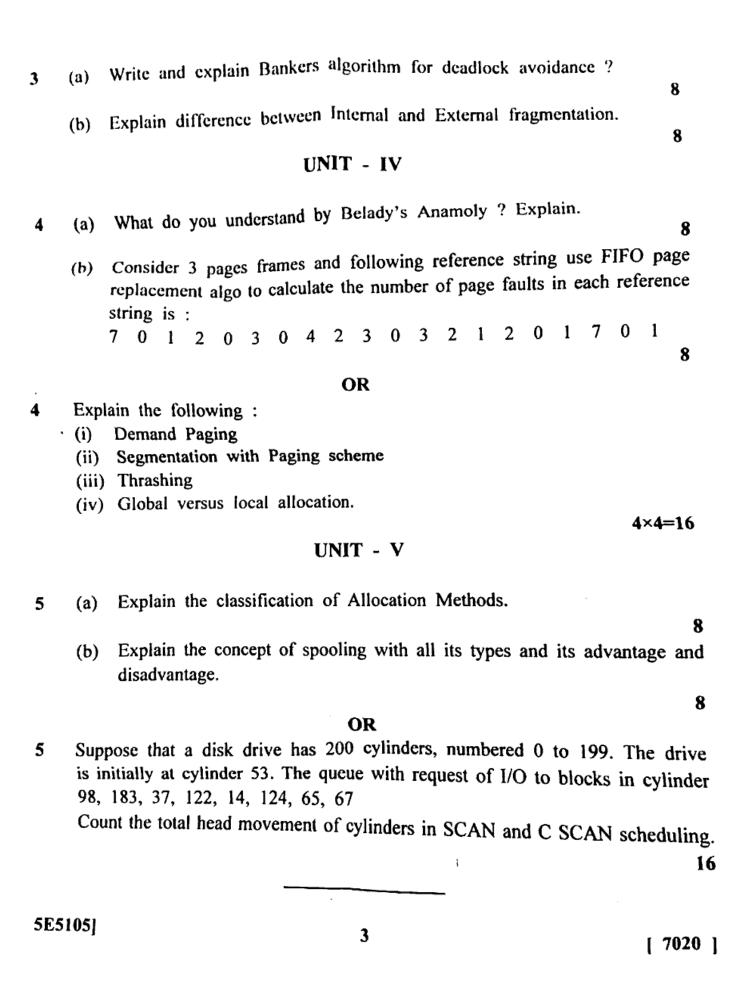
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