R13

III B. Tech I Semester Supplementary Examinations, May -2016
OPERATING SYSTEMS
(Common to CSE and IT)

Time: 3 hours   Max. Marks: 70

Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B)**
2. Answering the question in **Part-A** is compulsory
3. Answer any **THREE** Questions from **Part-B**
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PART –A

1	a)	Write short notes on device controller and driver.	[3M]
	b)	What is a Dispatcher? Mention its functions.	[4M]
	c)	Describe how the Swap () instruction can be used to provide mutual exclusion that satisfies the bounded-waiting requirement.	[4M]
	d)	Explain the difference between internal and external fragmentation.	[4M]
	e)	What are the various data structures used for implementing banker's algorithm? Provide a brief description of each.	[4M]
	f)	Write short notes on virtual file system.	[3M]

PART -B

2	a)	Write an overview of computer system.	[10M]
	b)	Describe the features of a distributed operating system.	[6M]
3	a)	What is a scheduler? List and describe different types of schedulers.	[6M]
	b)	Write in detail about the thread libraries.	[10M]
4	a)	Present producer-consumer problem. Explain how to solve it.	[8M]
	b)	Distinguish between counting and binary semaphores. Show when does the semaphore definition requires busy waiting. Suggest a solution to overcome this problem.	[8M]
5	a)	Consider the reference string: 7, 0, 1, 2, 0, 3, 0, 4, 2, 3, 0, 3, 2, 1, 2, 0, 1, 7, 0, 1 for a memory with three frames. Trace FIFO, optimal, and LRU page replacement algorithms.	[6M]
	b)	Discuss in detail about various page table structures.	[10M]
6	a)	Explain in detail about deadlock detection techniques.	[8M]
	b)	Explain how to recover the system from a deadlock.	[8M]
7	a)	How to provide protection to a file system? Explain.	[8M]
	b)	Write in detail about the on-disk and in-memory structures used to implement a file system.	[8M]

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