Question Paper

Exam Date & Time: 23-Apr-2018 (10:00 AM - 01:00 PM)

MANIPAL ACADEMY OF HIGHER EDUCATION

SCHOOL OF IMFORMATION SCIENCE (SOIS)
SECOND SEMESTER MASTER OF SCIENCE -MSc (INFORMATION SCIENCE)
DEGREE EXAMINATION - APRIL 2018
Monday, 23 April, 2018
10.00 am to 1.00 pm

Operating Systems - Elective 1 [MIS 510.1]

Marks: 100 **Duration: 180 mins.**

Answer all the questions.

1)	Write the definition of operating system. Explain the operating system with user and system view with help of neat diagram.	(10)
2)	Explain how operating system makes program to process and role of process control block with respect to process.	(10)
3)	What is meant by multithreading? List and explain the 3 multithreading models with neat diagrams.	(10)
4)	Explain any two scheduling algorithms with example.	(10)
5)	What do you mean by message communication? Explain following: (i) direct or indirect communication (ii) symmetric or asymmetric (iii) Automatic or explicit buffering	(10)
6)	Write the structure of the producer process as well as the consumer process in the classical solution to "Bounded buffer" critical section problem. Clearly indicate (i) the number of semaphores used (ii) their initial values (iii) purpose of using them.	(10)
7)	Explain the following (5+5) (i) Deadlock prevention (ii) Deadlock avoidance	(10)
8)	What is the advantage of using translation look-aside buffers? Explain with help of neat diagram.	(10)
9)	What is the necessity of using page replacement algorithm? Explain all related algorithms.	(10)
10)	Given memory partitions of 200K, 600K, 300K, 400K, 250K	(10)

and 700K (in order), how would each of the First-fit, Best-fit and worst fit algorithms place the memory segments of processes of 256K, 220K 312K, 517K, 212K and 526K (in order)? In this case which algorithm makes most efficient use of memory?

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