STELLA MARIS COLLEGE (AUTONOMOUS) CHENNAI 600 086
(For candidates admitted during the academic year 2011 – 12 and thereafter)

SUBJECT CODE: 11CS/PC/OS14

M.Sc. DEGREE EXAMINATION, NOVEMBER 2013
INFORMATION TECHNOLOGY
FIRST SEMESTER

COURSE : MAJOR CORE
PAPER : OPERATING SYSTEMS
TIME : 3 HOURS **MAX. MARKS: 100**

SECTION – A

Answer **ALL** the questions **(10 * 2 = 20 Marks)**

1) List the functionalities of an operating system.
2) What are handheld systems?
3) What is the purpose of a process control block?
4) What is a short-term scheduler?
5) Define: Semaphores.
6) What is race condition?
7) What is a dynamic storage allocation problem? What are the three strategies used to solve it?
8) What is Thrashing?
9) What are the attributes of a file?
10) What are the different file access methods?

SECTION – B

Answer any **SIX** questions **(6 * 5 = 30 Marks)**

11) Write notes on (i) Mainframe systems (ii) Desktop systems
12) What is a process? Explain its states with the diagram.
13) Explain the various Multithreading models.
14) What is a deadlock? What are the features that characterize deadlock?
15) Why do we need process synchronization? Explain the Dining Philosopher's problem.
16) Explain fragmentation and its types.
17) What are the operations on a file?
18) Discuss about free space management for storing files efficiently.

SECTION - C

Answer any FIVE questions **(5 * 10 = 50 Marks)**

19) What is a System call? How is it executed? Explain its types.
20) What is context switching? Explain the round-robin and multi-level feedback queue scheduling algorithms with suitable examples.

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21) Explain the banker's algorithm for deadlock avoidance.
22) Explain the basic methods of Paging and Segmentation
23) What is the need for Page Replacement algorithm? Explain any 3 Page Replacement Algorithms.
24) Explain the different schemes available for defining a directory structure.
25) Explain the UNIX file system.

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