

Roll No.

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Total No. of Pages : 02

Total No. of Questions : 09

MCA (2012 & Onwards) (Sem.-4)
ADVANCED OPERATING SYSTEMS

Subject Code : MCA-404

Paper ID : [A2558]

Time : 3 Hrs.

Max. Marks : 100

INSTRUCTION TO CANDIDATES :

1. **SECTIONS-A, B, C & D** contains **TWO** questions each carrying **TWENTY** marks each and students has to attempt any **ONE** question from each **SECTION**.
2. **SECTION-E** is **COMPULSORY** consisting of **TEN** questions carrying **TWENTY** marks in all.
3. Use of non-programmable **scientific calculator** is allowed.

SECTION-A

1. Explain the similarities and differences between multiprocessor and distributed operating system.
2. What is inter process communication? Discuss various design challenges in distributed operating system with reference to distributed applications.

SECTION-B

3. What is a kernel? Compare and contrast micro kernel and monolithic kernel based models of operating system with examples.
4. Discuss in detail periodic, aperiodic and sporadic task based scheduling with example. Write a note on the concept of energy aware CPU scheduling.

SECTION-C

5. What is a Grid? Discuss in detail the Grid architecture. Write a note on Grid Scheduling.
6. Discuss major application areas of cluster computing with real life examples. Explain various functionalities of MOSIX operating system.

SECTION-D

7. Discuss various building blocks of clouds. What is virtualization of operating system? Compare hypervisor KVM and SAN & NAS backend concepts.
8. What is Mobile Computing? Explain various design principles of mobile computing. Discuss the architecture of any one mobile operating system.

SECTION-E

9. Explain briefly :

- a. What is the concept of load balancing?
- b. List various operating systems for mobile devices.
- c. What are the goals of distributed file systems?
- d. Define Cloud Computing.
- e. Highlight the need of fault tolerance?
- f. What is the concept of logical clock?
- g. Quote the significance of Grid monitoring.
- h. Define cloud as PaaS.
- i. What is the role of network interfaces in Grid?
- j. List main applications of cloud computing.