

Roll No.

Total No. of Pages : 02

Total No. of Questions : 09

MCA (2015 & Onwards) (Sem.-4)
ADVANCED OPERATING SYSTEMS
Subject Code : MCA-404
Paper ID : [74122]

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. **SECTIONS-A, B, C & D** contains **TWO** questions each carrying **TEN** marks each and students have 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) Discuss in detail the architecture and organization of Multi-Processor and Distributed (MPD) Operating system. Give suitable example.
- 2) What is the distinguished feature of a distributed file system? What are its advantages and disadvantages? Give an example of a distributed file system.

SECTION-B

- 3) What are the different types of Kernel models in Real-time and Embedded Operating systems? What are the characteristics of each of these models?
- 4) Explain the following :
 - a) Hardware elements of Embedded Systems.
 - b) Energy Aware CPU Scheduling.

SECTION-C

- 5) Describe in detail with neat diagram the grid computing architecture. What is the purpose of Grid monitoring and scheduling systems? Explain.
- 6) Explain the following :
 - a) Performance analysis of grid applications.
 - b) MOSIX OS.

SECTION-D

- 7) What is Cloud computing? What are the various service models of Cloud computing? Explain with suitable examples.
- 8) Write short notes on :
 - a) Mobile Operating System.
 - b) SAN as a back-end concept.

SECTION-E

- 9) **Answer briefly :**
 - a) What is clock synchronization in distributed system?
 - b) Define availability of resources in distributed systems.
 - c) What is mutual exclusion (mutex) in distributed systems?
 - d) How a distributed file system solves read-write conflicts on a file that is shared between multiple readers and only a single writer?
 - e) What are the benefits of using the Grid compared with computations on a local computer?
 - f) What is the difference between public and private cloud?
 - g) Why does Grid have multiple Virtual Organizations for Grid jobs?
 - h) What is Cluster computing?
 - i) What happens when an interrupt occurs?
 - j) Define Virtualization.