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Total No. of Pages : 02

Total No. of Questions : 18

**MCA (2015 to 2018) (Sem.-4)**  
**ADVANCED OPERATING SYSTEMS**  
**Subject Code : MCA-404**  
**M.Code : 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 has to attempt any **ONE** question from each **SECTION**.
2. **SECTION-E** is **COMPULSORY** consisting of **TEN** questions carrying **TWENTY** marks in all.

**SECTION-A**

1. Give a detailed description of Multi-processor and Distributed Operating System Architecture. Explain various design and development issues in Multi-Processor and Distributed systems.
2. How is Inter-Process Communication achieved in Distributed Operating systems? Give suitable examples along with your answer.

**SECTION-B**

3. Describe structure of Real Time and Embedded (RE) operating systems clearly specifying differences between Nano-kernel, Micro-kernel and Monolithic-kernel based models.
4. What do you mean by Energy Aware CPU Scheduling concept? How is it different from traditional CPU scheduling?

**SECTION-C**

5. What are the main features of Grid Computing architecture? What are its applications? How is it better than other operating system architectures?
6. How is the Performance analysis done in Grid Computing environment? Also describe the Grid Monitoring and Scheduling processes.

#### SECTION-D

7. Compare and contrast the various Mobile Operating systems on the basis of their features and platforms.
8. What is cloud computing? What are its building blocks? Describe four types of application that are especially well- suited for mobile computing and cloud computing.

#### SECTION-E

**Write short notes on :**

9. Mobile Operating Systems
10. Nano-kernel model
11. Hardware & Software Virtualization in Cloud
12. Load Balancing
13. Features of Android OS
14. Cloud Building Blocks
15. Scheduling in Real time and Embedded OS
16. Cluster Computing
17. Distributed File System
18. Inter-Process Communication

**NOTE : Disclosure of Identity by writing Mobile No. or Marking of passing request on any paper of Answer Sheet will lead to UMC against the Student.**