Name : .....

Roll No. : .....

Invigilator's Signature : .....

CS/M.Tech(SE)/SEM-1/PGSE-102/2012-13

2012

ADVANCED OPERATING SYSTEMS

Time Allotted : 3 Hours *Full Marks* : 70

The figures in the margin indicate full marks.

Candidates are required to give their answers in their own words as far as practicable.

GROUP – A

1. Answer any *seven* of the following questions. 7 × 2 = 14

   a) Why physical clock cannot be implemented in "Distributed System" ?

   b) How distribution system differs from parallel system ?

   c) How does granularity affect DSM system performance ?

   d) What is home-less coherence protocol ?

   e) How "file-level transfer" differs from "record-level" transfer ?

   f) What is the difference between "Actuator" and "Sensor" ?

g) How does soft real-time task differ from hard real-time task ?

h) What do you mean by the term "real-time" ?

i) What are the disadvantages of device driver ?

j) What is the basic principle of EDF scheduling algorithm ?

GROUP – B

Answer any *four* of the following. 4 × 14 = 56

2. a) What is the main difference between loosely coupled and tightly coupled systems ?

b) Explain the structure of a real-time operating system with diagram.

c) Explain any two name resolution techniques.

2 + (3 + 3) + (3 + 3)

3. a) What type of supports can be achieved from distributed operating system ?

b) Explain DES algorithm with diagram.

c) Explain the characteristics of real-time system.

d) Why real-time operating system must support mutli-tasking ? 2 + (3 + 3) + 4 + 2

4. a) "Real-time system is basically made for handling real-time exceptions". Justify.

   b) Explain RPC-mechanism.

   c) How simple non-nested interrupts are being handled in real-time operating system ?

   d) Explain PaaS. 2 + 5 + 4 + 3

5. a) What is context switch ?

   b) How will you choose a commercial real-time operating system ?

   c) Do you think that RTOS supports user-level threads ? Justify.

   d) Explain mini-computer model. Compare and contrast workstation model with workstation-server model.

   2 + 4 + 2 + (3 + 3)

6. a) If context-switch time gets increased in an RTOS, what will happen and why will it happen ?

   b) What is a sporadic stimulus ? Give an example.

   c) Explain the roll of name-agent, name server in case of name services. What is partitioned namespace ?

   d) Suppose you are given with only two scheduling algoritm – EDF and RMA. Now which algorithm will you pick up for RTOS ? Justify.

   2 + (1 + 1) + (2 + 2 + 2) + (1 + 3)

7. a) Explain the concept of "Lamport's Logical Clock".

   b) How a typical data is being accessed in DFS ? Explain with diagram.

   c) Explain the parameters of a job in RTOS. 5 + 5 + 4