Code No. 3323

FACULTY OF ENGINEERING

B.E. 4/4 (ECE) II-Semester (Main & Backlog) Examination, May / June 2017

Subject : Real Time Operating Systems (Elective – II)

Time : 3 hours **Max. Marks : 75**

Note: Answer all questions from Part-A. Answer any FIVE questions from Part-B.

PART – A (25 Marks)

1 Define Kernel. Mention different types of Kernels. 3
2 Explain any two important reasons for usage of operating system for an electronic system. 2
3 Differentiate between Shortest Jump First (SJF) algorithm and round Robin scheduling algorithm. 3
4 Mention any two notable advantages of Thread Scheduling. 2
5 Define semaphore. When do we recommend using it? 3
6 Mention the solution adopted for dinning philosopher's problem. 2
7 Differentiate First-fit Vs Best-fit memory allocation algorithms. 3
8 Mention different page replacement policies available in RTOS. 2
9 Mention any three notable features of Vxworks RTOS. 3
10 Write any two main aspects of choosing a RTOS for an electronic system design. 2

PART – B (50 Marks)

11 a) What is Real Time Operating System? Differentiate between General Purpose Operating System and Real Time Operating System. 5
b) Describe in brief about the interaction of Operating System with the underlying hardware. 5

12 a) Differentiate priority and non-priority based scheduling of multi-tasking with a neat timing diagram. 5
b) State Shortest Jump First (SJF) algorithm and explain with a neat timing diagram. 5

13 a) What is deadlock problem? When it will occur? Explain with an example. 5
b) Describe in brief about Producer-Consumer problem and strategy being adopted. 5

14 a) Explain various memory allocation techniques available for tasks in RTOS. 6
b) Write in detail about the LRU page replacement policy. 4

15 a) Explain usage of RTOS for Fault Tolerant Applications with an example. 5
b) With the kernel diagram, mention in brief about μC/OS-II RTOS. 5

16 a) Write short notes on UNIX multilevel feedback scheduling. 5
b) Write a short note on FCFS, C-SCAN disk scheduling algorithms. 5

17 Write any Two of the following : 5+5
a) Write a short notes on various task states and task state transitions
b) Explain how messages are getting passed among the created tasks in RTOS
c) Write in brief about shared resource problem with an example

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