CBCS SCHEME

USN | | | | | | | | | |

18EVE22

Second Semester M.Tech. Degree Examination, June/July 2019
Real Time Operating System

Time: 3 hrs. Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

1 a. With the help of pseudocode and state diagram, explain basic real time service using polling technique. **(10 Marks)**

b. Define real-time service and explain real time service time line with hardware acceleration. **(10 Marks)**

OR

2 a. Describe six real time service utility functions with relevant graph. **(14 Marks)**

b. Write the state transition diagram for a thread of execution including all possible state and explain briefly. **(06 Marks)**

Module-2

3 a. With necessary assumptions explain two cases of RMLUB. **(10 Marks)**

b. Describe the two algorithms for determination of N and S feasibility test. **(10 Marks)**

OR

4 a. Consider the 3 service system having following details:

Services	Execution time	Release time
S1	1	2
S2	1	4
S3	4	16

Draw the timing diagram for RM for EDF policies and comment on result. [assume prio (S1) > prio (S2) > prio (S3)] **(12 Marks)**

b. Explain the overload scenario in RM policy and EDF policy. **(08 Marks)**

Module-3

5 a. Explain the following: i) Shared memory ii) Flash file system. **(10 Marks)**

b. What do you mean by worst-case execution time of a service? Explain. **(10 Marks)**

OR

6 a. With necessary considerations, explain unbounded priority inversion. Suggest solutions to avoid it. **(10 Marks)**

b. Explain the reliability of a system with a dual-string, cross-strapped sub system interconnection example. **(10 Marks)**

Module-4

7 a. Explain any 3 firmware components. **(10 Marks)**

b. Explain RTOS system software mechanisms. **(10 Marks)**

OR

8 a. Explain the single step debugging used to debug errors in RTOS. **(10 Marks)**
b. Explain the following: i) Test access ports ii) Trace ports. **(10 Marks)**

Module-5

9 a. Explain the following with an example for each:
i) Process
ii) Thread
iii) Semaphore. **(10 Marks)**
b. Write a simple code to create a parent and child process. Explain the code in detail. **(10 Marks)**

OR

10 a. Explain the following with an example for each:
i) Shared buffer
ii) Message queue
iii) IPC. **(10 Marks)**
b. Explain the concept of semaphore with a simple code. **(10 Marks)**

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