H.T.No. | | | | | | | | | | |

Code No: EC1553 **GEC-R14**

IV B. Tech I Semester Regular Examinations, November 2017

EMBEDDED REAL TIME OPERATING SYSTEMS

(Electronics and Communication Engineering)

Time: 3 Hours **Max. Marks: 60**

Note: All Questions from **PART-A** are to be answered at one place.
Answer any **FOUR** questions from **PART-B.** All Questions carry equal Marks.

PART-A

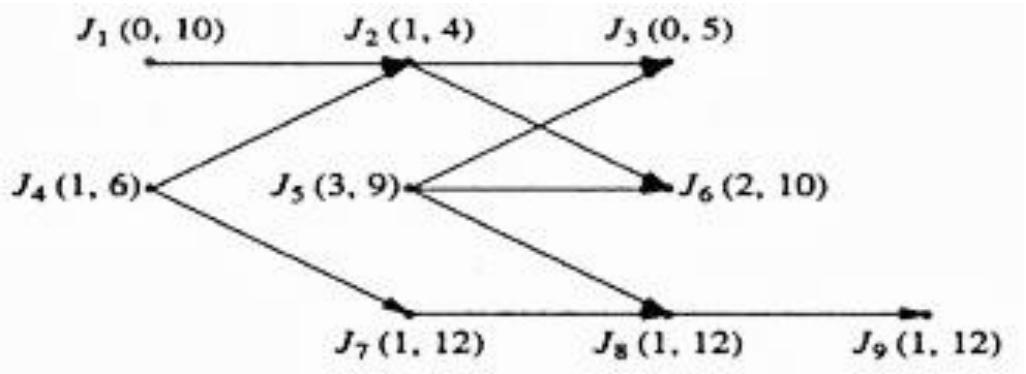
6 × 2 = 12M

1. Mention the features of UNIX OS.
2. Define hard and soft real time systems. Give an example for each.
3. State the purpose of sockets in IPC.
4. Explain about the processor dependent and processor independent files.
5. What do you mean by deletion safety in VxWorks.
6. Illustrate the requirement of CODEC in audio applications.

PART-B

4 × 12 = 48M

1. a) Discuss the process related commands in UNIX OS. (6M)
   b) Explain process management and memory management in embedded real time operating system. (6M)
2. a) With an example explain the task graph and its parameters. (6M)
   b) Because sporadic jobs may have varying release times and execution times, the periodic task model may be too inaccurate and can lead to undue under utilization of the processor even when the inter release times of jobs are bounded from below and their executions are bounded from above. As an example, suppose we have a stream of sporadic jobs whose inter release times are uniformly distributed from 9 to 11. Their execution times are uniformly distributed from 1 to 3. Calculate the period, execution time and utilization of the periodic task. (6M)
3. a) The feasible interval of each job in the precedence graph in the below figure is given next to its name. The execution time of all jobs is equal to 1. (6M)



Find the effective release times and deadlines of the jobs in the precedence graph.

   b) With an example, explain round robin scheduling algorithm. (6M)

4. Explain in detail the various ways of establishing inter process communication in RTOS. (12M)

5. Define scheduling? Explain in detail the priority based preemptive scheduling algorithm with the help of an example. (12M)

6. Write short notes on the following: (12M)

   i) Task synchronization while sending application layer byte streams on a TCP/IP network.

   ii) class diagram of telephone answering machine.

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