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Printed Pages – 3

TCS – 041

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 0149 Roll No. | | | | | | | | | | |

B.Tech.

(SEM VIII) EVEN SEMESTER THEORY EXAMINATION, 2009-2010

REAL TIME SYSTEM

Time : 3 Hours *Total Marks : 100*

Note : *(i) Attempt **ALL** questions.*

*(ii) All questions **carry equal** marks.*

1. Attempt ***any four*** parts of the following : **(4x5=20)**

(a) Every system is 'Real Time System' - elaborate it with suitable examples.

(b) Define Hard Real Time Systems with suitable examples.

(c) Distinguish aperiodic task with sporadic task giving examples.

(d) Explain the difficulty in writing formal specification of a Real Time System.

(e) Discuss the factors that are to be analyzed for estimating execution time for RTS.

(f) State and explain issues involved in Real Time Computing.

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2. Attempt *any two* parts of the following : **(2x10=20)**

(a) Discuss different approaches used in Real Time Scheduling and their important characteristics.

(b) Write a note on Offline and Online scheduling also discuss relative merit and demerit of the two.

(c) Discuss relative merits and demerits of Least-Slack-Time-First Algorithm and also its nonoptimality.

3. Attempt *any two* parts of the following : **(2x10=20)**

(a) Discuss Priority-Ceiling Protocol and explain how it avoids Deadlocks ?

(b) Define Dynamic Priority Systems with suitable examples and discuss the implementation of Priority Ceiling Protocol in such systems.

(c) Discuss basic features and governing rules of Preemption-Ceiling Protocol and mention its relative merits over Priority-Ceiling Protocol.

4. Attempt *any two* parts of the following : **(2x10=20)**

(a) Define Fixed Priority End to End Periodic Tasks and further discuss the Schedulability criterion of Nongreedy Synchronized tasks.

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(b) Discuss the following with respect to Multiprocessor :

(i) Identical versus Heterogeneous Processors and

(ii) Local versus Remote Resources

(c) Discuss Temporal Distance Model and hence, explain Distance Constraints Monotonic Algorithm.

5. Attempt *any two* parts of the following : **(2x10=20)**

(a) Draw schematic diagram of real time communication model and further give architectural overview of it.

(b) Discuss timed token protocol hence; explain TTRT and further mention provisions if token is lost.

(c) Threads and the Kernel are two on which any Operating System functions, hence give an overview of Real time OS.

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