



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) EXAMINATION, 2008-09
REAL TIME SYSTEM

Time : 3 Hours]

[Total Marks : 100

- Note : (1) Attempt all questions.
(2) All questions carry equal marks.

- 1 Attempt any **four** of the following question : **5×4**
- (a) Differentiate Real time systems from general purpose systems with suitable example.
 - (b) Elaborate the misconception that Real time computing is fast computing.
 - (c) Explain the designing issue of caches for RTS.
 - (d) Discuss that traditional performance measures are not suitable for real time systems.
 - (e) Discuss different types of task with suitable example.
 - (f) Discuss with suitable illustration embedded real time systems.
- 2 Attempt any **two** of the following question : **10×2**
- (a) Differentiate between real time operating system and general purpose operating system.

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[Contd..

- (b) Why resource contention is considered as major issue in design of real time OS and how it can be reduced?
- (c) Discuss the important features and designing details of HART OS.

3 Attempt any **two** of the following questions : 10×2

- (a) Discuss superiority of Earliest Deadline First (EDF) over RM and its schedulability criterion and how it handles Precedence and Exclusion? Further, explain the requirement of Primary and Alternative tasks.
- (b) Explain static and dynamic scheduling with example. Mention advantages and disadvantages of both. Finally list different types of Multiprocessor and Uniprocessor scheduling algorithms.
- (c) Schedule the following task set according to 'Next Fit' and 'Bin Packing' algorithms and comment on superiority of any one of them.

	T ₁	T ₂	T ₃	T ₄	T ₅	T ₆	T ₇	T ₈	T ₉	T ₁₀	T ₁₁
e _i	5	7	3	1	10	16	1	3	9	17	21
P _i	10	21	22	24	30	40	50	55	70	90	95

Having M = 4 classes with bounds c₁=(0.48,1], c₂=(0.32, 0.48], c₃=(0.22, 0.32] and c₄=(0.0, 0.022].

4 Attempt any **two** of the following questions : 10×2

- (a) Describe VTCSMA protocols using flowchart and further mention its important features along with its variants.



- (b) Discuss window protocol with LTTT in real time communication. Also comment on how it handles collisions.
- (c) One cannot guarantee that the hardware will not fail and software is bug free then comment on how meaningful is to talk about guaranteeing real time performance.

5 Attempt any **two** of the following questions : 10×2

- (a) Discuss the requirement of concurrency control in general and optimistic concurrency control in general.
- (b) Define Clock and different types of it that can be used in real time systems. Further, discuss clock synchronization.
- (c) What is redundancy? Discuss main issues in Hardware Redundancy giving emphasis on voting.

