



Printed Pages : 3

TCS - 041

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

PAPER ID : 0149

Roll No.

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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.



- (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 $c_1=(0.48,1]$, $c_2=(0.32, 0.48]$, $c_3=(0.22, 0.32]$ and $c_4=(0.0, 0.022]$.

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.
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