YMCA UNIVERSITY OF SCIENCE & TECHNOLOGY, FARIDABAD
B. TECH. 6th SEMESTER (UNDER CBS)
Real Time Systems(CE-306)

Time: 3 Hours   Max. Marks:60

Note: 1. It is compulsory to answer the questions of Part -1. Limit your answers within 20-40 word in this part.
2. Answer any four questions from Part -2 in detail.
3. Different parts of the same question are to be attempted adjacent to each other.

PART -1

Q1 (a) What are the characteristics of the real time systems?   (2)
(b) Why ROM emulator is used in embedded system development?   (2)
(c) Define the term tardiness of a job associated with real time systems.   (2)
(d) Differentiate between static and dynamic scheduling.   (2)
(e) What are the scheduling strategies under RTOS?   (2)
(f) Distinguish between periodic and sporadic tasks.   (2)
(g) What is a liveness property of real time operating system?   (2)
(h) How fault can be detected and corrected?   (2)
(i) Explain the term fail stop and fail safe associated with fault.   (2)
(j) How can you decide the data typing for real time languages?   (2)

PART -2

Q2 (a) What is an Embedded System? Explain any two issues in embedded system design.   (5)
(b) Explain the working of the embedded software development tool chain.   (5)

Q3 (a) Distinguish between hard and soft timing constraints with examples.   (5)
(b) Explain the EDF(Earliest Deadline First) scheduling algorithm in details.   (5)

Q4 (a) Why priority ceiling protocol is used? Explain the protocol with an example.   (5)
(b) Write the capabilities of any one the commercially available real time operating system.   (5)

Q5 (a) How we can model processors and resources under real time systems? Explain.   (5)
(b) What is a fault? Explain faults based on its temporal behavior.   (5)

Q6 (a) Draw and explain the structure of real time operating system.   (5)
(b) Explain the method used to protect shared data among tasks using semaphore.   (5)

Q7 (a) Write the desirable characteristics of real time languages.   (5)
(b) Explain the concept of hardware redundancy associated with real time systems.   (5)

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