

Roll No. ....

Total Pages : 3

**201506**

**Dec. 2018**

**B.Tech. 5th Semester (UNDER CBS)**

**REAL TIME SYSTEM**

**(CE- 317C)**

Time : 3 Hours]

[Max. Marks : 75

*Note:*

- (i) *It is compulsory to answer the questions of Part -1. Limit your answers within 20-40 word in this part.*
- (ii) *Answer any four questions from Part -2 in detail.*
- (iii) *Different parts of the same question are to be attempted adjacent to each other.*
- (iv) *Assume suitable standard data wherever required, if not given.*

**PART-A**

1. (a) Define an embedded system. (1.5)
- (b) What is the priority ceiling? (1.5)
- (c) Explain RM scheduling algorithm? (1.5)
- (d) What is hardware redundancy? (1.5)
- (e) Differentiate between hard and real time system. (1.5)

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- (f) Explain the roles of various latencies in real time system. (1.5)
- (g) Differentiate between periodic and aperiodic tasks in real time system. (1.5)
- (h) Explain the liveness property of a real time operating system. (1.5)
- (i) Explain the term fail stop and fail safe associated with fault. (1.5)
- (j) Why in-circuit emulator is used in embedded system development? (1.5)

**PART-2**

- 2. (a) Explain various components used in embedded software development. (5)
- (b) Explain the role of ROM emulators and monitors in getting embedded software into the target system. (10)
- 3. (a) Explain the temporal parameters of real time work load. (5)
- (b) Explain the periodic task model. (10)
- 4. (a) How do you assign priorities to the tasks in a real time system? Explain all levels of priority. (10)
- (b) Explain the use of re-entrant code for code sharing. (5)

- 5. Consider a real-time system in which there are three tasks with their period and execution time as follows:

Task	Execution time	Period
T1	20	100
T2	30	145
T3	68	150

Check whether the tasks are RM schedulable? (15)

- 6. Explain the priority ceiling protocol. How does it remove the problems of priority inheritance protocol. (15)
- 7. (a) What is a package? Explain it using the language Ada or the language of your choice. (5)
- (b) What is time redundancy? Explain in detail. (10)