

Code No: **RT42054B**

R13

Set No. 1

IV B.Tech II Semester Regular/Supplementary Examinations, April - 2018

EMBEDDED AND REAL TIME SYSTEMS

(Computer Science and Engineering)

Time: 3 hours

Max. Marks: 70

Question paper consists of Part-A and Part-B

Answer ALL sub questions from Part-A

Answer any THREE questions from Part-B

PART-A (22 Marks)

1. a) Give the applications of an embedded system. [4]
b) List the various CPU registers that are available in 8051 microcontroller. [4]
c) What is task in the operating system context? [3]
d) What is deadlock? [4]
e) What is producer-consumer problem in the inter process communication context? [4]
f) What is EDLC? [3]

PART-B (3x16 = 48 Marks)

2. a) What is the difference between RISC and CISC processor? Give an example for each. [8]
b) What are the different types of memories used in embedded system design? Explain the role of each. [8]
3. a) What is operational quality attribute? Explain the important operational quality attributes to be considered in any embedded system design. [8]
b) Explain the various factors to be considered while selecting a microcontroller for an embedded system design. [8]
4. a) What is kernel? What are the different functions handled by a general purpose kernel? [8]
b) Explain multiprocessing and multitasking in detail. [8]
5. a) Explain about message Queues. [8]
b) Explain with an example, the mail boxes in an embedded system with Real time Operations. [8]
6. a) What are the merits and de-merits of busy-waiting based mutual exclusion? [8]
b) What is a device driver? Explain its role in the OS context. [8]
7. a) Explain the advantages and limitations of simulator based debugging. [8]
b) What is ROM emulation? Explain In Circuit Emulator (ICE) based debugging in detail. [8]