B.E. (EXTC) (Sem - VII) (CBS)   Date-22/11/19

Time : 3 Hrs   Marks: 80

Instructions
1. Q1 is compulsory.
2. Attempt any three out of the remaining five questions.
3. Assume suitable data.

Q1. Attempt any **FOUR.**

(20)

    a) What is watchdog timer, its use and typical application for an embedded system.
    b) Explain I2C in brief.
    c) Explain various types of operating systems.
    d) Differentiate between embedded systems and general computing systems.
    e) Explain pre-emptive scheduling in RTOS.
    f) What is process and various states that a process can lie in an embedded system?

(10)
Q2.a) Explain various steps of design of digital camera using microcontroller and CCDPP.

    b) Describe any two wireless communication means for embedded systems.   (10)

Q3. a) Describe design metrics and optimization challenges for embedded systems.   (10)

    b) What is interprocess communication (IPC) in RTOS? Explain various IPCs.   (10)

Q4. a) Define finite state machine (FSM). Draw and explain FSM for automatic chocolate
       vending machine.   (10)

    b) Explain various task scheduling models in RTOS.   (10)

Q5. a) Write a note on program models: DFG, FSM, Petri-net, UML.   (10)

    b) Compare RISC and CISC architectures along with advantages and disadvantages.   (10)

Q6. a) How to choose RTOS for a given embedded system application.   (10)

    b) What is CAN protocol. Describe topology and frame formats with significance of
       fields.   (10)

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