Code: 06MC404A

MCA IV Semester Supplementary Examinations September/October 2014

EMBEDDED SYSTEMS

(For students admitted in 2008 only)

Time: 3 hours Max Marks: 60

Answer any FIVE questions

All questions carry equal marks

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1 (a) What is an embedded computer system?
(b) Explain the characteristics of embedded computing applications.

2 With a neat diagram, explain the serial data transmission modes in 8051 microcontroller.

3 (a) Discuss briefly about code memory read-only data moves in 8051 microcontroller.
(b) Explain how the data is exchanged in 8051 microcontroller.

4 (a) Explain how unsigned and signed addition operations are performed by 8051 microcontroller.
(b) Write an ALP in 8051 to add two 8-bit numbers.

5 (a) What is the difference between RET and RET1 instructions? Explain why we cannot use RET instead of RET1 as the last instruction of an ISR.
(b) Discuss what happens if interrupts INT0, TF0 and INT1 are activated at the same time. Assume priority levels were set by the power up reset and the external hardware interrupts are edge trigged.

6 (a) What is meant by shared data?
(b) Explain the problems that arise due to shared data.

7 Explain the requirements of hard real-time embedded systems. What is the need of well tested and debugged real-time operating system?

8 (a) What is meant by CAN bus? List out the features of CAN bus.
(b) What are the applications and specifications of CAN bus.

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