Roll No. ⬚⬚⬚⬚⬚⬚⬚⬚⬚⬚⬚⬚ Total No. of Pages : 02

Total No. of Questions : 09

MCA (2013 and 2014 Batch)   (Sem.–5)
EMBEDDED SYSTEMS
Subject Code : MCA-501
Paper ID : [A3159]

Time : 3 Hrs.   Max. Marks : 100

INSTRUCTION TO CANDIDATES :
1. **SECTIONS-A, B, C & D contains TWO questions each carrying TWENTY marks each and students has to attempt any ONE question from each SECTION.**
2. **SECTION-E is COMPULSORY consisting of TEN questions carrying TWENTY marks in all.**
3. **Use of non-programmable scientific calculator is allowed.**

SECTION-A

Q1 What is need and significance of embedded system? What are its various characteristics? Explain in detail.

Q2 Explain the following :

a) Structure of embedded system

b) Recent trends in embedded system

SECTION-B

Q3 What is PIC microcontroller? Draw and explain the architecture of 8-bit 40 pin PIC microcontroller 16F877A.

Q4 Write notes on the following :

a) GPIO

b) Timer comparator and A/D converter

SECTION-C

Q5 Write notes on the following :

    a) Assembler directive

    b) Need and significance of memory mapped I/O

Q6 Explain the following :

    a) Reasons and types of interrupt

    b) Format and use of bit and byte oriented PIC 16F877A instructions

SECTION-D

Q7 What are various industrial and control applications? Discuss the role of embedded system in different industrial and control applications.

Q8 Write notes on the following :

    a) Significance of embedded system in network and telecom applications

    b) Merits and demerits of embedded system in multimedia applications.

SECTION-E

Q9 Answer briefly :

    a) List various elements of embedded system.

    b) What is use of counter in embedded system?

    c) Define bus.

    d) List various embedded software design issues.

    e) List various requirements of embedded system.

    f) What is use of BCF instruction in 16F877A?

    g) What are different types of buses?

    h) What is need of memory organization?

    i) List various limitations of PIC microcontroller.

    j) What is use of option register?