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Total No. of Printed Pages: 1

Total No. of Questions: [09]

BCA (Semester – 3rd)
EMBEDDED SYSTEM
Subject Code: BCAP1357
Paper ID: [160116]

Time: 03 Hours

Maximum Marks: 60

Instruction for candidates:

1. Section A is compulsory. It consists of 10 parts of two marks each.
2. Section B consist of 5 questions of 5 marks each. The student has to attempt any 4 questions out of it.
3. Section C consist of 3 questions of 10 marks each. The student has to attempt any 2 questions.

Section – A

(2 marks each)

Q1. Attempt the following:

- a. What is an embedded system? How does it differ from general-purpose computer system? Discuss in brief.
- b. Why is power consumption critical consideration in embedded systems? Discuss in brief.
- c. What do you understand by FPGA? Discuss in brief.
- d. What is the purpose of the Timer/Counter modules? Discuss in brief.
- e. What is the role of ADC in PIC microcontrollers? Discuss in brief.
- f. Briefly discuss the characteristics of RISC architecture.
- g. What do you understand by assembler directives? Discuss in brief.
- h. What do you understand by subroutines? Discuss in brief.
- i. How are embedded systems utilized in Digital Signal Processing (DSP) applications? Discuss in brief.
- j. Briefly discuss the role of embedded systems in multimedia applications.

Section – B

(5 marks each)

- Q2. Write a note on emerging trends in embedded system design.
- Q3. Explain different addressing modes available in PIC microcontrollers.
- Q4. What do you understand by Memory-Mapped I/O? Discuss its characteristics.
- Q5. Briefly discuss any two categories of instructions found in PIC16F877A instruction set and provide an example for each category.
- Q6. Write a note on the significance of embedded systems in telecommunications.

Section – C

(10 marks each)

- Q7. Discuss common architectures for embedded systems design. Also discuss the challenges associated with embedded software development.
- Q8. Discuss a typical PIC Microcontroller architecture with the help of a suitable diagram.
- Q9. Explain in detail the applications of embedded systems in the area of consumer appliances.