Roll No……..….. **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.