



NCC-003-015202 Seat No. _____

M. Sc. (Electronics) (Sem. II) (CBCS) Examination

April / May - 2017

**Introduction to Embedded
Microcontrollers : Paper - VI
(Old Syllabus)**

Faculty Code : 003

Subject Code : 015202

Time : $2\frac{1}{2}$ Hours]

[Total Marks : 70

- Instructions :** (1) All questions carry equal marks.
(2) Figures on right hand side indicate marks.

1 Answer the following : (Any **Seven**) **14**

- (1) Define the term "Microcontroller".
- (2) Write the features of 8051 microcontroller.
- (3) Write the format of assembly language instruction.
- (4) How many I/O ports available in 8051 chip?
- (5) What is the Bit-Manipulation in 8051 microcontroller?
- (6) What is the addressing mode of 8051 microcontroller?
- (7) Which pins of 8051 chip are used for serial communication?
- (8) What is an interrupt in 8051 microcontroller?
- (9) Write the advantages of 8051 microcontroller in different fields.
- (10) What is the data type of 8051 microcontroller?

- 2** Answer the Following : (Any Two) **14**
- (1) Explain the addressing modes of 8051 microcontroller. **7**
 - (2) Draw and explain the block diagram of 8051 chip. **7**
 - (3) Explain the PUSH and POP instructions with examples. **7**
- 3** Answer the Following : **14**
- (1) Write a note on serial communication. Explain **7**
Synchronous and Asynchronous Serial data communication in 8051 chip.
 - (2) Write a note on interrupt versus polling and also write **7**
steps for executing an interrupt in 8051 microcontroller.
- OR**
- 3** Answer the Following : **14**
- (1) Write an assembly language program to create square **7**
wave with pulse width of 2ms on P1.2 using Timer-0 with XTAL = 11.0592 MHz
 - (2) Write an assembly language program to transfer ASCII **7**
letter "A" continuously through serial port with 9600 baud rate and XTAL = 11.0592 MHz
- 4** Answer the following : **14**
- (1) Explain rotate instructions with examples. **7**
 - (2) Explain ADD, DA and SUBB instructions with **7**
examples.
- 5** Answer the following : (Any Two) **14**
- (1) Assume that register A has packed BCD number, **7**
write an assembly language program to convert packed BCD to two ASCII numbers and place them in R2 and R6.
 - (2) Write a note on key-board interfacing with 8051 **7**
chip and explain the scanning and identifying the key in the key-board.
 - (3) Write an assembly language program to display the **7**
message "ELE" on LCD. Assume XTAL =11.0592 MHz.
 - (4) Draw and explain the interfacing of ADC0804 chip **7**
with 8051 microcontroller.