

Total No. of Questions—8]

[Total No. of Printed Pages—3

Seat No.	
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[5459]-159

S.E. (Electrical) (Second Semester) EXAMINATION, 2018

FUNDAMENTALS OF MICROCONTROLLER AND

ITS APPLICATIONS

(2015 PATTERN)

Time : Two Hours

Maximum Marks : 50

N.B. :- (i) Attempt Q. Nos. 1 or 2, Q. Nos. 3 or 4, Q. Nos. 5 or 6, Q. Nos. 7 or 8.

(ii) Neat diagrams must be drawn wherever necessary.

(iii) Figures to the right indicate full marks.

(iv) Assume suitable data, if necessary.

1. (a) Draw the architecture of 8051 Microcontroller. Explain memory mapping of 8051. [6]

(b) Draw and explain internal structure of PORT 1 of 8051 microcontroller. [6]

Or

2. (a) Explain in detail bit level instructions in 8051 microcontroller. [6]

(b) Explain in detail different timer modes of 8051 microcontroller. [6]

P.T.O.

3. (a) Explain the interrupt structure of 8051 microcontroller. Explain how interrupts are prioritized. [6]
- (b) Explain the Logical instructions present in 8051 microcontroller with a mnemonic code and its operation for each. [6]

Or

4. (a) Explain the different serial communication modes in 8051. [6]
- (b) Write an assembly level program to generate a square wave of 2 kHz with timer 0 on port pin 1. [6]
5. (a) Write an assembly language program to generate triangular waveform using DAC interfaced with 8051 microcontroller. [7]
- (b) Explain the mode 1 of 8255 PPI in output mode and list the functions of handshake signals. [6]

Or

6. (a) Explain in detail the following microcontroller development tools : [6]
- (1) Assembler
 - (2) Compiler
 - (3) Cross Assembler and compiler.
- (b) Draw and explain with schematic diagram hardware interfacing of 8255 with 8051 microcontroller. [7]

7. (a) Draw a schematic diagram for speed control of stepper motor using 8051 microcontroller. [7]
- (b) Write a program to rotate the DC motor for a given speed. [6]

Or

8. (a) Write a program to rotate a motor 64° in the clockwise direction. The motor has a step angle of 2° . Use the normal 4 step sequence. [6]
- (b) Draw and explain with schematic diagram for Power Factor measurement using 8051 microcontroller. [7]