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[5252]-550

S.E. (Electrical) (Second Semester) EXAMINATION, 2017

FUNDAMENTALS OF MICROCONTROLLER AND

ITS APPLICATIONS

(2015 PATTERN)

Time : Two Hours

Maximum Marks : 50

N.B. :— (i) Attempt Q. No. 1 or Q. No. 2, Q. No. 3 or Q. No. 4,
Q. No. 5 or Q. No. 6, Q. No. 7 or Q. No. 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 and explain internal RAM organization of 8051 microcontroller. [6]
- (b) Explain the instruction with example : [6]
- (1) MOVX A,@DPTR
- (2) RLC A.

Or

2. (a) Explain the function of pins \overline{PSEN} , \overline{EA} and ALE . [6]
- (b) Explain Stack and enlist Stack related instructions. [6]
3. (a) Write a short note on interrupt structure of 8051 microcontroller. [7]

P.T.O.

(b) Write a program to copy the content of 10 elements from locations 50 H onwards to external memory location C050H onwards. [6]

Or

4. (a) Draw the format of TCON register and explain each bit in the register. [7]

(b) Write program to transfer letter 'A' serially at baud rate 9600, use serial pin in mode 1. Assume crystal frequency 11.0592 MHz. [6]

5. (a) Draw and explain functional block diagram of 8255 PPI [6]

(b) Explain the following microcontroller development tools : [6]

(1) Assembler

(2) Simulator

(3) Compiler.

Or

6. (a) Draw and explain I/O mode of 8255 PPI. [6]

(b) Draw 8051 based system to interface DAC. Write a program to generate triangular wave. [6]

7. (a) Draw and explain power factor measurement using 8051. [7]

(b) Write an assembly language program for 8051 to rotate stepper motor in clockwise and anticlockwise direction with step angle 1.8°. [6]

Or

8. (a) Draw interfacing diagram of LCD with 8051. Also explain function of LCD pins. [7]

- (b) Write a program to monitor a status of SW, if SW is connected to Pin P2.1 and do the following : [6]
1. If SW = 1 DC Motor rotate in Clockwise direction
 2. If SW = 0 DC motor rotate in anticlockwise direction