Total No. of Questions : 4]

SEAT No. :

PB16

[Total No. of Pages : 2

[6268]-210

S.E. (Electrical Engineering) (Insem)

FUNDAMENTALS OF MICROCONTROLLER AND APPLICATIONS

(2019 Pattern) (Semester-IV) (203149)

Time : 1 Hour] *[Max. Marks : 30*

Instructions to the candidates:

1) ***Solve Q.1 or Q.2 : Q.3 or Q.4.***
2) ***Figures to the right indicate full marks.***
3) ***Neat diagrams must be drawn wherever necessary.***
4) ***Assume suitable additional data, if necessary.***
5) ***Use of non-programmable calculator is allowed.***

Q1) a) Explain in detail data memory and program memory organization of 8051 microcontroller. **[7]**

b) Write the instructions to do the following- **[8]**

i) Load the register R0 with value 60H

ii) Copy the contents of memory location 60H to accumulator.

iii) Copy the contents of accumulator to register R1 of Bank 1.

iv) Copy the contents of internal RAM location 30H to location 40H

OR

Q2) a) Write a short note on architecture of 8051 microcontroller. **[7]**

b) State and explain the functions of following- **[8]**

i) RS0 and RS1 bits

ii) $\overline{EA}$ pin

iii) AC bit

iv) ALE pin

P.T.O.

Q3) a) Write a short note on addressing modes of 8051. Also give 2 examples of each addressing mode. **[7]**

b) Five 8-bit numbers are stored at external memory location 400H onwards consecutively. Write a program to copy these contents to internal RAM locations from 50H onwards consecutively. **[8]**

OR

Q4) a) Explain with syntax and suitable example, following instructions- **[7]**

i) SWAP

ii) RLC

iii) JNZ

iv) CJNE

b) Write a program in assembly to divide the number stored in register R2 by a value 05H and store the quotient at external memory location 200H and remainder at location 201H. **[8]**