

Total No. of Questions : 8]

SEAT No. :

P 3280

[Total No. of Pages : 2

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T.E. (E&TC) (Semester - I)

MICROCONTROLLER AND APPLICATIONS

(2012 Pattern)

Time : 2½ Hours]

[Max. Marks :70

Instructions to the candidates:

- 1) Answer Q1 or Q2, Q3 or Q4, Q5 or Q6 and Q7 or Q8.
- 2) Neat diagrams must be drawn wherever necessary.
- 3) Figures to the right indicate full marks.
- 4) Use of Calculator is allowed.
- 5) Assume Suitable data if necessary.

- Q1)** a) Differentiate RS232 and RS485 Serial Communication Protocol. [6]
b) Explain the programming model of 8051. [6]
c) Explain with example function of ALU in PIC for transfer of data. [8]

OR

- Q2)** a) Explain in depth use of I2C protocol and state any two difference between I2C and SPI. [6]
b) Explain different addressing modes with example. [6]
c) State features of PIC, draw and explain the data memory organization. [8]

OR

- Q3)** a) Draw and explain the port structure of PIC with different registers used in programming. [8]
b) Explain in detail PWM mode in PIC. [8]

OR

- Q4)** a) Differentiate between operating functions of Timer 0, 1 and 2 of PIC. Draw and explain functional diagram of Timer() of PIC. [8]

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- b) Draw an interfacing diagram to display 'GANESH' on 4th position in line one and 'SPPU' at 5th position on second line, write an embedded C program. [8]

- Q5)** a) Explain the SPI mode of MSSP structure used for serial communication. [8]
- b) Explain the use of PIC ADC to interface the motion sensors used for accepting the location and display on LCD. [8]

OR

- Q6)** a) Explain the use of BRG register for calculation of baud rate with UART block diagram. [8]
- b) State features of RTC and draw an interfacing diagram with PIC, write an initialization program. [8]

- Q7)** a) Draw Generalized block diagram of DAS and state its features. [8]
- b) Design a DC Motor controller circuit using PWM for motion control. [10]

OR

- Q8)** a) Design a frequency counter to display the pulses received from the tachometer. [8]
- b) Design a DMM using PIC controller to display AC and DC values of electrical signals. [10]

