Total No. of Questions : 8]

SEAT No. :

P 3280

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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 12C 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]**

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