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SEAT No. :

P5076

[Total No. of Pages : 2

**T.E./Insem.-624**  
**T.E. (E & TC) (Semester - I)**  
**MICROCONTROLLERS**  
**(2015 Pattern)**

*Time : 1 Hour]*

*[Max. Marks : 30*

*Instructions to the candidates:*

- 1) *Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6.*
- 2) *Neat diagrams must be drawn wherever necessary.*
- 3) *Figures to the right side indicate full marks.*
- 4) *Use of calculator is allowed.*
- 5) *Assume suitable data if necessary.*

**Q1) a)** Draw and explain the block diagram of 8051 in short. **[5]**

b) Explain following instructions with operation, addressing mode, no. of cycles and time required to execute the following instructions **[5]**

- i) DJNZ Rn, X,
- ii) MOVC A, @A+DPTR
- iii) DAA.

OR

**Q2) a)** Draw and explain in depth functional diagram of Timer/Counter **[5]**

b) Write an ALP to transfer GOD continuously at the baud rate of 9600. **[5]**

**Q3) a)** Draw an interfacing diagram for 7-segment display connected to port 1 and write an ALP to display BCD counter. **[5]**

b) Draw and explain the block schematic of Logic analyzer. **[5]**

OR

**P.T.O.**

- Q4)** a) Draw an interfacing diagram of 4\*4 matrix keyboard and draw flowchart to detect key pressed. [5]
- b) Draw an interfacing diagram for LCD and write an ALP to display GANESH on line 2 with default values. [5]

- Q5)** a) Draw an interfacing diagram of DAC and write an ALP to generate square of 2 KHz with delay using timer 1 in mode 0. [5]
- b) Draw an interfacing diagram of Stepper motor and write an ALP to rotate it anticlockwise continuously. [5]

OR

- Q6)** a) Draw an interfacing diagram for Opto-isolator and write an ALP to flash lamp connected to it with delay of 10 msec. [5]
- b) Draw a DAS to display the frequency of external signal on 7-segment display with LED indicator for highest value, Draw the flow chart. [5]

