

Total No. of Questions : 8]

SEAT No. :

P-9090

[Total No. of Pages : 2

[6179]-215

S.E. (Electrical Engineering)

FUNDAMENTALS OF MICROCONTROLLER AND APPLICATIONS

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

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates :

- 1) Solve Q1 or Q2, Q3 or Q4, Q5 or Q6, Q7 or Q8.
- 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) Write Short note on Data Types in C [4]

b) Draw & explain TMOD register. [6]

c) Write a C program to generate square wave of 50Hz frequency with 50 % duty cycle on pin 2.3. Assume XTAL = 11.0592MHz & use timer 0 in mode 1. [8]

OR

Q2) a) Explain Timer mode 0 & mode 1 of 8051 Microcontroller. [4]

b) Draw & explain TCON register. [6]

c) Write C Program to toggle bit P1.5 of port P1, 50000 times. [8]

Q3) a) Explain Interrupt Priority Register of 8051 Microcontroller. [3]

b) Explain interrupt structure of 8051 microcontroller with neat diagram. [6]

c) With the help of neat diagram explain interfacing of ADC 0809 with 8051 microcontrollers. [8]

OR

P.T.O.

- Q4)** a) Explain the SOC, EOC & OF pin of ADC 0809. [3]
b) Write short note on Interrupt enable register. [6]
c) Write a program to turn off LED for connected to Port 0 when interrupt 0 occurs and turn it on when interrupt 1 occurs. [8]

- Q5)** a) Explain Steps to transfer Data Serially in 8051 microcontroller. [4]
b) Write Short note on SCON register. [6]
c) Write program to transfer letter 'T' serially 10 times at baud rate of 4800. Use serial port in mode 1. XTAL = 12MHz. [8]

OR

- Q6)** a) Explain Steps to receive Data Serially in 8051 microcontroller. [4]
b) Write short note AT commands required for GSM. [6]
c) Explain Serial port structure of 8051 microcontroller. [8]

- Q7)** a) What is Step Angle ? Calculate the steps required to complete one revolution for 1.2 degree step angle stepper motor. [3]
b) Explain LED interfacing with 8051 microcontroller. [6]
c) With the help of block diagram explain Power measurement using 8051. [8]

OR

- Q8)** a) What are the applications of relay? [3]
b) With the help of block diagram explain Voltage & current measurement using 8051. [6]
c) Draw interfacing diagram of a stepper motor with 8051 and write program to rotate stepper motor 360 Degree in anticlockwise direction with step angle of 1.8 degree. [8]

