

Total No. of Questions: 8]

SEAT No. :

PA-1212

[5925]-234

[Total No. of Pages : 2

S.E. (Electrical)

**FUNDAMENTAL OF MICROCONTROLLER & APPLICATIONS
(2019 Pattern) (Semester-IV) (203149)**

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) Solve Q.1 or Q.2, Q.3 or Q.4, or Q.5 or Q.6, Q.7 or Q.8.
- 2) Figures to the right indicate full marks.
- 3) Neat diagrams must be drawn wherever necessary.
- 4) Assume suitable data, if necessary.

- Q1)** a) Draw & describe TMOD register. [6]
b) Write short note on Data Types in C. [6]
c) Write a program to generate square wave of 50Hz frequency with 50% duty cycle on pin 2.3. Assume XTAL=11.0592 MHz & use timer 0 in mode 1. [6]

OR

- Q2)** a) Describe the Timer modes in 8051 microcontrollers. [6]
b) Draw & explain TCON register. [6]
c) Write C Program to toggle bit P1.5 of port P1, 5000 times. [6]
- Q3)** a) Explain interrupt structure of 8051 microcontroller with neat diagram. [6]
b) With the help of diagram explain interfacing of ADC 0809 with 8051 microcontrollers. [6]
c) Explain Interrupt Priority Register of 8051 Microcontroller. [5]

OR

- Q4)** a) Write short note on Interrupt enable register. [6]
b) Write a program to turn off LED for connected to Port 0 when interrupt 0 occurs and turn it on when interrupt 1 occurs. [6]
c) Explain the SOC, EOC, & OE pin of ADC 0809. [5]

P.T.O.

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

OR

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

- Q7)** a) Explain LED interfacing with 8051 microcontroller. [6]
b) With the help of block diagram explain Key interfacing using 8051. [6]
c) With the help of block diagram explain Power measurement using 8051. [5]

OR

- Q8)** a) With the help of block diagram explain Voltage & current measurement using 8051. [6]
b) 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. [6]
c) Explain relay interfacing with 8051 microcontroller. [5]

