

Total No. of Questions : 8]

SEAT No. :

PE-4244

[Total No. of Pages : 2

[6582]-15

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 Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8.*
- 2) *Neat diagrams must be drawn whenever necessary.*
- 3) *Figures to the right indicate full marks.*
- 4) *Assume suitable additional data if necessary.*
- 5) *Use of a non-programmable Calculator is allowed.*

**Q1) a) Draw & explain TMOD register. [6]**

b) Explain Data Types in C. [6]

c) Write a program to generate square wave of 50Hz frequency with 50 % duty cycle on pin 2.1. Assume XTAL=11.0592MHz & use timer 0 in mode 1. [6]

OR

**Q2) a) Draw & explain TCON register. [6]**

b) Explain the Timer modes in 8051 microcontrollers. [6]

c) Write C Program to make ON & OFF bit P1.4 of port P1, 5000 times. [6]

**Q3) a) Write short note on Interrupt Priority Register. [6]**

b) Explain the SOC, EOC, & OE pin of ADC 0809. [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. [5]

OR

**P.T.O.**

- Q4)** a) Explain interrupt structure of 8051 microcontroller. [6]  
b) Write short note on Interrupt enable register. [6]  
c) Explain interfacing of ADC 0809 with 8051 microcontrollers. [5]

- Q5)** a) Explain Steps to Transfer Data Serially in 8051 microcontroller. [6]  
b) Write Short note on SCON register. [6]  
c) Write program to transfer letter 'A' serially 10 times at baud rate of 4800. Use serial port in mode 1. XTAL=12MHz. [6]

OR

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

- Q7)** a) Draw & Explain Power measurement using 8051. [6]  
b) Draw interfacing diagram of a stepper motor with 8051 and write program to rotate stepper motor. [6]  
c) Explain LED interfacing with 8051 microcontroller. [5]

OR

- Q8)** a) Explain relay interfacing with 8051 microcontroller. [6]  
b) Write short note on current & Voltage measurement using 8051. [6]  
c) Explain Key interfacing using 8051 with diagram. [5]

