**23ELU521**

**PSG COLLEGE OF ARTS & SCIENCE**
(AUTONOMOUS)

**BSc DEGREE EXAMINATION MAY 2025**
(Fifth Semester)

Branch – **ELECTRONICS**

**8051 MICROCONTROLLER**

Time: Three Hours Maximum: 50 Marks

**SECTION-A (5 Marks)**
Answer **ALL** questions
**ALL** questions carry **EQUAL** marks (5 x 1 = 5)

1 Which of the following instructions will move the data 27H into the accumulator?
(i) MOV 27H, A (ii) MOV A, #27H
(iii) MOV A, 27H (iv) MOV A, @27

2 If the register Bank2 of 8051 is to be selected, then the bits of the register PSW must be set as
(i) PSW.5=0 and PSW.4=1 (ii) PSW.2=0 and PSW.3=1
(iii) PSW.3=1 and PSW.4=1 (iv) PSW.3=0 and PSW.4=1

3 An alternate function of port pin P3.4 in the 8051 is:
(i) Timer 0 (ii) Timer 1
(iii) Interrupt 0 (iv) interrupt 1

4 If SM0=1, SM1=0, then the transceiver selected is
(i) 8-bit synchronous (ii) 9-bit synchronous
(iii) 8-bit asynchronous (iv) 9-bit asynchronous

5 Command code to clear LCD display is
(i) 0X01h (ii) 0X02h
(iii) 0X04h (iv) 0X05h

**SECTION - B (15 Marks)**
Answer **ALL** Questions
**ALL** Questions Carry **EQUAL** Marks (5 x 3 = 15)

6 a Compare the members of 8051 family.
OR
b Summarize various addressing modes of 8051 with examples.

7 a Describe the PSW and flag bits of 8051.
OR
b Write an 8051 assembly code to generate 1ms delay using registers. Assume the crystal frequency is 12 MHZ.

8 a Explain the single bit instructions of 8051.
OR
b Write a simple 8051 Assembly code to generate triangular wave and check the same in CRO, which is connected in Port1.

9 a Discuss: 8051 serial communication registers.
OR
b Analyze the priority of 8051 interrupts.

10 a Write a 8051 coding to write letters P, S, and G in LCD with some delay.
OR
b Examine how Digital to Analog Converters can be interfaced with 8051

**Cont...**

## SECTION -C (30 Marks)

Answer **ALL** questions
**ALL** questions carry **EQUAL** Marks (5 x 6 = 30)

11 a Explain the instruction set of 8051 with suitable examples.

OR

b Draw the architecture of 8051 microcontroller and explain each block.

12 a Elaborate the register banks and stack of 8051.

OR

b Discuss the jumping and looping instructions of 8051.

13 a Draw the pin-out diagram of 8051 and explain.

OR

b Assume the input pulses from are fed at P3.4 and crystal frequency is 11.059 MHZ. Write an 8051 assembly code to find the frequency of the input signal.

14 a Write an 8051 program to transfer continuously, the message "YES" serially at 9600 baud rate, 8-bit data with 1 stop bit.

OR

b Analyze various interrupts of 8051.

15 a Write a 8051 program to interface a stepper motor to rotate in 90 degrees. Assume the step angle is 2 degree and explain the function.

OR

b How is ADC interfaced with 8051. Explain with a neat diagram.

Z-Z-Z END