**22PHU624**

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

**BSc DEGREE EXAMINATION DECEMBER 2025**
(Sixth Semester)

Branch – **PHYSICS**

**MICROPROCESSOR ARCHITECTURE & PROGRAMMING**

Time: Three Hours | Maximum: 50 Marks

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

1 The 8085 Microprocessor has
(i) 8 - bit data bus and 8 - bit address bus
(ii) 8 - bit data bus and 16 - bit address bus
(iii) 16 - bit data bus and 8 - bit address bus
(iv) 16 - bit data bus and 16 - bit address bus

2 What is the instruction for adding contents of register B to accumulator?
(i) ADD B (ii) CMP B
(iii) MOV B, A (iv) ADI B

3 In the 8086 microprocessor, instructions are fetched from which segment?
(i) Data segment (ii) Extra segment
(iii) Stack segment (iv) Code segment

4 Which of the following statements correctly describes a microcontroller?
(i) It has no input/output ports
(ii) It is smaller than a microprocessor
(iii) It has memory and input/output ports on the same chip
(iv) It is slower than a microprocessor

5 The "@" symbol in an 8051 instruction represents
(i) Immediate addressing (ii) Indirect addressing
(iii) Direct addressing (iv) Register addressing

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

6 a) Outline the architecture of 8085 microprocessor.
OR
b) Compare I/O-mapped I/O and Memory-mapped I/O in 8085 microprocessor.

7 a) Develop a program to multiply two 8-bit numbers in 8085 microprocessor.
OR
b) Prepare a program to subtract two 8-bit numbers with borrow.

8 a) Summarize the salient features of the 8086 microprocessor highlighting its difference with 8085.
OR
b) Explain the data addressing modes of 8086 with suitable examples.

9 a) Outline the various types of microcontrollers and the criteria used for their selection.
OR
b) Describe about the input and output ports in the 8051 microcontroller.

**Cont...**

10 a) Explain about the Boolean variable manipulation instruction in 8051.

OR

b) Analyze about interfacing a LCD display with the 8051 microcontroller.

## SECTION -C (30 Marks)

Answer **ALL** questions

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

11 a) Elucidate the addressing modes of 8085 microprocessor with examples.

OR

b) Summarize the various instruction classifications of 8085 microprocessor.

12 a) Explain the rotate and compare operations of 8085 microprocessor.

OR

b) Outline the pin configuration and working of 8155 multipurpose programmable device.

13 a) Sketch and explain the register organization of 8086 microprocessor.

OR

b) Outline the architecture of 8086 microprocessor with a neat diagram.

14 a) Explain the pin configuration of 8051 with suitable diagram.

OR

b) Examine the family architecture of 8051 microcontroller with a block diagram

15 a) Enumerate the various addressing modes of 8051 microcontroller.

OR

b) Explain the keyboard interfacing techniques used with the 8051 microcontroller.

Z-Z-Z END