22PHU624N

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BSc DEGREE EXAMINATION MAY 2026
(Sixth Semester)

Branch -**PHYSICS**

MICROPROCESSOR ARCHITECTURE AND PROGRAMMING

Time: Three Hours Maximum: 75 Marks

SECTION-A (10 Marks)
Answer **ALL** questions
ALL questions carry **EQUAL** marks (10 × 1 = 10)

Module No.	Question No.	Question	K Level	CO
1	1	The address bus width of the 8085 microprocessor is (i)8-bit (ii)12-bit (iii) 16-bit (iv)20-bit	K1	CO1
	2	Which instruction transfers data from memory to accumulator? (i)MOV A,M (ii)LDA (iii)MVI (iv)STA	K2	CO1
2	3	While transferring additional data in 8085 microprocessor which instruction transfers 16-bit data? (i)MOV (ii)MVI (iii)LXI (iv)LDA	K1	CO2
	4	8155 multipurpose programmable device is generally used in (i)I/O mapped I/O (ii)Memory mapped I/O (iii)DMA operations (iv)Interrupt control	K2	CO2
3	5	The maximum memory that can be addressed by 8086 is (i)64 KB (ii)128 KB (iii)512 KB (iv)1000 KB	K1	CO3
	6	In 8086 Microprocessor, the operand of immediate addressing mode is (i) In memory (ii) In register (iii) In instruction (iv) In stack	K2	CO3
4	7	Microcontrollers are mainly used for (i)General-Purpose Computing (ii)Embedded Control Applications (iii)High-Speed arithmetic operations (iv)Database Management	K1	CO4
	8	Which port of 8051 is used as address/data bus for external memory? (i) Port 0 (ii) Port 1 (iii) Port 2 (iv) Port 3	K2	CO4
5	9	In 8051, the instruction MOV A,@R0 uses (i) Immediate addressing (ii) Register addressing (iii) Register indirect addressing (iv)Indexed addressing	K1	CO5
	10	Boolean instructions operate on (i) Bytes only (ii) Bits only (iii) Words only (iv) Registers only	K2	CO5

Cont...

SECTION - B (35 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** Marks (5 × 7 = 35)

Module No.	Question No.	Question	K Level	CO
1	11.a.	Draw and Explain the functional block diagram of 8085 ?	K2	CO1
		(OR)		
	11.b.	Differentiate I/O mapped I/O and memory mapped I/O with suitable examples?	K4	
2	12.a.	Write an assembly language program to add two 8-bit numbers without carry?	K6	CO2
		(OR)		
	12.b.	Write an 8085 program to find the largest number in an array?		
3	13.a.	Illustrate how the key features of the 8086 microprocessor are used in a typical microprocessor-based system?	K2	CO3
		(OR)		
	13.b.	Analyze the stack memory addressing modes used in the 8086 and explain how they function during stack operations?	K4	
4	14.a.	Classify the types of microcontrollers and apply them to appropriate embedded system applications?	K2	CO4
		(OR)		
	14.b.	Assess the efficiency of external data memory interfacing in the 8051 and justify the use of external memory in embedded applications?	K5	
5	15.a.	Explain the use of immediate and direct addressing modes of the 8051 in simple assembly programs?	K3	CO5
		(OR)		
	15.b.	Analyze the Boolean variable manipulation instructions of the 8051 microcontroller?	K4	

SECTION -C (30 Marks)

Answer **ANY THREE** questions

ALL questions carry **EQUAL** Marks (3 × 10 = 30)

Module No.	Question No.	Question	K Level	CO
1	16	Differentiate and analyze the various categories of the 8085 instruction set with suitable examples?	K4	CO1
2	17	Analyze the programming techniques of looping, counting, and indexing used in the 8085 microprocessor with suitable examples ?	K4	CO2
3	18	Discuss in detail about the register organization of 8086 and explain the function of each register?	K6	CO3
4	19	Compare the 8085 microprocessor and the 8051 microcontroller with suitable points?	K5	CO4
5	20	Examine how the 8051 microcontroller is used for keyboard and display interfacing, explain with suitable diagrams?	K4	CO5

Z-Z-Z END