

PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

MSc(SS) DEGREE EXAMINATION DECEMBER 2024
(First Semester)

Branch- SOFTWARE SYSTEMS(Five Years Integrated)

COMPUTER ORGANIZATION AND ARCHITECTURE

Time: Three Hours

Maximum: 75 Marks

SECTION-A (10 Marks)

Answer **ALL** questions

ALL questions carry **EQUAL** marks

$$(10 \times 1 = 10)$$

Question No.	Question	K Level	CO
1	Choose the decimal equivalent of octal number 736.4 a) 478.5 b) 472.5 c) 478.25 d) 472.25	K1	CO1
2	_____ constitute the representation of the floating number. a) Sign b) Significant digits c) Scale factor d) All of the mentioned	K1	CO1
3	What will be the output from a D flip – flop if the clock is low and D = 0? a) 0 b) 1 c) No change d) Toggle between 0 and 1	K1	CO1
4	The main objective in building the multi-microprocessor is a) greater throughput b) enhanced fault tolerance c) greater throughput and enhanced fault tolerance d) none of the mentioned	K1	CO1
5	Which of the following is not a bitwise operator? a) b) ^ c) . d) <<	K1	CO1
6	The instruction format ‘register to register’ has a length of a) 2 bytes b) 1 byte c) 3 bytes d) 4 bytes	K1	CO1
7	What is the purpose of the CPU's control bus? a) To transport data within the CPU b) To control the flow of data between the CPU and other components c) To store data permanently d) To connect to the internet	K1	CO1
8	The correspondence between the main memory blocks and those in the cache is given by _____ a) Hash function b) Mapping function c) Locale function d) Assign function	K1	CO1
9	The DMA controller has access to how many channels at a time? a) 1 b) 2 c) 3 d) 4	K1	CO1
10	A peripheral is a) any drives installed in the computer b) tapedrive connected to a computer c) any physical device connected to the computer d) None of above	K1	CO1

Cont...

SECTION - B (35 Marks)Answer **ALL** questions**ALL** questions carry **EQUAL** Marks (5 × 7 = 35)

Question No.	Question	K Level	CO
11.a.	Explain the types of complements in number system.	K2	CO2
	(OR)		
11.b.	Explain addition and subtraction operations on signed numbers.		
12.a.	Simplify the following boolean function- $F(A, B, C, D) = \sum m(0, 2, 8, 10, 14) + \sum d(5, 15)$	K4	CO4
	(OR)		
12.b.	List the four basic types of shift registers and explain.		
13.a.	Explain all the arithmetic micro operations.	K2	CO2
	(OR)		
13.b.	Explain interrupts in detail.		
14.a.	Explain evaluation of expressions using stack.	K5	CO5
	(OR)		
14.b.	Explain shift instructions with an example.		
15.a.	Compare isolated versus memory mapped I/O.	K4	CO4
	(OR)		
15.b.	List the characteristics of multiprocessors.		

SECTION -C (30 Marks)Answer **ANY THREE** questions**ALL** questions carry **EQUAL** Marks (3 × 10 = 30)

Question No.	Question	K Level	CO
16	Explain floating point representation in detail.	K5	CO5
17	Discuss about different logic gates with their truth tables and diagram.	K6	CO6
18	Explain the basic computer instructions.	K2	CO2
19	Demonstrate associative memory in detail.	K2	CO2
20	Discuss in detail on DMA.	K6	CO6

Z-Z-Z END