5 Questions – Apply/Analysis (should be the level of 2-3 marks)

Question Type	Subjective / Analysis	
Question number	1	
Question	Draw pictorial representation of Multiprocessor and multi computer computing system with short a note.	
Solution		
Question Metadata	**Difficulty Level**	**Bloom's Taxonomy**
	Easy	Understand
Tags		
Subject	COA	
Topic	Multiprocessor and multi computer computing system	
Sub Topic	Multiprocessor and multi computer computing system	

Question Type	Subjective / Analysis	
Question number	2	
Question	What is the purpose of minimizing a logic expression?	
Solution		
Question Metadata	**Difficulty Level**	**Bloom's Taxonomy**
	Medium	Understand
Tags		
Subject	COA	
Topic	Minimization of Logic Expression	
Sub Topic	Minimization of Logic Expression	

Minimizing a logic expression, also known as logic simplification, is the process of reducing a complex logic expression to its simplest form. The purpose of minimizing a logic expression is to simplify the expression so that it is easier to understand, verify, and implement.

Question Type	Subjective / Analysis
Question number	3
Question	What is the difference between a NAND gate and a NOR gate?

Solution	

Question Metadata	**Difficulty Level**	**Bloom's Taxonomy**
	Medium	Analyse
Tags	COA	
Subject	Basic Logic Functions	
Topic	Basic Logic Functions	
Sub Topic		

• Computer organization is concerned with the way that the hardware components of a computer system are arranged and interact with each other to carry out tasks.

Question Type	Subjective / Analysis
Question number	4
Question	Differentiate Computer organization and computer architecture
Solution	

Question Metadata	**Difficulty Level**	**Bloom's Taxonomy**
	Medium	Analyse
Tags		
Subject	COA	
Topic	**Fundamentals and Basics**	
Sub Topic	**Fundamentals and Basics**	

. Computer architecture is concerned with the overall design and structure of a computer system, including not only the hardware components, but also the software that controls them and the way
that users interact with the system.

a multiplexer is a data selector which takes several inputs and give one single output. in this we have 2^n inputs and n outputs.

Question Type	Subjective / Analysis
Question number	5
Question	Define multiplexer and demultiplexer?
Solution	

Question Metadata	**Difficulty Level**	**Bloom's Taxonomy**
	Easy	Remember

a demultiplexer is a data distributor in which in which it takes single input and gives multiple outputs. in this we have n inputs and 2^n outputs.

Tags		
Subject	COA	
Topic	Demultiplexers	
Sub Topic	Demultiplexers	

5 Questions (10 marks – Analysis level)

Question Type	Subjective / Analysis	
Question number	1	
Question	Define Boolean Logic? With examples explain the following Boolean Logic operations with truth table and algebraic expressions? i) AND, NAND ii) OR, NOR iii) Invert, XOR, XNOR	
Solution		
Question Metadata	**Difficulty Level**	**Bloom's Taxonomy**
	Easy	Apply
Tags		
Subject	COA	
Topic	Basic Logic Functions	
Sub Topic	Basic Logic Functions	

a Boolean logic is a type of logic which uses variables having only two values i.e 0 or 1.

a bus is a collection

Question Type	Subjective / Analysis	
Question number	2	
Question	A) Define the concept of a bus in computer systems. B) Describe the different types of buses used in a system and their functions. C) Provide an example of a system that uses each type of bus.	
Solution		
Question Metadata	**Difficulty Level**	**Bloom's Taxonomy**
	Medium	Analyse

Tags	
Subject	COA
Topic	Bus structures
Sub Topic	Bus structures

Question Type	Subjective / Analysis	
Question number	3	
Question	A) Describe the process of synthesizing logic functions using NAND and NOR gates in digital logic circuits. B) Provide an example of a circuit that uses a combination of these gates.	
Solution		
Question Metadata	**Difficulty Level**	**Bloom's Taxonomy**
	Medium	Apply
Tags		
Subject	COA	
Topic	Synthesis of Logic Functions	
Sub Topic	Synthesis of Logic Functions	

Question Type	Subjective / Analysis	
Question number	4	
Question	A) Describe the process of minimizing a logic expression in digital logic circuits. B) Explain how the Karnaugh map method can be used to simplify logic expressions. C) Simplify the following Boolean expression using K-Map: $F(A,B,C)=\pi(0,3,6,7)$	
Solution		
Question Metadata	**Difficulty Level**	**Bloom's Taxonomy**
	Hard	Apply
Tags		
Subject	COA	
Topic	Minimization of Logic Expression	

Sub Topic	Minimization of Logic Expression

Question Type	Subjective / Analysis	
Question number	5	
Question	A) Describe the process of minimizing a logic expression in digital logic circuits using K-Map B) Simplify the following Boolean expression using K-Map: F(R,S,P,Q) = ∑(0,2,5,7,8,10,13,15)	
Solution		
Question Metadata	**Difficulty Level**	**Bloom's Taxonomy**
	Hard	Apply
Tags		
Subject	COA	
Topic	Minimization of Logic Expression	
Sub Topic	Minimization of Logic Expression	

10 Questions (5 marks – Comprehension / Application level)

Question Type	Subjective / Analysis	
Question number	1	
Question	Describe the role of functional units in a computer system and provide examples of different types of functional units.	
Solution		
Question Metadata	**Difficulty Level**	**Bloom's Taxonomy**
	Easy	Analyse
Tags		
Subject	COA	
Topic	Functional units	
Sub Topic	Functional units	

Question Type	Subjective / Analysis

Question number	2
Question	Explain the difference between a multiprocessor and a multi-computer system.
Solution	

Question Metadata	**Difficulty Level**	**Bloom's Taxonomy**
	Medium	Analyse
Tags		
Subject	COA	
Topic	multiprocessor and a multi-computer system.	
Sub Topic	multiprocessor and a multi-computer system.	

Question Type	Subjective / Analysis
Question number	3
Question	Describe the basic operational concepts of a computer system, including memory, input/output, and processing.
Solution	

Question Metadata	**Difficulty Level**	**Bloom's Taxonomy**
	Medium	Apply
Tags		
Subject	COA	
Topic	basic operational concepts	
Sub Topic	basic operational concepts	

Question Type	Subjective / Analysis
Question number	4
Question	Describe the role of encoders, decoders, and multiplexers in digital circuits, and provide an example of a scenario where each would be used.

Solution	

Question Metadata	Difficulty Level	Bloom's Taxonomy
	Medium	Apply
Tags		
Subject	COA	
Topic	encoders, decoders, and multiplexers	
Sub Topic	encoders, decoders, and multiplexers	

Question Type	Subjective / Analysis
Question number	5
Question	Define logic gate?. State the names and symbols of the three basic logic gates and explain their respective functions. Provide an example of a simple logic circuit that uses each of the three basic logic gates.
Solution	

Question Metadata	Difficulty Level	Bloom's Taxonomy
	Medium	Remember
Tags		
Subject	COA	
Topic	logic gates	
Sub Topic	logic gates	

Question Type	Subjective / Analysis
Question number	6
Question	Explain the concept of a bus in a computer system and describe its basic operation
Solution	

Question Metadata	Difficulty Level	Bloom's Taxonomy
	Medium	Remember
Tags		
Subject	COA	
Topic	Bus structure	
Sub Topic	Bus structure	

Question Type	Subjective / Analysis
Question number	7
Question	Define a programmable logic array (PLA) and explain how it can be used to implement digital logic circuits. Provide an example of a circuit that uses a PLA.
Solution	

Question Metadata	Difficulty Level	Bloom's Taxonomy
	Medium	Understand
Tags		
Subject	COA	
Topic	PLA	
Sub Topic	PLA	

Question Type	Subjective / Analysis
Question number	8
Question	Describe the process of minimizing a logic expression in digital logic circuits using K-Map
Solution	

Question Metadata	Difficulty Level	Bloom's Taxonomy
	Medium	Apply
Tags		
Subject	COA	
Topic	minimizing a logic expression	
Sub Topic	minimizing a logic expression	

Question Type	Subjective / Analysis	
Question number	9	
Question	Describe the different types of flip-flops, including D, T, JK, and SR flip-flops.	
Solution		
Question Metadata	Difficulty Level	Bloom's Taxonomy
	Medium	Remember
Tags		
Subject	COA	
Topic	flip-flops	
Sub Topic	flip-flops	

Question Type	Subjective / Analysis	
Question number	10	
Question	What are the performance metrics used to measure the efficiency of a computer system? Describe each metric and how it is calculated	
Solution		
Question Metadata	Difficulty Level	Bloom's Taxonomy
	Easy	Remember
Tags		
Subject	COA	
Topic	performance	
Sub Topic	performance	

INSTRUCTIONS:

1) Don't Edit Question Type.
2) In question number, you can enter both numbers, text and special characters.
3) Question - it can be **text and images. [Mandatory]**

4) Only maximum of 5 options can be added. Unused options can be left empty. Under Description Column add option content (it can be both **text and image**). **[Mandatory]**

5) In correct(Y) Column, if option is correct answer then include `Y` . Only one option can have the value 'Y' other options can be left empty **[Mandatory]**
6) Optional - Select Manual Difficulty of a question (Default: Easy). To change, click over the value present in Manual Difficulty to enable Dropdown.
7) Optional - Select Bloom's Taxonomy only from Dropdown list. To access dropdown list, click existing value for Bloom's Taxonomy.