GALGOTIAS UNIVERSITY

ADMISSION NUMBER												

School of Computing Science and Engineering

Bachelor of Technology in Computer Science and Engineering
Mid Term Examination - Nov 2023

Duration : 90 Minutes
Max Marks : 50

Sem III - E2UC301T - Computer Organisation and Architecture

General Instructions
Answer to the specific question asked
Draw neat, labelled diagrams wherever necessary
Approved data hand books are allowed subject to verification by the Invigilator

1)	Determine the address bus size of a digital system having memory of specification 1024 kilobytes .	K1	(1)
2)	Explain what is wrong with the following register transfer statements: (i) xT:AR<-(AR),AR<-0 (ii) yT:R1<- R2,R1<-R3	K2	(2)
3)	Convert the following arithmetic expressionsfrom infix to postfix: A+ (B*C-(D/E^F)*G)*H	K3	(3)
4)	Convert the following numerical arithmetic expressions into reverse polish notation:(3+4)[10(2+6)+8] and show the stack operations for evaluating the numerical result.	K3	(6)
5)	Design a 4- bit full adder using two half adders.	K3	(9)
6)	A computer uses a memory unit with 1024 K words of 64 bits each. A binary instruction code is stored in one word of memory. The instruction has four parts: an indirect bit, an operation code, A register code part to specify one of 128 registers and an address part. Draw the instruction word format and indicate the number of bits in each part.	K4	(8)
7)	Show the contents of registers E, A, Q and SC during the process of multiplication of two binary numbers 11111 (multiplicand) and 10101 (multiplier). The signs are not included.	K5	(15)
8)	What is a bus? Design a bus system capable of transmitting data from any register of a group of 8 registers (32-bits each) to any other register in a group of 8 registers (32-bits each). Illustrate the logic through its block diagram?	K6	(6)