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Odd Semester Examination 2022

Paper Name: Computer System Architecture
Time: 3 Hours

Paper Code : BCA/ B.Sc 102
Maximum Marks: 60

Section A

Note: All Question are Compulsory (1x20=20)

Q.NO	Questions	Marks
1	Identify the Boolean Law associated with the following Boolean equation: $A+A=A/A.A=A$ a) Commutative Law b) Idempotent Law c) Associative d) Distributive	1
2	What are Universal Gates ? a) NAND b) NOR c) both (a) and (b) d) None	1
3	I/O transfers inside periphery of CPU is through a) Internal Bus b) External Bus c) both (a) and (b) d) Neither through (a) or (b)	1
4	Digital logic circuits are _____ building block	1
5	The ALU makes use of _____ to store the intermediate results. a) Accumulators b) Registers c) Heap d) Stack	1
6	The small extremely fast, RAM's are called as _____ a) Cache b) Heaps c) Accumulators d) Stacks	1
7	_____ bus structure is usually used to connect I/O devices. a) Single bus b) Multiple bus c) Star bus d) Rambus	1
8	The time between the receiver of an interrupt and its service is _____ a) Interrupt delay b) Interrupt latency c) Cycle time d) Switching time	1
9	A single Interrupt line can be used to service n different devices. a) True b) False	1
10	The register used to store the flags is called as _____ a) Flag register b) Status register c) Test register d) Log register	1
11	What is used to increase the apparent size of physical memory? a). Disks b). Hard-disk c). Virtual memory d). Secondary memory	1
12	_____ is made of semiconductors: a). Hard-disk b) RAM c) CD disk d) Floppy disk	1
13	In which of the following form the computer stores its data in memory? a) Hexadecimal b) Octal c) Binary form d) Decimal	1
14	Which of the following memory unit communicates directly with the CPU? a) Auxiliary memory b) Main memory c) Secondary memory d) None of the above	1
15	Which of the following circuit is used to store one bit of data? a) Flip Flop b) Decoder c) Encoder d) Register	1
16	Which of the following is a way in which the components of a computer are connected to each other? a) Computer parts Computer architecture Computer hardware None of the above	1
17	Which of the following circuit convert the binary data into a decimal? a) Decoder b) Encoder c) Code converter d) Multiplexer	1

18	Subtraction in computers is carried out by -a)1's complement b.) 2's complement c.) 3's complement d) 9's complement	1
19	The collection of 4-bits is called as – a) Byte b) Nibble c) Word d) Record	1
20	Where is the decoded instruction stored? a)Registers b) MDR c) PC d) IR	1

Section B

Note: Attempt any four (4) Questions out of SIX (4x5=20)

Q.No	Question	Marks	CO	BL
1	What is Flip-Flop? Explain J-K flip flop with the help of logic circuit and Truth table?	5	CO1	2
2	What is instruction cycle ? Explain different phases of Instruction cycle?	5	CO2	1
3	Differentiate between RISC and CISC?	5	CO3	2
4	Simplify the given 4 variable Boolean using the karnaughmap. $F(A, B, C, D) = \sum(0, 2, 5, 7, 8, 10, 13, 15)$	5	CO1	5
5	a. Subtract $(1010)_2$ from $(1111)_2$ using 2's complement method. b. find the sum of the following by using 2's complement: + 0 0 1 1 and - 0 1 0 1	5	CO1	5
6	Define Logic gate? Explain basic logic gates	5	CO2	1

Section C

Note: Attempt any TWO(2) Questions out of FOUR (2x10=20)

Q.No	Question	Marks	CO	BL
1	Explain the use of the following registers for a computer system: (1)MAR (2)MBR (3)PC (4)IR (5)AC	10	CO3	2,3
2	Discuss fixed point representation , floating point representation and 2's complement Representation ?	10	CO2	2
3	What are Addressing Mode ? Explain different type of Addressing Mode ?	10	CO5	1
4	What is Combinational Circuit ? Compare and contrast combinational circuit and Sequential Circuit?	10	CO1	1

BL : Bloom's Taxonomy Level (1-Remembering, 2-Understanding, 3-Applying, 4- Analysing, 5- Evaluating, 6- Creating)