University of Mumbai
Examination June 2021
Examinations Commencing from 1ˢᵗ June 2021
Program: **(INFORMATION TECHNOLOGY)**
Curriculum Scheme: Rev2019
Examination: SE Semester IV
Course Code: ITC405 and Course Name: Computer Organization and Architecture

Time: 2 hour   Max. Marks: 80

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Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks
1.	Program counter contains _____
Option A:	the next instruction
Option B:	opcode of next instruction
Option C:	operand of next instruction
Option D:	**address of next instruction**
2.	Primary memory consist of
Option A:	Only RAM
Option B:	**RAM and ROM**
Option C:	hard-disc
Option D:	CD/DVD
3.	ROM is used to store
Option A:	Operating system
Option B:	**The BIOS**
Option C:	antivirus
Option D:	All passwords
4.	What is the range of an 8-bit Singed number
Option A:	0 255
Option B:	-127 .... +128
Option C:	-128 .... +128
Option D:	**-128 .... +127**
5.	Negative numbers are stored in
Option A:	**2's Compliment form**
Option B:	Sign magnitude form
Option C:	one's compliment form
Option D:	ASCII form
6.	in BOOTH's algorithm for 0 to 0 and for 1 to 1 we simply
Option A:	Add and Left shift
Option B:	**Right Shift**
Option C:	do nothing
Option D:	only Left shift

7.	Multiplication of 4 bit numbers yields maximum _____ bit result
Option A:	4
Option B:	5
Option C:	**8**
Option D:	9
8.	IEEE 754 32 - bit single precision format has the following bit distribution...
Option A:	S(1), E(7), M(24)
Option B:	**S(1), E(8), M(23)**
Option C:	S(1), E(9), M(22)
Option D:	S(1), E(8)
9.	Instructions are decoded by
Option A:	ALU
Option B:	RAM
Option C:	**CONTROL UNIT**
Option D:	STATUS REGISTER
10.	Full Adder is better than Half Adder as
Option A:	It adds twice
Option B:	**It includes carry input**
Option C:	It uses less gates
Option D:	It is cheaper
11.	Which of the following is normalized number??
Option A:	**1.01001**
Option B:	00.0101
Option C:	10.0101
Option D:	0.0101
12.	Which is not a pipelining hazard?
Option A:	Branching
Option B:	Data Dependency
Option C:	Structural hazard
Option D:	**Overheating**
13.	Immediate addressing mode means
Option A:	**Data is given in the instruction**
Option B:	Address is given in instruction
Option C:	Data is given in registers
Option D:	Address is given using a register
14.	One T-state is _____
Option A:	**1 clock cycle**
Option B:	1 machine cycle
Option C:	1 instruction cycle
Option D:	1 bus cycle

15.	Hardwired control units are _____ and _____ compared to microprogrammed control units.
Option A:	Flexible and Faster
Option B:	Flexible and Slower
Option C:	Rigid and Slower
Option D:	**Rigid and Faster**

16.	The OS in your computer is stored in _____
Option A:	RAM
Option B:	ROM
Option C:	BIOS
Option D:	**HARD DISK**

17.	L1 Cache is present _____
Option A:	**Inside the processor**
Option B:	Inside the L2 cache
Option C:	Inside the Main Memory
Option D:	Inside the Bios ROM

18.	Which is not an I/O data transfer scheme?
Option A:	Programmed I/O
Option B:	Interrupt driven I/O
Option C:	**Daisy Chaining**
Option D:	DMA

19.	DMA means transferring data directly between _____ and _____ ??
Option A:	**Memory and I/O**
Option B:	Memory and CPU
Option C:	Memory and Cache
Option D:	Memory and I/O Processor

20.	+25d in binary is
Option A:	11001
Option B:	**011001**
Option C:	0010 0101
Option D:	010001

Q2	Solve any Two Questions out of Three	**10 marks each**
A	Explain in detail various characteristics of memory.	
B	Perform 7/3 using non-restoring division algorithm.	
C	Draw and explain architecture of 8086 microprocessor.	

Q3.	
A	**Solve any Two** 5 marks each
i.	Explain six stage instruction pipelines with suitable diagram.
ii.	Differentiate between minimum and maximum mode of operation of 8086 microprocessor.
iii.	Simplify the expression given below using k-map Y= Σ m(1,3,7,11,15) + d(0,2,5)
B	**Solve any One** 10 marks each
i.	Demonstrate Multiplication (5) * (7) using booth's algorithm.
ii.	Explain Flynn's classification of parallel computers in detail.