

University of Mumbai

Examination 2020

Examinations Commencing from 7th January 2021 to 20th January 2021

Program: COMPUTER ENGINEERING

Curriculum Scheme: Rev2016

Examination: SE Semester: III

Course Code: CSC302 and Course Name :Digital Logic Design and Analysis

Time: 2 hour

Max. Marks: 80

Q1.	Choose the correct option for following questions. All the Questions are compulsory and carry equal marks
1.	The octal number (651.124) ₈ is equivalent to _____
Option A:	(1A9.2A) ₁₆
Option B:	(1B0.10) ₁₆
Option C:	(1A8.A3) ₁₆
Option D:	(1B0.B0) ₁₆
2.	The octal equivalent of the decimal number (417) ₁₀ is _____
Option A:	(641) ₈
Option B:	(619) ₈
Option C:	(640) ₈
Option D:	(598) ₈
3.	Convert the hexadecimal number (1E2) ₁₆ to decimal:
Option A:	480
Option B:	483
Option C:	482
Option D:	484
4.	The number of values applicable in Boolean Algebra.
Option A:	1
Option B:	2
Option C:	3
Option D:	4
1.	The symbol + in Boolean is also known as the _____ operator.
Option A:	AND
Option B:	OR
Option C:	ADD
Option D:	SUMMATION
6.	In the expression $Y + X'.Y$, which operator will be evaluated first?
Option A:	'
Option B:	+
Option C:	.
Option D:	,

7.	Which of the following is false?
Option A:	$x+y=y+x$
Option B:	$x.y=y.x$
Option C:	$x.x'=1$
Option D:	$x+x'=1$
8.	As per idempotent law, $X + X$ will always be equal to _____
Option A:	0
Option B:	1
Option C:	X
Option D:	2X
9.	The expression for involution law is _____
Option A:	$x+y=y+x$
Option B:	$x+1=1$
Option C:	$(x')'=x$
Option D:	$x.x=x$
10.	Who proposed the use of Boolean algebra in the design of relay switching circuits?
Option A:	George Boole
Option B:	Claude E. Shannon
Option C:	Claude E. Boole
Option D:	George Shannon
11.	Truth table is used to represent Boolean _____
Option A:	functions
Option B:	algebra
Option C:	operators
Option D:	addition
12.	Boolean Function is of the form of _____
Option A:	Truth values
Option B:	$K=f(X,Y,X)$
Option C:	Algebraic Expression
Option D:	Truth Table
13.	The terms in SOP are called _____
Option A:	max terms
Option B:	min terms
Option C:	mid terms
Option D:	sum terms
14.	Which of the following is an incorrect SOP expression?
Option A:	$x+x.y$
Option B:	$(x+y)(x+z)$
Option C:	x
Option D:	$x+y$

15.	The corresponding min term when $x=0$, $y=0$ and $z=1$.
Option A:	$x.y.z'$
Option B:	$X'+Y'+Z$
Option C:	$X+Y+Z'$
Option D:	$x'.y'.z$
16.	Which operation is shown in the following expression: $(X+Y')(X+Z).(Z'+Y')$
Option A:	NOR
Option B:	ExOR
Option C:	SOP
Option D:	POS
17.	The number of min terms for an expression comprising of 3 variables?
Option A:	8
Option B:	3
Option C:	0
Option D:	1
18.	The output of AND gates in the SOP expression is connected using the _____ gate.
Option A:	XOR
Option B:	NOR
Option C:	AND
Option D:	OR
19.	The expression $A+BC$ is the reduced form of _____
Option A:	$AB+BC$
Option B:	$(A+B)(A+C)$
Option C:	$(A+C)B$
Option D:	$(A+B)C$
20.	Electronic circuits that operate on one or more input signals to produce standard output _____
Option A:	Series circuits
Option B:	Parallel Circuits
Option C:	Logic Signals
Option D:	Logic Gates

Q2	Solve any Two Questions out of Three 10 marks each
A	<i>Explain CMOS logic families and its characteristics.</i>
B	<i>Write a note on master slave flip flop.</i>
	<i>Design a decade counter.</i>
Q3.	Solve any Two Questions out of Three 10 marks each
A	<i>State and prove the de morgans theorem.</i>

B	<i>Explain the implementation of adder using VHDL.</i>
C	<i>$\Sigma m = (0, 3, 5, 7, 11, 14)$ simplify using Kmap.</i>