Thadomal Shahani Engineering College
University of Mumbai
Sample Paper KT Examination December 2020

Program: Information Technology Engineering
Curriculum Scheme: Rev2016
Examination: Second Year Semester III
Course Code: ITC302 and Course Name: Logic Design

Time: 1 hour Max. Marks: 50

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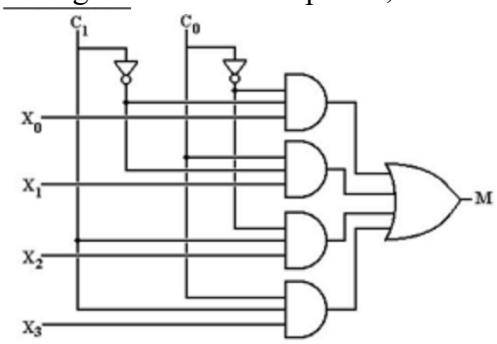
For the students:- All the Questions are compulsory and carry equal marks .

Q1.	To work as an Amplifier, transistor should operate in which region?
Option A:	Saturation region
Option B:	Cut-off region
Option C:	Active region
Option D:	Inverse-Active region
Q2.	A transistor has a β_{DC} of 200 and a base current, I_B, of 8 μ A. The collector current, I_C, equals:
Option A:	180 A
Option B:	16.5 mA
Option C:	180 mA
Option D:	1.6 mA
Q3.	Which of the following set represents the coordinates of Q point?
Option A:	(Vc, Ic)
Option B:	($V_{CE,}$ Ic)
Option C:	(V_{BE}, I_B)
Option D:	(Vcc, Ic)
Q4.	Which of the factor in transistor does not get affect due to change in temperature?
Option A:	I_{CE}
Option B:	β
Option C:	V_{BE}
Option D:	R_B
Q5.	Nibble consists of how many bits?
Option A:	4
Option B:	8
Option C:	12
Option D:	16
Q6.	Conversion of $(869)_{10}$ to (1000 0110 1001) represent conversion from Decimal to which code?
Option A:	Binary
Option B:	Gray
Option C:	BCD

Option D:	Hexadecimal
Q7.	A binary code can be converted to excess-3 using which of the following gates
Option A:	AND
Option B:	OR
Option C:	NOT
Option D:	XOR
Q8.	What will the binary value for octal number $(377)_8$
Option A:	11111111
Option B:	101010111
Option C:	110111111
Option D:	111111000
Q9.	Which of the following is not a valid law in Boolean algebra
Option A:	Exponential Law
Option B:	De morgans law
Option C:	Absorption law
Option D:	Commutative law
Q10.	Which of the following expression is in SOP form
Option A:	(ABC) (B'C'A) (A'B)
Option B:	(A+B) (A'+B'+C')
Option C:	ABC + B'C'A + A'B
Option D:	AB'(A'+C)
Q11.	Which of the following is universal gate
Option A:	OR
Option B:	XOR
Option C:	NOR
Option D:	NOT
Q12.	XOR gate , could be represented using which of the following expressions
Option A:	A xor B = A'B'
Option B:	A xor B =AB' + A'B
Option C:	A xor B = AB + A'B'
Option D:	A xor B = B'(AB)A'
Q13.	Which of the following are correct equation for half adder
Option A:	Sum= A+B, Carry= AB
Option B:	Sum = A xor B , Carry = AB
Option C:	Sum= A'B', Carry = A'B
Option D:	Sum = AB, Carry = A+B'
Q14.	Which of the following is not a combinational circuit.
Option A:	Synchronous circuits

Option B:	Encoder circuit
Option C:	Decoder circuit
Option D:	Binary Adder Circuit
Q15.	An encoder have the following combination of Input and Output.
Option A:	n Inputs, 2^n Outputs
Option B:	n Inputs, n Outputs
Option C:	2^n Inputs, n Outputs
Option D:	1 input , n Outputs
Q16.	In the given 4-to-1 multiplexer, if c1=0 and c0=1, what will be the value of M 
Option A:	X_3
Option B:	X_2
Option C:	X_1
Option D:	X_0
Q17.	DeMultiplexer can implement the logic of which of the following
Option A:	OR gate
Option B:	Multiplexer
Option C:	Encoder
Option D:	Decoder
Q18.	In a J-K flip-flop, if J=K the resulting flip-flop is referred to as
Option A:	D flip-flop
Option B:	SR flip flop
Option C:	D flip flop
Option D:	T flip flop
Q19.	The flip flop is cativated by
Option A:	Negative edge trigger
Option B:	Positive edge trigger
Option C:	Either Positive or Negative edge trigger
Option D:	Sinusoidal trigger
Q20.	For a counter, if all flip-flops receive same clock signal. Then such counter is called as
Option A:	Up Counter
Option B:	Down Counter

Option C:	Asynchronous Counter
Option D:	Synchronous counter
Q21.	A register is
Option A:	a memory location used for caching information
Option B:	a group of flip-flops used for storing 1 bit information
Option C:	a group of flip-flops used for storing n bits binary information
Option D:	a group of flip-flops used for storing text message
Q22.	Ripple counter is also known as
Option A:	Decade Counter
Option B:	Ring Counter
Option C:	Synchronous counter
Option D:	Asynchronous counter
Q23.	In VHDL, which of the following is a valid name for an entity
Option A:	And_gate
Option B:	OR gate
Option C:	NAND
Option D:	NOR
Q24.	Which of the following is correct command to perform XNOR operation in VHDL
Option A:	U <= !(A xor B);
Option B:	U <= A exnor B;
Option C:	U <= A xnor B;
Option D:	U <= A ^xor B;
Q25.	A package in VHDL consists of
Option A:	Commonly used functions, procedures
Option B:	Commonly used architectures
Option C:	Commonly used tools
Option D:	Commonly used syntax and variables