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Subject Code : EC8392	**Subject Name** : DIGITAL ELECTRONICS	Rev. No.	02
Unit No : 1	**Unit Name : DIGITAL FUNDAMENTALS**	Date	30.09.2020

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S. No.	Objective Questions (MCQ /True or False / Fill up with Choices)	BTL
1	Any signed negative binary number is recognised by its _____ **a) MSB** b) LSB c) Byte d) Nibble	L1
2	The parameter through which 16 distinct values can be represented is known as _____ a) Bit b) Byte **c) Word** d) Nibble	L1
3	If the decimal number is a fraction then its binary equivalent is obtained by _____ the number continuously by 2. a) Dividing **b) Multiplying** c) Adding d) Subtracting	L2
4	The representation of octal number (532.2)8 in decimal is _____ **a) $(346.25)_{10}$** b) $(532.864)_{10}$ c) $(340.67)_{10}$ d) $(531.668)_{10}$	L3
5	The decimal equivalent of the binary number (1011.011)2 is _____ **a) (11.375)10** b) (10.123)10 c) (11.175)10 d) (9.23)10	L3
6	An important drawback of binary system is _____ **a) It requires very large string of 1's and 0's to represent a decimal number** b) It requires sparingly small string of 1's and 0's to represent a decimal number c) It requires large string of 1's and small string of 0's to represent a decimal number d) It requires small string of 1's and large string of 0's to represent a decimal number	L2
7	The decimal equivalent of the octal number $(645)_8$ is _____	L4

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	a) $(450)_{10}$ b) $(451)_{10}$ **c) $(421)_{10}$** d) $(501)_{10}$	
8	The largest two digit hexadecimal number is _____ a) (FE)16 b) (FD)16 **c) (FF)16** d) (EF)16	L3
9	Representation of hexadecimal number (6DE)H in decimal: **a) $6 * 16^2 + 13 * 16^1 + 14 * 16^0$** b) $6 * 16^2 + 12 * 16^1 + 13 * 16^0$ c) $6 * 16^2 + 11 * 16^1 + 14 * 16^0$ d) $6 * 16^2 + 14 * 16^1 + 15 * 16^0$	L5
10	The given hexadecimal number (1E.53)16 is equivalent to _____ a) (35.684)8 **b) (36.246)8** c) (34.340)8 d) (35.599)8	L3
11	The octal number (651.124)8 is equivalent to _____ **a) (1A9.2A)16** b) (1B0.10)16 c) (1A8.A3)16 d) (1B0.B0)16	L5
23	The octal equivalent of the decimal number (417)10 is _____ **a) (641)8** b) (619)8 c) (640)8 d) (598)8	L5
13	Convert the hexadecimal number (1E2)16 to decimal: a) 480 b) 483 **c) 482** d) 484	L3
14	(170)10 is equivalent to a) (FD)16 b) (DF)16 **c) (AA)16** d) (AF)16	L3
15	Convert (214)8 into decimal: **a) (140)10** b) (141)10 c) (142)10	L5

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	d) (130)10	
16	Convert (0.345)10 into an octal number: a) (0.16050)8 **b) (0.26050)8** c) (0.19450)8 d) (0.24040)8	L5
17	Convert the binary number (01011.1011)2 into decimal: **a) (11.6875)10** b) (11.5874)10 c) (10.9876)10 d) (10.7893)10	L3
18	Octal to binary conversion: (24)8 =? a) (111101)2 **b) (010100)2** c) (111100)2 d) (101010)2	L3
19	Convert binary to octal: (110110001010)2 =? a) (5512)8 **b) (6612)8** c) (4532)8 d) (6745)8	L3
20	Binary coded decimal is a combination of _____ a) Two binary digits b) Three binary digits **c) Four binary digits** d) Five binary digits	L3
21	The decimal number 10 is represented in its BCD form as _____ a) 10100000 b) 01010111 **c) 00010000** d) 00101011	L2
22	Add the two BCD numbers: 1001 + 0100 = ? a) 10101111 b) 01010000 **c) 00010011** d) 00101011	L3
23	Carry out BCD subtraction for (68) – (61) using 10's complement method. **a) 00000111** b) 01110000 c) 100000111 d) 011111000	L3
24	Code is a symbolic representation of _____ information. a) Continuous **b) Discrete** c) Analog d) Both continuous and discrete	L2

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25	A three digit decimal number requires _____ for representation in the conventional BCD format. a) 3 bits b) 6 bits **c) 12 bits** d) 24 bits	L3
25	How many bits would be required to encode decimal numbers 0 to 9999 in straight binary codes? a) 12 b) 14 **c) 16** d) 18	L3
26	The excess-3 code for 597 is given by _____ **a) 100011001010** b) 100010100111 c) 010110010111 d) 010110101101	L3
27	The decimal equivalent of the excess-3 number 110010100011.01110101 is _____ **a) 970.42** b) 1253.75 c) 861.75 d) 1132.87	L3
28	In boolean algebra, the OR operation is performed by which properties? a) Associative properties b) Commutative properties c) Distributive properties **d) All of the Mentioned**	L2
29	The expression for Absorption law is given by _____ **a) A + AB = A** b) A + AB = B c) AB + AA' = A d) A + B = B + A	L2
30	According to boolean law: A + 1 = ? **a) 1** b) A c) 0 d) A'	L3
31	The involution of A is equal to _____ **a) A** b) A' c) 1 d) 0	L2
32	A(A + B) = ? a) AB b) 1	L2

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	c) (1 + AB) **d) A**	
33	DeMorgan's theorem states that _____ **a) (AB)' = A' + B'** b) (A + B)' = A' * B c) A' + B' = A'B' d) (AB)' = A' + B	L2
34	(A + B)(A' * B') = ? a) 1 **b) 0** c) AB d) AB'	L3
35	Complement of the expression A'B + CD' is _____ a) (A' + B)(C' + D) b) (A + B')(C' + D) c) (A' + B)(C' + D) d) (A + B')(C + D')	L5
36	Simplify Y = AB' + (A' + B)C. **a) AB' + C** b) AB + AC c) A'B + AC' d) AB + A	L5
37	The boolean function A + BC is a reduced form of _____ a) AB + BC **b) (A + B)(A + C)** c) A'B + AB'C d) (A + C)B	L4
38	All input of NOR as low produces result as _____ a) Low b) Mid **c) High** d) Floating	L2
39	The logical sum of two or more logical product terms is called _____ **a) SOP** b) POS c) OR operation d) NAND operation	L1
40	The expression Y=AB+BC+AC shows the _____ operation. a) EX-OR **b) SOP** c) POS d) NOR	L3
41	The expression Y=(A+B)(B+C)(C+A) shows the _____ operation. a) AND	L3

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	b) POS c) SOP d) NAND	
42	A product term containing all K variables of the function in either complemented or uncomplemented form is called a _____ **a) Minterm** b) Maxterm c) Midterm d) ∑ term	L2
43	According to the property of minterm, how many combination will have value equal to 1 for K input variables? a) 0 **b) 1** c) 2 d) 3	L3
44	The canonical sum of product form of the function y(A,B) = A + B is _____ a) AB + BB + A'A **b) AB + AB' + A'B** c) BA + BA' + A'B' d) AB' + A'B + A'B	L4
45	Maxterm is the sum of _____ of the corresponding Minterm with its literal complemented. **a) Terms** b) Words c) Numbers d) Nibble	L2
46	Canonical form is a unique way of representing _____ a) SOP b) Minterm **c) Boolean Expressions** d) POS	L2
47	_____ expressions can be implemented using either (1) 2-level AND-OR logic circuits or (2) 2-level NAND logic circuits. a) POS b) Literals **c) SOP** d) POS	L3
48	A Karnaugh map (K-map) is an abstract form of _____ diagram organized as a matrix of squares. **a) Venn Diagram** b) Cycle Diagram c) Block diagram	L2

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	d) Triangular Diagram	
49	There are _____ cells in a 4-variable K-map. a) 12 **b) 16** c) 18 d) 8	L2
50	The K-map based Boolean reduction is based on the following Unifying Theorem: A + A' = 1. a) Impact **b) Non Impact** c) Force d) Complementarity	L2
51	Each product term of a group, w'.x.y' and w.y, represents the _____in that group. a) Input b) POS **c) Sum-of-Minterms** d) Sum of Maxterms	L2
52	The prime implicant which has at least one element that is not present in any other implicant is known as _____ **a) Essential Prime Implicant** b) Implicant c) Complement d) Prime Complement	L2
53	Product-of-Sums expressions can be implemented using _____ a) 2-level OR-AND logic circuits b) 2-level NOR logic circuits c) 2-level XOR logic circuits **d) Both 2-level OR-AND and NOR logic circuits**	L3
54	Each group of adjacent Minterms (group size in powers of twos) corresponds to a possible product term of the given _____ **a) Function** b) Value c) Set d) Word	L2
55	Don't care conditions can be used for simplifying Boolean expressions in _____ a) Registers b) Terms **c) K-maps** d) Latches	L2
56	It should be kept in mind that don't care terms should be used along with the terms that are present in _____ **a) Minterms** b) Expressions c) K-Map	L2

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	d) Latches	
57	Using the transformation method you can realize any POS realization of OR-AND with only. a) XOR b) NAND c) AND **d) NOR**	L3
58	There are many situations in logic design in which simplification of logic expression is possible in terms of XOR and _____ operations. **a) X-NOR** b) XOR c) NOR d) NAND	L4
59	The code where all successive numbers differ from their preceding number by single bit is _____ a) Alphanumeric Code b) BCD c) Excess 3 **d) Gray**	L3
60	How many AND gates are required to realize Y = CD + EF + G? a) 4 b) 5 c) 3 **d) 2**	L6
61	The NOR gate output will be high if the two inputs are _____ **a) 00** b) 01 c) 10 d) 11	L2
62	How many two-input AND and OR gates are required to realize Y = CD+EF+G? **a) 2, 2** b) 2, 3 c) 3, 3 d) 3, 2	L6
63	A universal logic gate is one which can be used to generate any logic function. Which of the following is a universal logic gate? a) OR b) AND c) XOR **d) NAND**	L5
64	Which of following are known as universal gates? **a) NAND & NOR** b) AND & OR c) XOR & OR d) EX-NOR & XOR	L2
65	Exclusive-OR (XOR) logic gates can be constructed from what other logic gates?	L3

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	a) OR gates only b) AND gates and NOT gates **c) AND gates, OR gates, and NOT gates** d) OR gates and NOT gates	
66	The basic logic gate whose output is the complement of the input is the _____ a) OR gate b) AND gate **c) INVERTER gate** d) XOR gate	L2
67	The AND function can be used to _____ and the OR function can be used to _____ **a) Enable, disable** b) Disable, enable c) Synchronize, energize d) Detect, invert	L2
68	Use the weighting factors to convert the following BCD numbers to binary _____ 0101 0011 & 0010 0110 1000 a) 01010011 001001101000 b) 11010100 100001100000 **c) 110101 100001100** d) 101011 001100001	L2
69	The primary use for Gray code is _____ **a) Coded representation of a shaft's mechanical position** b) Turning on/off software switches c) To represent the correct ASCII code to indicate the angular position of a shaft on rotating machinery d) To convert the angular position of a shaft on rotating machinery into hexadecimal code	L3
70	Why is the Gray code more practical to use when coding the position of a rotating shaft? a) All digits change between counts b) Two digits change between counts **c) Only one digit changes between counts** d) Alternate digit changes between counts	L3
71	Reflected binary code is also known as _____ a) BCD code b) Binary code c) ASCII code **d) Gray Code**	L2
72	Why do we use gray codes? a) To count the no of bits changes	L2

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	b) To rotate a shaft **c) Error correction** d) Error Detetction	
73	Earlier, reflected binary codes were applied to _____ a) Binary addition b) 2's complement **c) Mathematical puzzles** d) Binary multiplication	L2
74	The binary representation of BCD number 00101001 (decimal 29) is _____ **a) 0011101** b) 0110101 c) 1101001 d) 0101011	L4
75	Convert binary number into gray code: 100101. a) 101101 b) 001110 **c) 110111** d) 111001	L4