IITians GATE CLASSES
EXCLUSIVE GATE COACHING BY IIT/IISc GRADUATES
A division of PhIE Learning Center

IITians GATE CLASSES
BANGALORE
Visit us: www.iitiansgateclasses.com
Mail us: info@iitiansgateclasses.com

GATE ECE and EE Coaching by IITians GATE CLASSES

Assignment-3, Digital Electronics

Q1. Gray code representation of 61 is

a) 100111	b) 100011
b) 110011	d) 101011

Ans - b

Q2 Excess-3 code for $(23.105)_{10}$ is

a) 0101 0110 . 0100 0011 1000	b) 0101 0110 . 1100 0011 1000
c) 0101 0110 . 0100 1011 1000	d) 0001 0110 . 0100 0011 1000

Ans - a

Q3. (8,4,-2,-1) code for $(35)_{10}$ is

a) 0011 0101	b) 0011 1101
c) 0110 1000	d) 0101 1011

Ans - d

Q4. (A + C)(A + D)(B + C)(B + D) is equivalent to

a) AB +BC + CD	b) AB +CD
c) ABCD	d) A + B + C + D

Ans - b

Q5 Simplify Boolean function represented in sum of product of min-terms *F (A,B,C,D) = Σ (0, 4, 5, 6, 13, 14, 15) + Φ (2, 7, 8, 9) is where* Φ represent the don't care and A` is complement of A.

a) A`D`+ BD + BC.	b) AD+ B`D` + BC.
c) AD+ B`D` + B`C`.	d) AD+ BD + BC.

Ans - a

Q6. Simplify Boolean function represented in sum of product of min-terms *F(A, B, C, D) = Σ (1, 3, 4, 5, 9, 10, 11) + Φ (6, 8).) is where* Φ represent the don't care and A` is complement of A

a) A′BC′ + B′D + AB	b) ABC′ + B′D + AB′
c) A′BC′ + B′D + AB′	d) A′BC′ + BD + AB′.

Ans - c

Q 7. The octal equivalent of decimal $1\frac{83}{512}$ is

a). 1.123 b). 1.321

c). 11.23 d). 13.21 (IES EC 1997)

Ans – a

Q8. How many minterms (excluding redundant terms) does the minimal switching function F(v,w,x,y,z) = x + $\bar{y}$z

a). 16 b). 20

c). 24 d). 32 (IES EC 1998)

Ans – b

Q9. The number of digit 1 present in the binary representation of 3*512 + 7*64 + 5*8 + 3 is

a). 8 b). 9

c). 10 d). 12

Ans – b

Q10. F's complement of $(2BFD)_{hex}$ is

a). E304 b). D403

c). D402 d). C403

Ans - c

Q11. Which one of the following is equivalent to the Boolean expression *Y = A`B` + B`C`+ C`A`*

(a)(AB + BC + CA)` b) (A` + B`)(B` + C`)(C` + A`)

(c)[(A + B)(B + C)(C + A)]` d) [(A + B)(B + C)]` (C + A)`

Ans – c

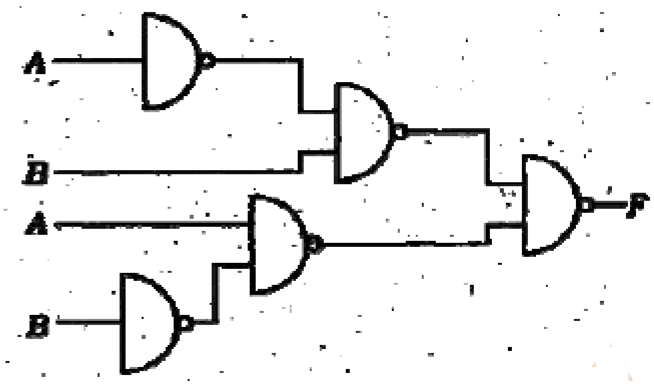
Q12. The Boolean expression (A` + B)(A + C`)(B` + C`) simplifies to

(a)(A + B)C` b) (A + B`)C`

(c)(A` + B)C` d) (A` + B`)C`

Ans – c

13. The circuit shown below is functionally equivalent to

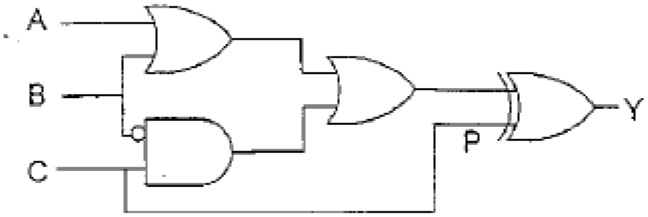


a). NOR gate b). OR gate

c). EX-OR gate d). NAND gate

Ans - c

Q14. Output of the following circuit if P is stuck at 1



A` is complement of A

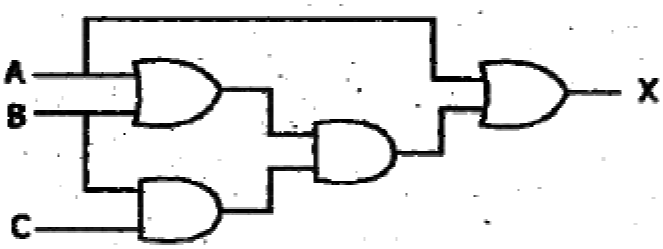
a) A + B + C   b) A`B`C`
c) (ABC)`   d) 0

Ans – b

Q15. The Boolean function (x+y) (x`+z) (y+z) is equal to which one of the following expressions
(a) (x+y) (y+z)   (b) (x` +z) (y+z)
(b) (x+y) (x` +z)        (d) (x+y) (y+z`)   (IES EC 2005)
Ans – b

Q16. What does the Boolean expression $AD + ABCD + ACD + A`B + AC`D + A`B`$, on minimization result into
a). A + D   b). AD + $A`$
c). AD   d). $A`$ + D
Ans – d

Q17. For the logic circuit given below, what is the simplified Boolean function



(a). X = AB + C   (b). X = BC + A
(c). X = AB + AC   (d). X=AC + B   (IES –EC 2007)
Ans – b

Q18. When the Boolean function $F(x_1\, x_2\, x_3) = \sum\ (0, 1, 2, 3) + \Phi\ (4, 5, 6, 7)$ is minimized, what does one get?
(a). 1   (b). 0
(c). x_1 (d). x_3
Ans – a

Q19. By inspecting the Karnaugh map plot of the switching function F(x1 x2 x3) = ∑ (1, 3, 6, 7) one can say that the redundant prime implicant is

(a). $\overline{x1}$x3 (b). x2 x3
(c). x1 x2 (d). x3
Ans – b

Q20Which one of the following statements is not correct?
a. X+ $\overline{X}$ Y = X
b. X($\overline{X}$ +Y) = XY
c. XY +X$\overline{Y}$ = X
d. ZX+Z $\overline{X}$ Y = ZX+ZY

Ans- a

Q21. Decimal equivalent of gray code $(1100101110)_2$ is (____)

Ans - 564

Q22. Decimal representation of BDC code *1 0010 1001* is (___)

Ans - 129

Q23. If (0110 1011) is excess-3 code the its decimal equivalent is (_____)

Ans - 38

Q24. If *(1110 1011 1101)* is a 2421 code the its decimal equivalent is (____)

Ans - 857

Q25. *10010010 and 01011000* are two BCD number while adding this two BCD number how many correction are required (____).

Ans - 2