

Q. No. 1 a, b, c, d, e, f, g, h, i, j, k, l, m, n, o, p, q, r, s, t, u, v, w, x, y, z

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Solution

1. (a) Convert the following numbers as mentioned against them: Marks
- (I) $(101011)_2$ convert to decimal number. (1)
Ans 43
- (II) Convert $(129.625)_{10}$ Hexadecimal form. (2)
Ans $(81.A)_{16}$
- (III) Write $(-20)_{10}$ in Two's complement form. (2)
Ans 101100
2. (a) Simplify using Quine McCluskey method and draw the logic diagram using basic gates for the following function;
 $Y = F(A, B, C, D) = \sum m(5, 11, 13, 14, 15) + \sum d(4, 6, 7)$
- Final Ans $BD + ABC + CD$ (10)
3. (a) Implement the following function using only one 4:1 multiplexer and gates;
 $Y = F(A, B, C, D) = \sum m(2, 3, 5, 7, 10, 11, 12, 13)$
- If A, B are connected to address lines then final Ans $I_0 = C$, $I_1 = D$, (10)
 $I_2 = C$, $I_3 = \overline{C}$