

Discrete Maths BCA-202 Solution

I

Ans 1. The Number with base 2 having only 0,1 as a digit is known as binary number system

Ans 2. A graph having all the edges without repetition is called Euler

If the vertex (all) is traversed without repetition is called Hamilton

Ans 3. If a graph can have two separate set of vertices where every vertex of set 1 is connected to every vertex of set 2 is called complete bipartite.

Ans 4. $-8 \equiv 7 \pmod{5}$

-15 is divisible by 5 hence modulo.

Ans 5. $(x+2a)^5$

$$\Rightarrow x^5 + {}^5C_1 x^4 2a + {}^5C_2 x^3 4a^2 + {}^5C_3 x^2 8a^3 + {}^5C_4 x 16a^4 + 32a^5$$

$$\Rightarrow x^5 + 10ax^4 + 40a^2x^3 + 80a^3x^2 + 80a^4x + 32a^5$$

II

Ans 1. $(5a+6b)^5$ 3rd term

$$\begin{aligned} T_{2+1} &= {}^5C_2 (5a)^3 (6b)^2 \\ &= 10 \cdot 125a^3 \cdot 36b^2 \\ &= 45000a^3b^2 \end{aligned}$$

e) $(197)_{10} + (43)_{10}$

$\Rightarrow$ After conversion

$$\begin{array}{r} 11000101 \\ 101011 \\ \hline 11110000 \end{array}$$

Ans 2

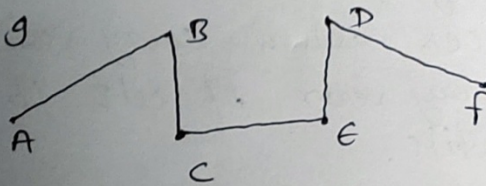
	A	B	C	D	E	F
	<u>0</u>	-	-	-	-	-
0		<u>3</u>	5	9	-	-
0		3	5	7	10	-
0		3	5	<u>7</u>	10	13
0		3	5	7	9	<u>9</u>

$$A - B - D - F = 9$$

Ans 2 Adjacency matrix

	A	B	C	D	E	F
A	0	1	1	1	0	0
B	1	0	1	1	1	0
C	1	1	0	1	1	1
D	1	1	1	0	1	1
E	0	1	1	1	0	1
F	0	0	1	1	1	0

Spanning



III

Ans 1

a) $(11001111)_2 = (?)_8$

$$1 \times 2^0 + 1 \times 2^1 + 1 \times 2^2 + 1 \times 2^3 + 0 \times 2^4 + 0 \times 2^5 + 1 \times 2^6 + 1 \times 2^7$$

$$= (207)_{10} = (317)_8$$

b) $(AFC)_{16} = (?)_2$

$$C \times 8^0 + F \times 8^1 + A \times 8^2$$

$$\Rightarrow (772)_{10} = (1100000100)_2$$

c) $(11001111)_2 - (010110101)_2$

$$\begin{array}{r} 11001111 \\ 010110101 \\ \hline 001010101 \end{array}$$