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ASSIGNMENT #3

QUESTION # 1

By Binomial Theorem:-

$$\Rightarrow a^4 + b^4 + c^4 + 4(a^3b + a^3c + b^3a + b^3c + c^3a + c^3b) + 6(a^2b^2 + b^2c^2 + c^2a^2) + 12(a^2bc + b^2ca + c^2ab)$$

co-efficients are 1, 4, 6, 12 of order 4

it ~~can~~ can be represented as:-

$$[a + (b+c)]^4 = a^4 + 4(b+c)a^3 + 6(b+c)^2a^2 + 4a(b+c)^3 + (b+c)^4$$

Question # 2

Suppose $x_4 \geq 0$. If repetition is allowed, then.

$$x_1 x_2 x_3 x_4 = 11$$

$$r = 11, n = 4$$

$$C(r+n-1, r) = (14, 11)$$

$$\therefore \frac{n!}{r!(n-r)!} \Rightarrow \frac{14!}{11!13!} \Rightarrow 364 \quad \underline{\underline{Ans}}$$

QUESTION # 3

Determining the Degree of every vertex in

Graph # 1:

$$\deg(u_1) = 3$$

$$\deg(u_2) = 3$$

$$\deg(u_3) = 2$$

$$\deg(u_4) = 2$$

$$\deg(u_5) = 3$$

$$\deg(u_6) = 3$$

Sequence of Degree = 3, 3, 3, 2, 2

Graph # 2:

$$\deg(v_1) = 2$$

$$\deg(v_2) = 3$$

$$\deg(v_3) = 3$$

$$\deg(v_4) = 2$$

$$\deg(v_5) = 2$$

$$\deg(v_6) = 4$$

Sequence of Degree = 4, 3, 3, 2, 2, 2

Not isomorphic because they don't have same degree sequence.