

Ad, Soyad:

İmza:

Öğrenci No :

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Süre: 60 Dakika

21 Mayıs 2010

1. 6 (birbirinin aynı) defter ve 7 (birbirinin aynı) kalem 3 çocuğa:

- (a) Koşulsuz
- (b) her çocuğa en az bir defter
- (c) her çocuğa en az bir defter VEYA en az bir kalem düşecek şekilde kaç farklı şekilde dağıtılabılır?

2. (a) $(4x + 2y - z + 5)^{11}$ in açılımında $x^2y^4z^3$ ün katsayısını bulunuz.

(b) $(2x - 3y - z)^{25}$ in açılımında katsayıların toplamını bulunuz.

3. 5 düğüm ve 6 kenardan oluşan (düğümleri etiketlenmiş):

- (a) Kaç tane basit grafik vardır?
- (b) Kaç tane (ilmek içermeyen) yönlü grafik vardır?

4. $x_1 + x_2 + x_3 + x_4 = 25$ denkleminin $x_1, x_2, x_3, x_4 \geq 2$ olacak şekilde kaç tamsayı çözümü vardır?

5. (a) 6 düğümlü (düğümleri etiketlenmiş) kaç tane ağaç vardır?

(b) Aşağıda (düğümleri 1 de 5 e kadar sayılarla numaralanmış) liste şeklinde verilmiş basit grafiğin Komşuluk ve İlişiklik (İlişkinlik, incidence) matrislerini (**Aşağıya**) yazınız. (Kenarlara **sırasıyla** a,b,c,d,e ve f adları verilmiştir):

| | Kenarlar | Komşuluk Matrisi | İlişiklik Matrisi | | | | | | | | | | | | | | | |
|----|---|------------------|-------------------|--|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| a: | <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td style="width: 20px; height: 20px;">1</td><td style="width: 20px; height: 20px;">2</td></tr></table> | 1 | 2 | <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;">1</td><td style="width: 20px; height: 20px;">2</td><td style="width: 20px; height: 20px;">3</td><td style="width: 20px; height: 20px;">4</td><td style="width: 20px; height: 20px;">5</td></tr></table> | | 1 | 2 | 3 | 4 | 5 | <table border="1" style="display: inline-table; border-collapse: collapse;"><tr><td style="width: 20px; height: 20px;"></td><td style="width: 20px; height: 20px;">a</td><td style="width: 20px; height: 20px;">b</td><td style="width: 20px; height: 20px;">c</td><td style="width: 20px; height: 20px;">d</td><td style="width: 20px; height: 20px;">e</td><td style="width: 20px; height: 20px;">f</td></tr></table> | | a | b | c | d | e | f |
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| | 1 | 2 | 3 | 4 | 5 | | | | | | | | | | | | | |
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6. İZMİR kelimesindeki harfleri kullanarak kaç tane:

- (a) 3 harfli
- (b) 4 harfli
- (c) 5 harfli

(anlamli veya anlamsız) kelime yazabiliriz?