



**OLIMPIADA DE CHIMIE**  
**etapa județeană/ a sectoarelor municipiului București**  
**22 martie 2026**  
**Clasa a X-a**

**BAREM DE EVALUARE ȘI DE NOTARE**

**Orice modalitate de rezolvare corectă a cerințelor va fi punctată corespunzător.**  
**Se acordă 10 puncte din oficiu.**

**SUBIECTUL I**

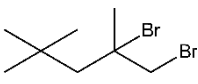
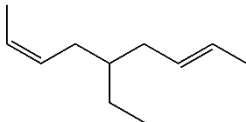
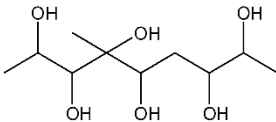
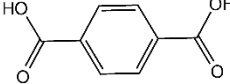
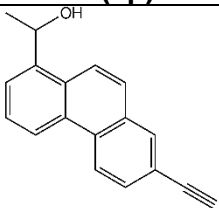
**25 de puncte**

**A. .... (19 puncte)**

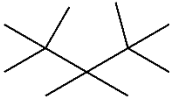
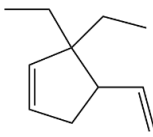
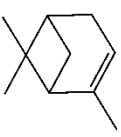
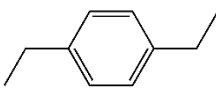
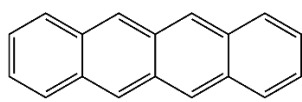
1. precizarea denumirii științifice (I.U.P.A.C.) pentru hidrocarburi **(4p)** distribuite astfel:

<b>A (0,5p)</b>	<b>B (0,5p)</b>	<b>C (1p)</b>
4-etil-2,2,5-trimetilhexan	2,4,4-trimetil-1-pentenă	5-etil-2-nonen-7-ină
<b>D (0,5p)</b>	<b>E (0,5p)</b>	<b>F (1p)</b>
4-metil-2,4,7-nonatrienă	1-izopropil-4-metilbenzen	1-etenil-7-etinilfenantren

2. scrierea formulei de structură a produsului organic (5x1p = **5p**) distribuite astfel:

<b>a. (1p)</b>	<b>b. (1p)</b>	<b>c. (1p)</b>	<b>d. (1p)</b>	<b>e. (1p)</b>
				

3. notarea formulei de structură pentru izomeri (5x2p = **10p**) distribuite astfel:

<b>a. (2p)</b>	<b>b. (2p)</b>	<b>c. (2p)</b>	<b>d. (2p)</b>	<b>e. (2p)</b>
				

**B. .... (6 puncte)**

a. atribuirea valorilor punctelor de fierbere (2x0,4p = **0,8p**)

n-hexan	1-hexină
68,8 °C	71 °C

b. precizarea tipului de amestec din pahar: amestec omogen **(0,2p)**

c. etapele de separare

- tratarea amestecului de hidrocarburi cu un metal reactiv, până încetează degajarea de hidrogen/ reactiv Tollens/ clorură de diaminocupru(I) etc. **(1p)**

- separarea compusului solid **(0,5p)**

- tratarea precipitatului obținut cu un acid mai tare pentru regenerarea 1-hexinei **(1p)**

- separarea 1-hexinei (faza organică) de faza apoasă **(0,5p)**

d. scrierea ecuațiilor reacțiilor corespunzătoare etapelor de separare **(2x1p = 2p)**

**SUBIECTUL al II-lea**

**20 de puncte**

**A. .... (5 puncte)**

nr. at. de H de la C<sub>primar</sub> = 12 **(1p)**

nr. at. de H de la C<sub>terțiar</sub> = 2 **(1p)**

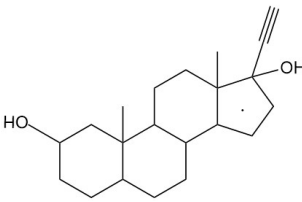
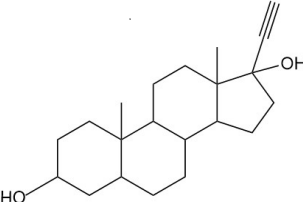
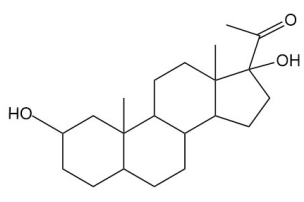
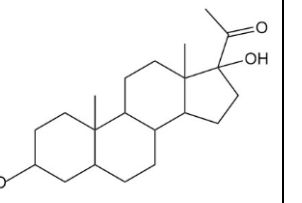
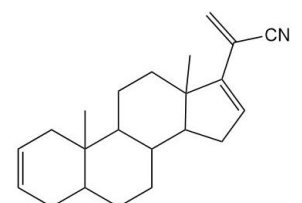
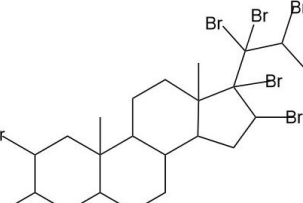
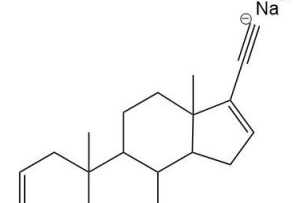
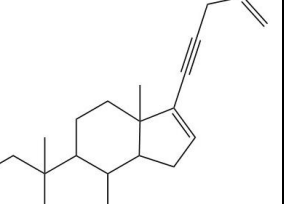
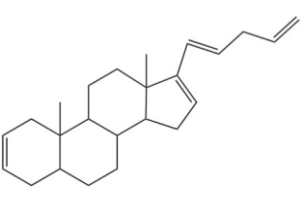
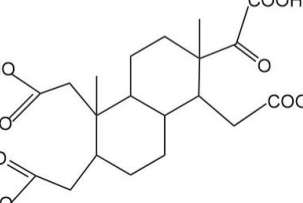
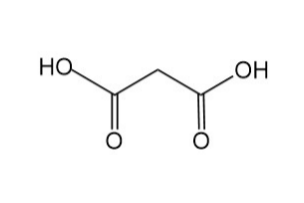
$$\frac{57,143}{100} = \frac{12 \cdot v_1}{12 \cdot v_1 + 2 \cdot v_2}$$

$$\frac{42,857}{100} = \frac{2 \cdot v_2}{12 \cdot v_1 + 2 \cdot v_2}$$

$$v_1 : v_2 = 1 : 4,5 \quad \textbf{(3p)}$$

**B. .... (15 puncte)**

**a. (9p) distribuite astfel:**

A1/ A2 <b>(0,5p)</b>	A2/A1 <b>(0,5p)</b>	B1/ B2 <b>(1p)</b>	B1/B2 <b>(1p)</b>
			
<b>D (0,5p)</b>	<b>E (1p)</b>	<b>F (1p)</b>	<b>G (1p)</b>
			
<b>H (0,5p)</b>	<b>I/J (1p)</b>	<b>J/I (1p)</b>	
			

**b. (4p) distribuite astfel:**

$m_{Br_2} = 320 \text{ mg Br}_2$  **(0,5p)**

notare relație de calcul  $m_s$  (inițial) **(0,5p)**

notare relație de calcul  $m_s$  (final) **(0,5p)**

notare relație de calcul  $m_d$  (inițial) **(0,5p)**

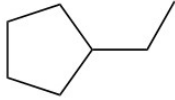
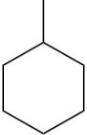
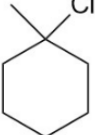
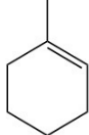
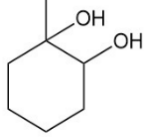
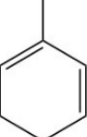

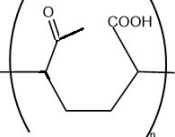
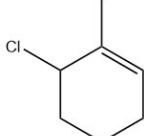
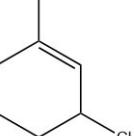
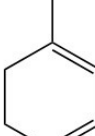

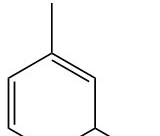
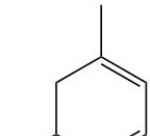
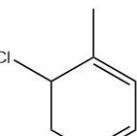
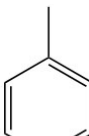
notare relație de calcul  $m_d$  (final) **(0,5p)**

$m_s$  (inițial) = 19,5 g **(1,5p)**

**c.  $V = 13,33 \text{ mL}$  soluție  $K_2Cr_2O_7$  0,2 M **(2p)****

**SUBIECTUL al III-lea**
**25 de puncte**

**A.** ..... (20 puncte)  
 (20p) distribuite astfel:

A (2p)	B (2p)	D (1p)	E (1p)
			
F (1p)	G (1p)	H (2p)	I (2p)
			
K1 (1p)	K2 (1p)	L (1p)	M1/M2 (1p)
			
M2/M1 (1p)	M3/M4 (1p)	M4/M3 (1p)	N (1p)
			

**B.** ..... (5 puncte)  
 (5p) distribuite astfel:

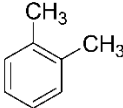
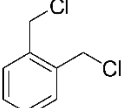
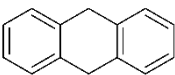
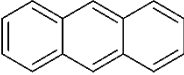
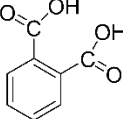
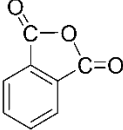
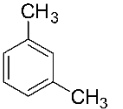
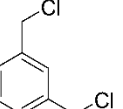
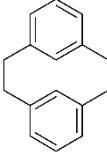
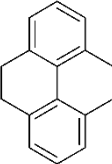
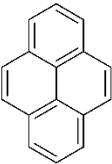
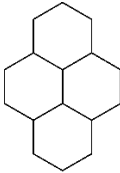
	A	$\rightleftharpoons$	B
I	0,075		0,2
C	x		-
E	0,075 - x (1p)		0,2 + x (1p)

$$K_c = \frac{[B]}{[A]} \Rightarrow 6,993 = \frac{0,2+x}{0,075-x} \Rightarrow x = 0,04 \quad (2p)$$

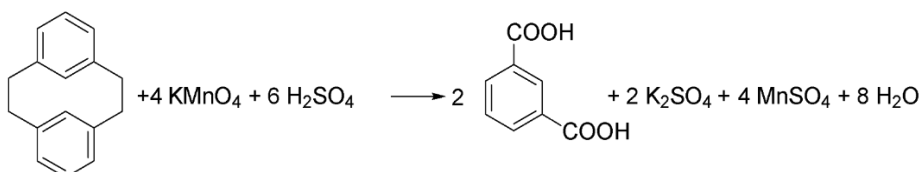
$$\Rightarrow n_A : n_B = 35 : 240 = 7 : 48 \text{ sau } 1 : 6,857 \text{ sau } 0,1458 : 1 \quad (1p)$$

**SUBIECTUL al IV-lea**
**20 de puncte**

a. (15p) distribuite astfel:

H (1p)	I (1p)	J (1p)
		
K (1p)	L (1p)	M (1p)
		
H' (1p)	N (1p)	O (2p)
		
P (2p)	Q (2p)	R (1p)
		

b. scrierea formulelor reactanților și produșilor de reacție (1p) egalarea ecuației reacției (1 p)



c. (3p) distribuite astfel:

- 1,4-dimetilbenzen (0,5p) - are gradul de simetrie cel mai ridicat (0,5p)
- nucleeele condensate din antracen (K) au caracter aromatic mai puțin pronunțat (0,5p) decât cele două nucleee benzenice izolate din compusul O (0,5p)
- tetraclorura de carbon (0,5p), toluenul și benzenul reacționează cu clorul în condiții fotochimice (0,5p)

**Barem elaborat de:**

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