

# ΕΠΑΝΑΛΗΠΤΙΚΑ ΘΕΜΑΤΑ Ο.Ε.Φ.Ε. 2003

## ΘΕΜΑΤΑ ΧΗΜΕΙΑΣ Γ' ΛΥΚΕΙΟΥ ΘΕΤΙΚΗΣ ΚΑΤΕΥΘΥΝΣΗΣ ΑΠΑΝΤΗΣΕΙΣ

### Θέμα 1°

A.

1. δ    2. β    3. δ

B.

Άρα  $1s^2 2s^2 2p^3$  (:X)

1. VA ομάδα  $Z = 7$
2. Η εξωτερική στιβάδα ...  $2s^2 2p^3$  συνεπώς όλες οι δυνατές τετράδες ( $n, l, m_l, m_s$ )
3.  $Mg < Be < X$
4.  $3Mg^{+2} + 2X^{-3} \rightarrow 3Mg^{+2}, 2X^{-3}$

Γ.

1. γ    2. δ    3. α

### Θέμα 2°

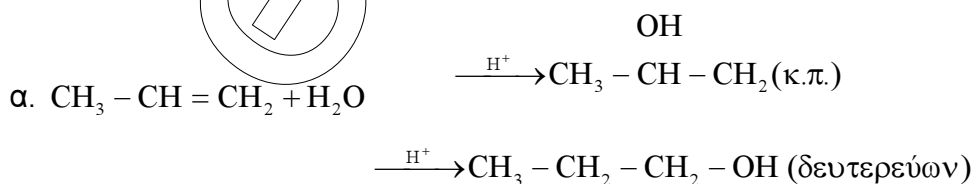
A.

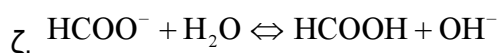
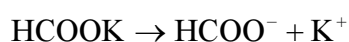
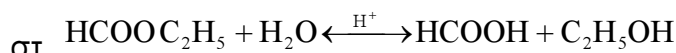
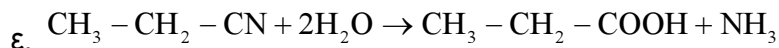
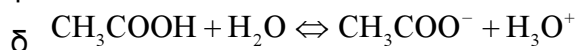
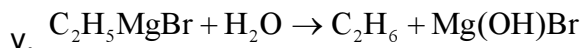
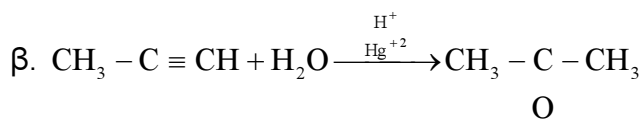
1. α) ο ηλεκτρολύτης είναι το  $HCOOK$   
β)  $HCOOK \rightarrow HCOO^- + K^+$   
 $HCOO^- + H_2O \rightleftharpoons HCOOH + OH^-$   
 $2H_2O \rightleftharpoons H_3O^+ + OH^-, HCOOH + H_2O \rightleftharpoons HCOO^- + H_3O^+$
2. το α

B.

1. στο α
2.  $H - C_{(1)} - C_{(2)} \equiv C_{(3)} - C_{(4)} = O$   
 $\begin{matrix} H & & H & & 8\sigma \\ & & & & \\ & & & & 3\pi \end{matrix}$   
 $C_{(1)} \rightarrow sp^3$      $C_{(2)} \text{ και } C_{(3)} \rightarrow sp$      $C_{(4)} \rightarrow sp^2$

3.

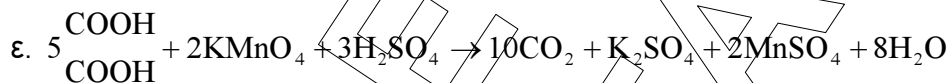
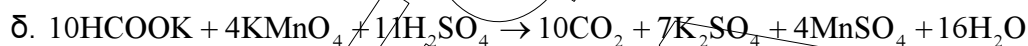
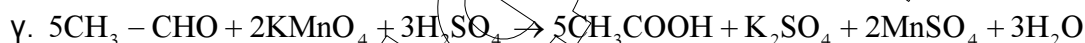
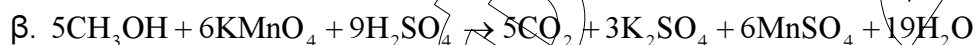
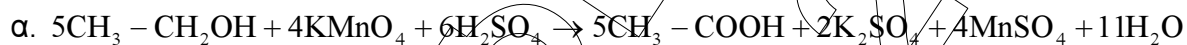




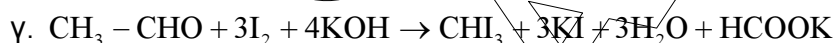
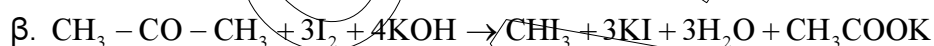
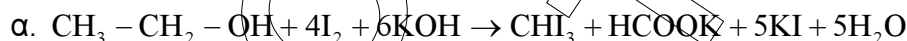
### Θέμα 3<sup>ο</sup>

A.

1.

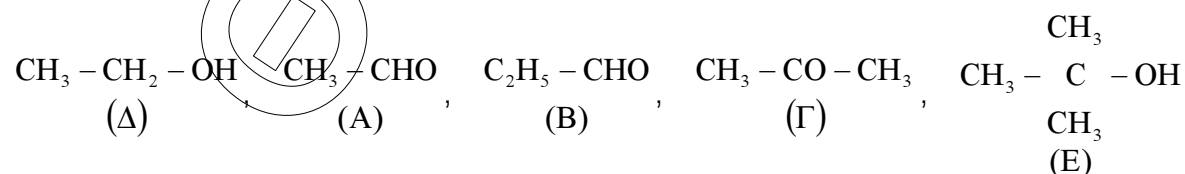


2.

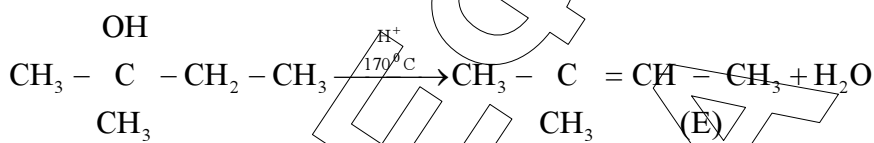
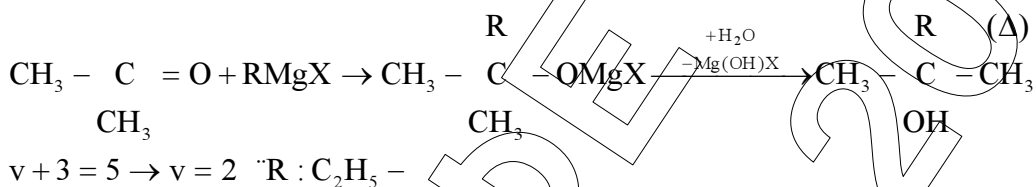
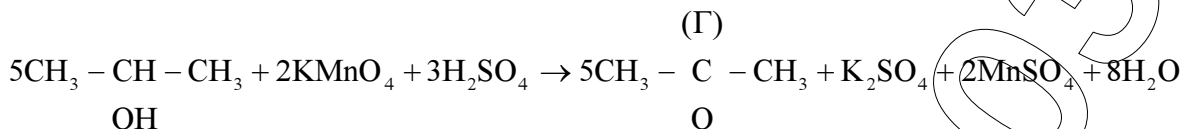
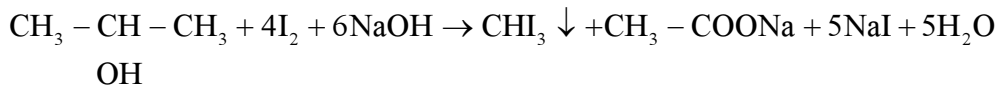
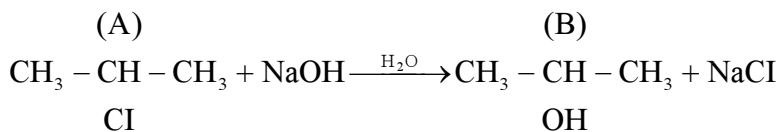


B.

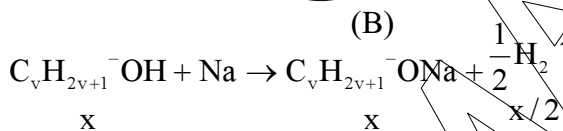
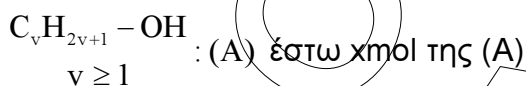
	A	B	Γ	Δ	E
I <sub>2</sub> / NaOH	+	-	+	+	-
KMnO <sub>4</sub> / H <sup>+</sup>	+	+	-	+	-
Na	-	-	-	+	+
Tollens	+	+	-	-	-



Γ.



#### Θέμα 4<sup>ο</sup>

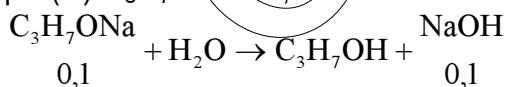


$$\frac{x}{2} \cdot 22,4 = 1,12 \rightarrow x = 0,1 \text{ mol}$$

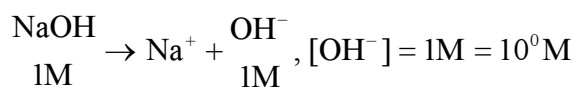
α.  $\text{Mr}(A) = \frac{6}{0,1} = 60 : 60 = 14v + 18 \rightarrow 14v = 42 \rightarrow v = 3$

M.T. C<sub>3</sub>H<sub>7</sub>OH προπανόλη  $m_{\text{Na}} = 0,1 \cdot 23 = 2,3 \text{ g}$

β. (B) C<sub>3</sub>H<sub>7</sub>ONa 0,1 mol



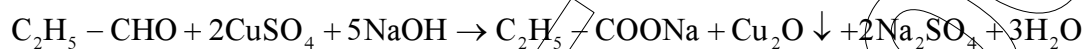
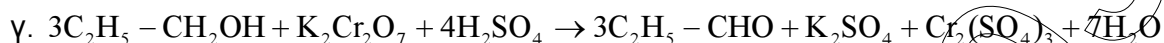
$$\text{NaOH } 0,1\text{mol ή } C = \frac{0,1}{0,1} = 1\text{M}$$



$$\text{pOH} = -\log[\text{OH}^-] = 0, \text{pH} + \text{pOH} = 14 \rightarrow \text{pH} = 14$$

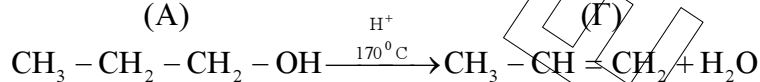
(A)

(B)

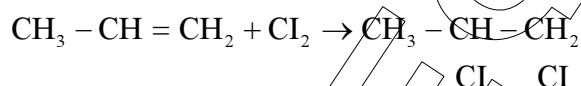


(A)

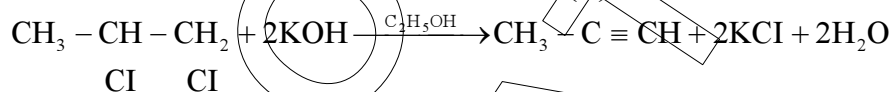
(Γ)



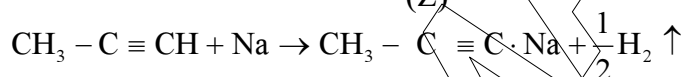
(Δ)



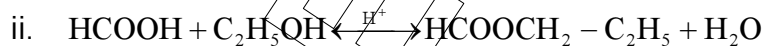
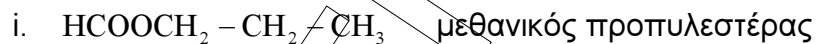
(E)



(Z)



δ.



αρχ.	0,1	0,1	-	-
αντ	ω	ω	-	-
παρ	-	-	ω	ω
Χ.Ι.	0,1 - ω	0,1 - ω	ω	ω

$$K_{c_1} = 4 = \frac{[\text{HCOOC}_3\text{H}_7] \cdot [\text{H}_2\text{O}]}{[\text{HCOOH}][\text{C}_3\text{H}_7\text{OH}]} = \frac{\frac{\omega}{\nu} \cdot \frac{\omega}{\nu}}{0,1 - \omega \cdot 0,1 - \omega} = \left( \frac{\omega}{0,1 - \omega} \right)^2 \rightarrow$$

$$\rightarrow 2^2 = \left( \frac{\omega}{0,1 - \omega} \right)^2 \rightarrow 2 = \frac{\omega}{0,1 - \omega} \rightarrow \omega = 0,06 (\text{προσέγγιση})$$

$$\alpha = \frac{0,06}{0,1} = 0,6 \text{ ή } 60\%$$

ΘΕΜΑΤΑ 2003