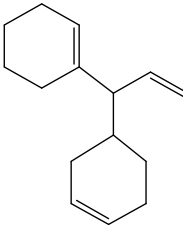
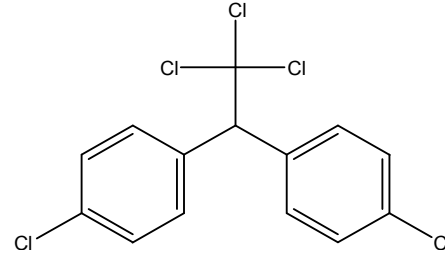
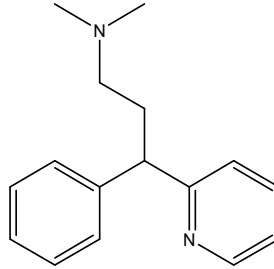
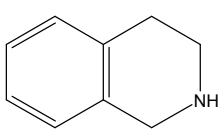
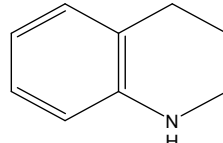
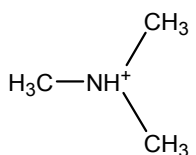
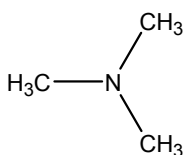


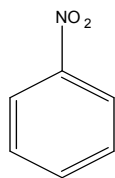
OLIMPIADA DE CHIMIE– etapa județeană
23 februarie 2013

BAREM DE EVALUARE - Clasa a XI-a

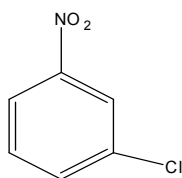
Subiectul I		20 puncte
A. a) I- trei atomi de carbon asimetrici; II, IV – câte un atom de carbon asimetric; III- doi atomi de carbon asimetrici; b) I- opt enantiomeri; c) II- doi enantiomeri; III- două perechi de enantiomeri; enantiomerie și diastereoizomerie.		10 puncte
B. a) $\text{CH}_3\text{-CH}_2\text{-CH(CH}_3\text{)-C}\equiv\text{C-CH}_2\text{-C(CH}_3\text{)}_3$ b) $\text{HC}\equiv\text{C-C(CH}_3\text{)=CH-CH=CH}_2$ c)  d)  e) 		5 puncte
C. a) Bazicitate:  >  ;  <  b) Aciditate: $\text{CH}_3\text{-(CH}_2\text{)}_2\text{-CO-CH}_2\text{-CO-CH}_2\text{-CH}_3$ > $\text{CH}_3\text{-CO-(CH}_2\text{)}_4\text{-CO-CH}_3$; $\text{HOOC-CH}_2\text{-COO}^-$ < $\text{HOOC-CH}_2\text{-COOH}$; c) Număr de izomeri geometrici: $\text{CH}_3\text{-CH=CH-CH=CH}_2$ < $\text{CH}_3\text{-CH=CH-CH=CH}_2$		5 puncte

Subiectul II **25 puncte**

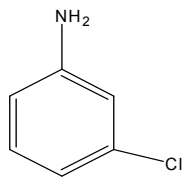
A. Câte 1 punct A, B, C, D, E, F, J', J câte 2 puncte G, H, I, și miconazol



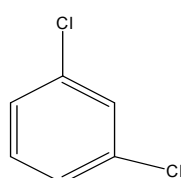
A



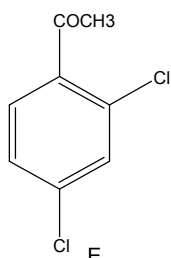
B



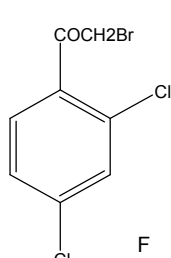
C



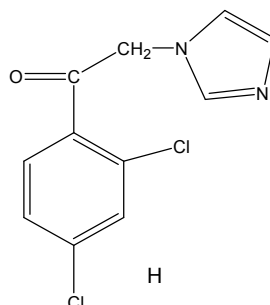
D



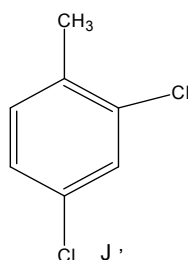
E



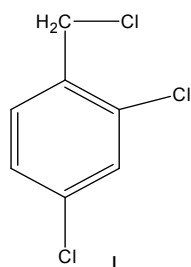
F



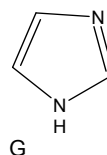
H



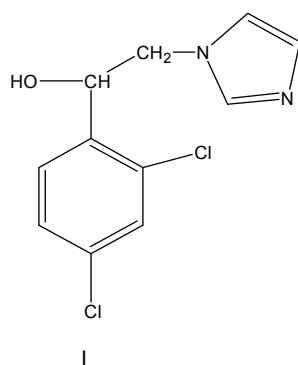
J'



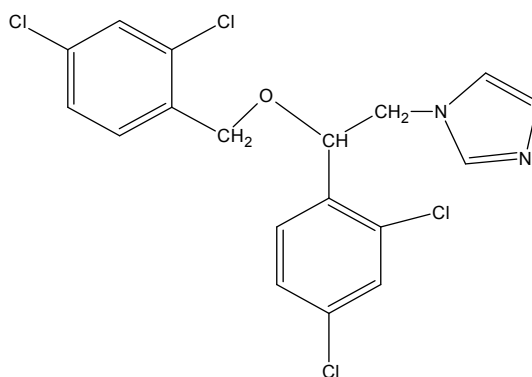
J



G



I

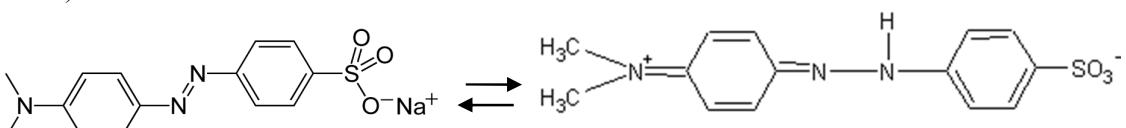


Miconazol

16
puncte

B. izomer dextro- izomer levo= 82% - 18% = 64%
 $\alpha = + 18,6 \cdot 64 / 100 = + 11,99^0$

9

	puncte
Subiectul III	25 puncte
A. a) C_6H_{14} ; 3 – metil pentan	5 puncte
b) 11,73% $CH_3-CH_2-CCl(CH_3)-CH_2-CH_3$; 34,43% $CH_3-CHCl-CH(CH_3)-CH_2-CH_3$; 7,94% $CH_3-CH_2-CH(CH_2Cl)-CH_2-CH_3$; 15,89% $CH_2Cl-CH_2-CH(CH_3)-CH_2-CH_3$; 30% $CH_3-CH_2-CH(CH_3)-CH_2-CH_3$	15 puncte
B. $\eta = 14,92\% \leftarrow$;	5 puncte
Subiectul IV	30 puncte
A. a) $2 C_6H_5-OH + CH_3-CO-CH_3HO \longrightarrow C_6H_4-C(CH_3)_2-C_6H_4-OH + H_2O$ 2,2-(p,p'-dihidroxi-difenil) propan	2 puncte
b) $m_{\text{fenol pur}} = 70,75 \text{ g (C}_t\text{)}$; $C_p = 62,4 \text{ g fenol}$; 75,68 g bisfenol;	4 puncte
c). $HO-C_6H_4-C(CH_3)_2-C_6H_4-OH + 2NaOH \longrightarrow {}^+Na^-O-C_6H_4-C(CH_3)_2-C_6H_4-O^-Na^+ + 2H_2O$ 0,664 moli NaOH; $V = 0,265 \text{ L NaOH}$.	4 puncte
B. a) $C_6H_6 \longrightarrow C_6H_5-NO_2 \longrightarrow C_6H_5-NH_2 \longrightarrow H_2N-C_6H_4-SO_3H(p)$ $H_2N-C_6H_4-SO_3H(p) \longrightarrow {}^+Na^-O_3S-C_6H_4-N \equiv N^+Cl^-$ $C_6H_5-NH_2 + 2 CH_3Cl \longrightarrow C_6H_5-N(CH_3)_2 + 2 HCl$	4 puncte
b) ${}^+Na^-O_3S-C_6H_4-N \equiv N^+Cl^- + C_6H_5-N(CH_3)_2 \longrightarrow {}^+Na^-O_3S-C_6H_4-N=N-C_6H_4-N(CH_3)_2 + HCl$ metiloranj	2 puncte
c)  forma azoidă $\xrightleftharpoons{-H^+}$ forma chinoidă	5 puncte
d) 1 moli acid sulfanilic; 1 mol $NaNO_2$; 0,8595moli N,N-dimetilanilina; $m_{\text{colorant teoretic}} = 281,06 \text{ g}$; $m_{\text{colorant practic}} = 278,25 \text{ g}$.	5 puncte
e) 0,0001 g indicator; $0,306 \text{ cm}^3 HCl$.	4 puncte

Barem elaborat de Carmen Gina Ciobică, profesor la Colegiul Tehnic de Industrie Alimentară Suceava