

**MINISTERUL EDUCATIEI, CERCETARII, TINERETULUI SI SPORTULUI**  
**INSPECTORATUL SCOLAR JUDETEAN CLUJ**

**OLIMPIADA DE CHIMIE FAZA PE CENTRE 11.02.2012**

**BAREM DE CORECTARE CLASA a XI-a**

SUBIECTUL I.....30p

1.FAF ; 2.FAF ; 3.FAF ; 4.AAA ; 5.AAF ; 6.FAF ; 7.AFF ; 8.AFA; 9.FAF

10.FFA

SUBIECTULII.....20p

1.....10p

a).....5p

masa acid acetic in solutie = 300 g( 5 moli ) ; x moli 2-butena si y moli propena ;  
 $56x + 42y = 154$  si  $2x + y = 5$  ; x = 2 moli 2-butena si y = 1 mol propena ( total 3 moli )  
( volum = 67, 2 l ) ; densitate = 2,29 g/l

b).....5p

ecuatii reactii ; total moli oxidant = 5,2 ; volum solutie = 2,6 l

2a).benzen( nitrare)→nitrobenzen( reducere)→anilina( alchilare)→N,N-dimetilanilina  
.benzen( nitrare)→nitrobenzen( reducere)→anilina(sulfonare)→acid sulfanilic( diazo-  
tare)→sare de diazoniu( cuplare)→metilorange ;

metan(clorurare)→clorura de metil -----7p

b) un mol benzen( 78 g ) si un mol metan ( 22,4 l).....3p

SUBIECTUL III.....20p

1.....10p

a)formula alcool :  $C_nH_{2n}(OH)_2$  ; formula ester :  $C_nH_{2n}(OCOCH_3)_2$  ;  
 $\%C = 57,44 = (12n + 48)100/(14n + 118)$  ; n = 5

Formula alcool :  $C_5H_{12}O_2$ .....7p

b) HO-  $CH_2 - C(CH_3)_2 - CH_2OH$  2,2-dimetil-1,3-propandiol.....3p

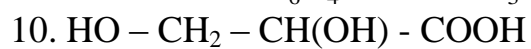
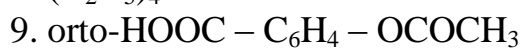
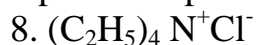
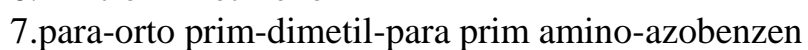
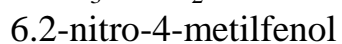
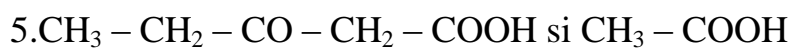
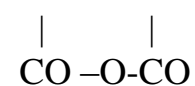
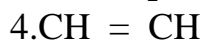
2.....10p

a) $C_6H_5- N(CH_2 - CH_2 - OH) N,N - di(beta-hidroxietyl)anilina$ .....3p

b).....7p

1 mol anilina introdus ; 2,8 moli oxid de etana introdus ; au reactionat 0,8 moli anilina si  
1,6 moli oxid de etena ; in final 0, 2 moli anilina si 1,2 moli oxid de etena ; raport molar  
6 : 1

SUBIECTUL IV.....20p



Fiecare cerinta cotata cu 2 puncte