MINISTERUL EDUCAȚIEI ŞI CERCETĂRII
OLIMPIADA NAȚIONALĂ DE CHIMIE - EDIȚIA a 40-a BAIA MARE

Clasa a XI-a

B A R E M

Subiectul I **20 puncte**

INTREBARE	a	b	c	d	e
1		X			
2					X
3			X		
4	X				
5			X		
6		X			
7	X				
8				X	
9	X				
10					X

Subiectul II **30 puncte**

A.

$2KMnO_4 + 3H_2SO_4 \rightarrow K_2SO_4 + 2MnSO_4 + 3H_2O + 5[O]$……..2 puncte

$K_2Cr_2O_7 + 4H_2SO_4 \rightarrow K_2SO_4 + Cr_2(SO_4)_3 + 4H_2O + 3[O]$…..……..2 puncte

x = nr. moli [O] necesari oxidarii indiferent de agentul oxidant

m_{KMnO4} = 63,2 x grame .....2 puncte
$m_{K2Cr2O7}$ = 97,02 x grame .....2 puncte

$m_{KMnO4} < m_{K2Cr2O7}$ (se acorda 4 puncte pt.afirmatia demonstrata, indiferent modul de calcul)

B. 10 ecuatii corecte x 2 puncte fiecare.....20 puncte
(Se vor puncta in conformitate toate transformarile corect rezolvate pt scopul propus)
Volumul de gaze 475,6 L .....2 puncte

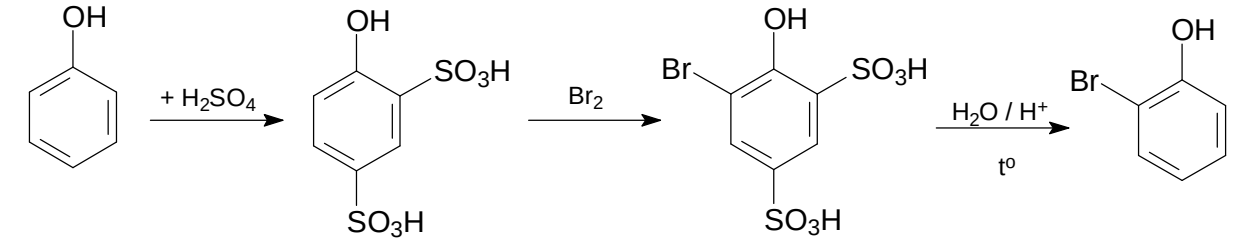
Subiectul III **20 puncte**

Ecuatia corecta de oxidare a hidrocarburii G:.....2 puncte

Litera substanței	Formula structurală	Denumire conform I.U.P.A.C.	Puncte
A	$Cl\text{-}CH_2\text{-}CH(CH_3)\text{-}COOH$	Acid 3-cloro-2-metil-propanoic	2 + 1 p
B	$CH_3COCHCl_2$	1,1-dicloro-propanona	2 + 1 p
C	$HO\text{-}CH_2\text{-}CH(CH_3)\text{-}COOH$	Acid 3-hidroxo-2-metilpropanoic	2 + 1 p
D	$HOOC\text{-}CH(CH_3)\text{-}COOH$	Acid metil-propandioic	1 + 1 p
E	CH_3COCHO	Ceto-propanal (2-oxo-propanal)	2 + 1 p
F	$CH_3COCOOH$	Acid ceto-propanoic (ac.2oxopropanoic)	1 + 1 p
X	$ClCH_2CH(CH_3)CH=C(CH_3)CHCl_2$	1,1,5-tricloro-2,4-dimetilpentena-2	1 + 1 p

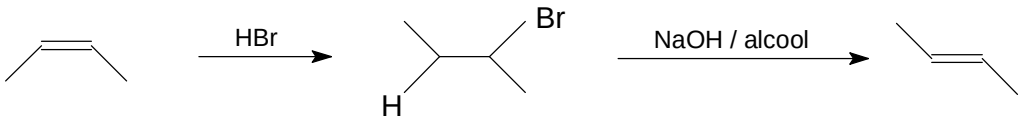
Subiect IV **20 puncte**

A.

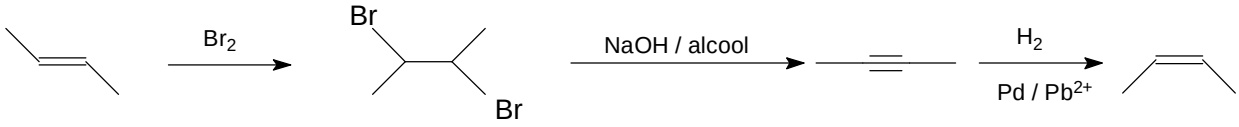


8 puncte

B.



6 puncte



6 puncte

Obs. Se vor considera si alte variante corecte.