11

1 (11) $_{6}H_{6}\xrightarrow{CH_{2}C}=CH_{2}\xrightarrow{}\to X_{1}\xrightarrow{Br_{2}}\to X_{2}\xrightarrow{K}\xrightarrow{cnupt}\to X_{3}\xrightarrow{H_{2},N}\xrightarrow{R}X_{4}\xrightarrow{Br_{2},F}X_{5}\xrightarrow{K_{1}}\xrightarrow{O_{4}}\to X_{6}$ (. ., . . : : - , 2006.-96 .) (1) $_{6}\text{H}_{6} + \text{CH}_{3}\text{-CH} = \text{CH}_{2} \xrightarrow{H_{2}PO_{4}} \rightarrow \text{C}_{6}\text{H}_{5}\text{-CH}(\text{CH}_{3})_{2}$ (1)) (2) C_6H_5 - $CH(CH_3)_2 + Br_2 \xrightarrow{CBET} \rightarrow C_6H_5$ - $CBr(CH_3)_2 + HBr$ (1) 2- -2 (3) C_6H_5 - $CBr(CH_3)_2 + KOH \xrightarrow{c\pi upr} \rightarrow C_6H_5$ - $C(CH_3)$ = $CH_2 + KBr + H_2O$ (1 2-(4) C_6H_5 - $C(CH_3)$ = $CH_2 + H_2 \xrightarrow{N,t} \to C_6H_5$ - $CH(CH_3)_2$ (1 (5) C_6H_5 - $CH(CH_3)_2 + Br_2 \xrightarrow{F r_3} \rightarrow Br-C_6H_4$ - $CH(CH_3)_2 + HBr$ (1)) (6) $5 \text{ Br-C}_6 H_4 - CH(CH_3)_2 + 18KMnO_4 + 27H_2SO_4 = 5 \text{ Br-C}_6 H_4 - COOH + 18MnSO_4 + 10CO_2 \uparrow$ $9K_2SO_4 + 42H_2O$ (2,5)) $, () (0,5); \mathbf{X}_{2}-2- -2$ X_{1} -(0,5)); (0,5); X_{5} - (0,5)**X**₃-2-)(0,5)); **X**6- -

 $: (1)-(5) \quad 5 \cdot 1 = 5$;

```
(6) - 2,5
                     : X_1, X_2, X_3, X_5, X_6 - 5 \cdot 0, 5 = 2,5;
         : 10
       2 (11
             )
               229,1 / ,
                                                                                   212,3
        ) + 1/5 r_2() = Br_5() + 229,1 / ;
(1) (
                                                                              (1
         ) +1/5 r_2() = Br_5() + 212,3 / ;
                                                                             (1
                                   (1)
( ) + 1/5 r_2( ) - ( ) + 1/5 r_2( ) = Br_5( ) - Br_5( ) Q_2 - Q_1 = 212,3 - 229,1 =-16,8 /
                                                                             (0,5)
                                                                             (0,5)
( ) = ( ) -16,8  / .
                                                                            (1
                                                                                  )
3 .
( ) = ( ) +16,8 / .
                                                                                   )
                                                                            (1
   1
         - 2
   2
         -2
   3
         - 1
         : 5
       3 (11
               )
         235
               20%-
                                                           150
                                                                  20,8% -
                                                                        9,2%.
n(Cu(NO_3)_2) = 235 \cdot 0.20/188 = 0.25
                                                                      (0,5)
m(Cu) = 0.25.64 = 16; m(N_{3}) = 0.25.2.62 = 31.0
                                                                       (0,5)
                                                                                 )
n(BaCl_2)=150\cdot0,208/208=0,15
                                                                       (0,5)
                                                                                  )
m(Cl^{-})=0,15\cdot2\cdot35,5=10,65
                                                                       (0,5)
           235+150=385
```

```
31,0/0,092=337,0
                                                             (1
                                   m=385-337=48
                                                             (1
                                                                   )
   3
                             (16+10,65=16,65)
1
                   (Cl^{-}
                                 - 0,15
                             0,15
           0.15
        : Cu^{2+}
                 + 2 -
                             Cu
                                                            (0,5)
                                                                    )
           0,3
                             0,15
        : 2 Cl^{-} - 2^{-} =
                            Cl_2
                                                            (0,5)
                                                                    )
          : m(Cl_2) = 0.15.71 = 10.65; m(Cu) = 0.15.64 = 9.6;
                                                            (1)
                 m=10,65+9,6=20,25
                                    Cu^{2+})
2
                   (
                            0,1
           0.1
                              0.10
        : Cu^{2+} + 2^{-} =
                              Cu
                              0.05
       : 2 H_2O - 4 = O_2
          : m(Cu) = 0.1.64 = 6.4 ; m(O_2) = 0.05.32 = 1.60 ;
                                                             (1)
                  m=6,4+1,6=8,0.
3
m(H_2O) = 48 - (20,25 + 8,0) = 19,75; n(H_2O) = 19,75/18 = 1,1
                                                             (1
                                                                 )
        : 2 H_2O + 2^{-} = H_2 + 2OH^{-}
       : 2 H_2O - 4 = O_2
            1,1
                      1,1
                                0,55
         : 2 H_2O = 2 H_2
                             + O_2
                                                             (1)
          : m(H_2)=1,1\cdot 2=2,2 ; m(O_2)=0,55\cdot 32=17,6 .
             : m(Cu)=16 ; m(H_2)=2,2 ; : m(Cl_2)=10,65 ; m(O_2)=10,65
19,2 .
1
                                        - 2
2
                                   -2
3
     1.6 = 6
      : 10
   4 (11 )
                                                          1,69
    NaOH
                  48,38
                                                   0,124
                                                            /;
                                                             48,0
        2%.
```

```
3
                                 , 2011.-224 .)
    \mathbf{n}(\text{NaOH}) = 0.04838 \cdot 0.124 = 0.00600
                                                                                    (1
                                                                                           )
                                                                                    (1
      () = 1,69/0,006 = 282
                    m(Br_2) = 48,0.0,020 = 0,960 ;
                 n(Br_2) = 0.960/160 = 0.0060
                                                                                   (1
                                                                                    (1
                                                      :
                                                                                           )
                                                            2 -1
          282 = (12 +2 -1+12+2\cdot16+1),
                                                    =18.
                                                                                    (1
                                         17 33
                                                                                            )
         )
                                                                                         ( 2
                                                                                                   )
       -9-
                                                                                           (2
                                                                                                    )
                                                                                           (1
                                                                                                   )
                            - 1
           : 10
        5 (11
                     )
                                    C,H
                                           Br
                                                                        22,10; 2,29; 55,26.
CH_3-CH_2-COOH + Br_2 \xrightarrow{\mathbb{P}} CH_3-CHBr-COOH + HBr
                                                                                        (1
```

2-

```
CH_3\text{-}CH_2\text{-}COOH \quad + 2Br_2 \stackrel{I\!\!P}{\longrightarrow} CH_3\text{-}CBr_2\text{-}COOH \qquad + 2HBr
                                                                                       (1)
                                    2,2-
                                                                                       (1
                                                                                               )
   2 .
X(C_3H_5BrO_2); Y(C_3H_4Br_2O_2); Z(C_3H_6O_2)
 (C_3H_5BrO_2) = 153 /; M(C_3H_4Br_2O_2) = 232 /; M(C_3H_6O_2) = 74 /
M( ) = 153X + 232Y + 74Z
                                                                                         (1
                                                                                                )
   X + Y + Z = 1
                                                                                        (1
   (5 X + 4Y + 6Z)/(153X + 232Y + 74Z) = 0,0229
                                                                                        (1
                                                                                                )
   (80X + 160 Y)/(153X + 232Y + 74Z) = 0,5526
                                                                                        (1
                                                                                                )
                                       : X =0,625; Y =0,25; Z =0,125
                                                                                        (2
   36/(153\cdot0,625 + 232\cdot0,25 + 74\cdot0,125 = 0,221
                                                                                       (1
                                                                                               )
          C_3H_5BrO_2 -0,625; C_3H_4Br_2O_2-0,25; C_3H_6O_2 -0,125.
                                                                                  3· 1=3
                                                                 5· 1 = 5
```

: 10