O’ZBEKISTON RESPUBLIKASI OLIY VA O’RTA MAXSUS TA’LIM VAZIRLIGI

BUXORO DAVLAT UNIVERSITETI

KIMYO – BIOLOGIYA FAKULTETI

Organik va fizkolloid kimyo kafedrasi

5440400 – kimyo ta’lim yo’nalishi

ORGANIK KIMYO FANIDAN

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R E J A

Kirish

Asosiy qism

1. Uglevodorodlarga oid nomdor reaksiyalar

2. Elementoorganik birikmalar,uglevodorodlarning galogenli hosilalari va karbonil birikmalarga oid nomdor reaksiyalar

3. Karbon kislotalar va ularning hosilalari, azot saqlagan birikmalar hamda uglevodlarga oid nomdor reaksiyalar

Xulosa

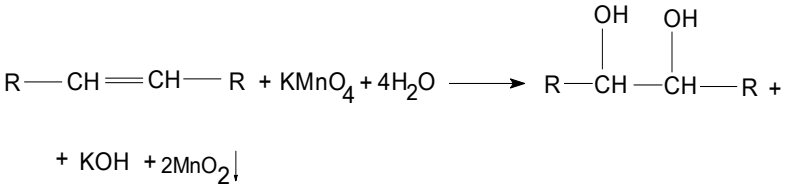
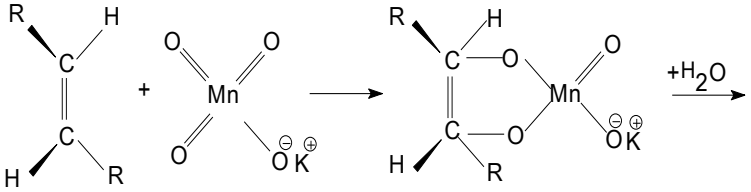
Foydalanilgan adabiyotlar

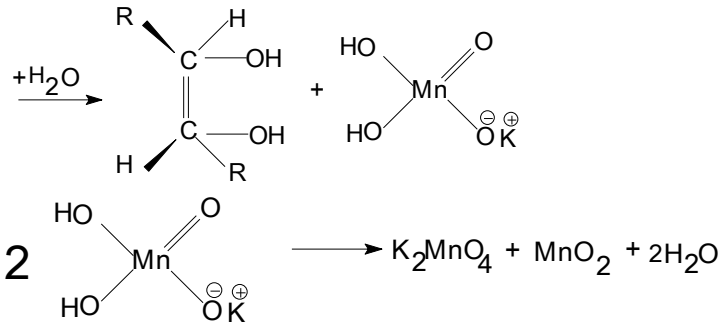
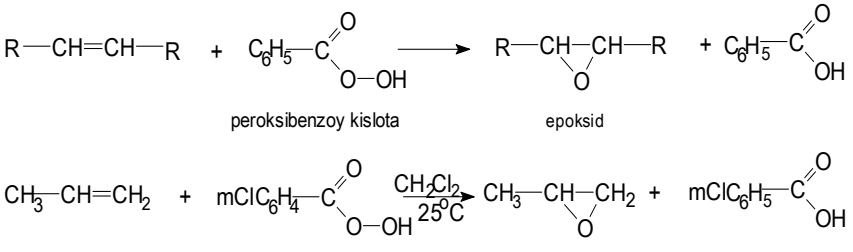
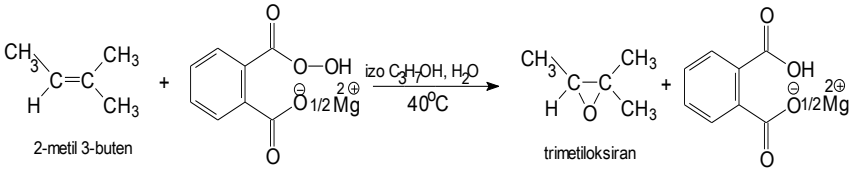
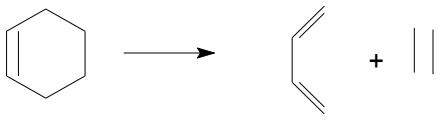
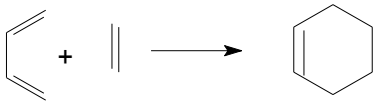
Kirish

Kimyoviy reaksiyalarning ularni ochgan kechish sharoitlarini batafsil o’rgangan olimlar nomi bilan atalishi shu kimyogarlar mashaqqatli mehnatiga berilgan yuqori baho bo’lib, ularni nomini fanda abadiylashtiradi. Shu bois nomdor reaksiyalarni o’rganish o’quvchi, talaba va magistrlarni organik kimyoni chuqur o’rganishga, bu fan boyicha ilmiy-tadqiqotlar olib borishga undaydi. Oliy o’quv yurtlariga kiruvchi abiturientlar uchun mo’ljallangan test topshiriqlarida, shuningdek organic kimyodan talabalar bilimlarini reyting tizimda nazorat qilish va baholashda ham nomdor reaksiyalarga oid savollar bor. Lekin organik kimyodagi reaksiyalarga bag’ishlab o’zbek tilida (ayniqsa lotin imlosida) yozilgan ilmiy uslubiy ishlar deyarli yo’q desa bo’ladi.

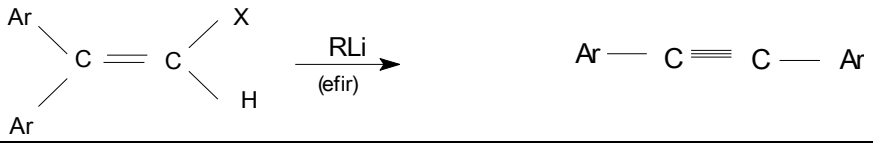
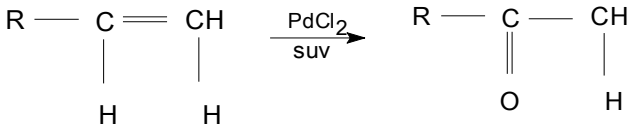
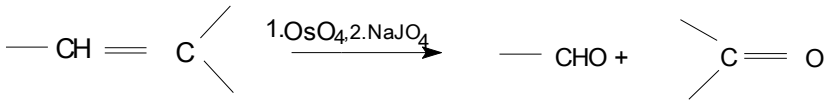
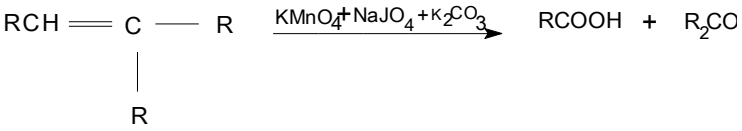
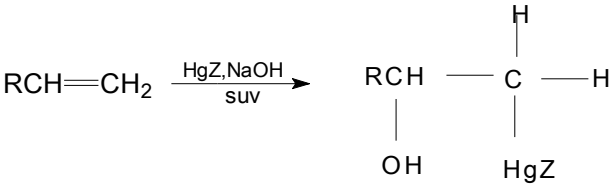
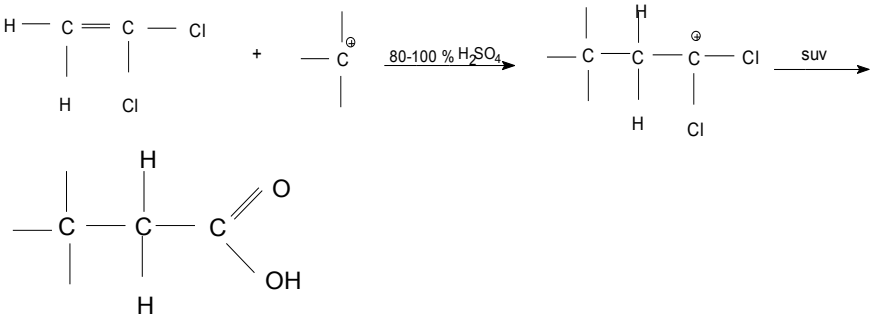
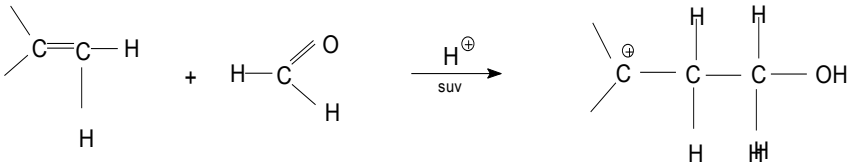
Shu bois keyingi yillarda o’zbek va rus tillarida nashr qilingan darslik, o’quv qo’llanma, monografiyalar va internetdan olingan malumotlardan foydalanib, organik kimyoda olimlar nomi bilan yuritiladigan 190 ta nomdor reaksiyalar, ularni kechish sharoitlari to’g’risidagi ma’lumotlar umumlashtirilgan.

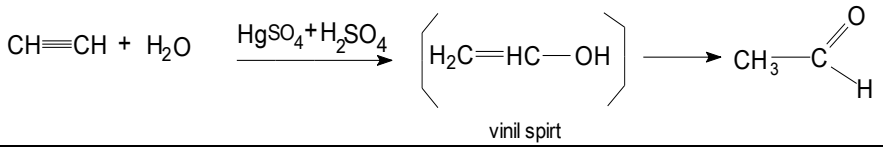
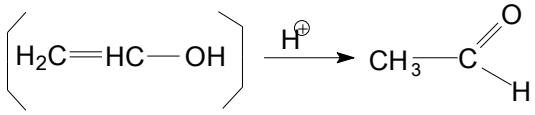
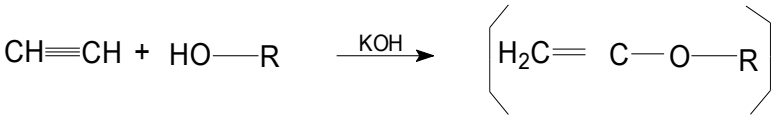
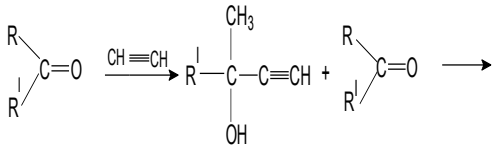
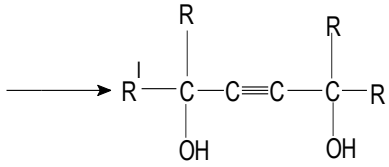
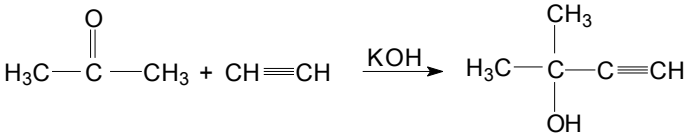
TR	Kashf qilgan olim(lar)	Reaksiyaning mohiyati
1	**F.Bergius, 1925yil**	Toshko'mir yoki qo'ng'ir ko'mirni 450-500 ^oC haroratda 30 MPa bosimda katalizator(Mo,Ni oksidlari yoki sulfidlari) ishtirokida vodorod bilan gidrogenlanganda alkan va sikloalkanlar aralashmasi hosil bo'ladi.[3-4]
2	**Sabate va Sanderan, 1902yil**	CO va CO_2 250-400^oC haroratda Ni va Co katalizatori ishtirokida vodorod bilan reaksiyaga kirishganda metan hosil bo'ladi; $CO + 3H_2 = CH_4 + H_2O$ $CO+3H_2=CH_4+H_2O$ $CO_2+4H_2=CH_4+2H_2O$
3	**F.Fisher va X. Tropsh, 1923yil**	CO va H_2 aralashmasidan Fe, Co katalizatori ishtirokida 200-300^o C hororatda yuqori alkanlar hosil bo'ladi; $nCO+(2n+1)H_2=C_nH_{2n+2}+H_2O$
4	**A.Vyurs, 1855yil**	Galogenalkanlar Na bilan oson (K bilan yanada oson) reaksiyaga kirishganda alkanlar hosil bo'ladi; $CH_3Br+2Na+BrCH_3=C_2H_6+2Na\ Br$ Agar reaksiyada 2 xil galogenalkan ishtirok etsa 3 xil alkan aralashmasi hosil bo'ladi; $3CH_3Br+3C_2H_5Br+6Na=C_2H_6+6Na\ Br+C_3H_8+C_4H_{10}$;
5	**Dyuma**	Natriy atsetat ishqor bilan qizdirilganda metan hosil bo'ladi; $CH_3COONa+NaOH=CH_4+Na_2CO_3$
6	**Kol'be, 1849yil**	To'yingan monokarbon kislotalar tuzlarini suvdagi eritmalarini elektroliz qilish orqali alkanlar olinadi; $R\text{-}COONa+2H_2O=R\text{-}R+2CO_2+NaOH+H_2$;
7	**Rid va Xorn, 1936yil**	Alkanlar SO_2 va Cl_2 aralashmasi bilan UB nur ishtirokida reaksiyaga kirishib alkilsulfoxloridlarni hosil qiladi; $R\text{-}H+SO_2+Cl_2=R\text{-}SO_2Cl_2+HCl$ Reaksiya S_R mexanizmda boradi; I.$Cl_2=2Cl^*$ $R\text{-}H+Cl^*=R^*+HCl$ II.$R^*+SO_2=R\text{-}SO_2^*$ $R\text{-}SO_2^*+Cl_2=R\text{-}SO_2Cl+Cl^*$ III.$2R^*=R\text{-}R$ $2Cl^*=Cl_2$ $R^*+Cl^*=R\text{-}Cl$; I.Zanjir o'sishining boshlanishi. II.Zanjirning o'sishi. III.Zanjirning uzulishi. Sulfoxlorlash reaksiyasida alkanlar molekulasidagi ikkilamchi vodorod atomlari sulfoxlorid (SO_2Cl) guruhiga eng oson birlamchi vodorod atomlari esa qiyinroq almashadi.Uchlamchi vodorodlar esa fazoviy to'siqlar sababli sulfoxlorid guruhiga almashinmaydi.
8	**Ortner 1940yil**	Alkanlar SO_2 va O_2 aralashmasi bilan UB nur ta'sirida reaksiyaga kirishganda alkan sulfooksidlar hosil bo'ladi (sulfooksidlash reaksiyasi); $2R\text{-}H+2SO_2+O_2==2R\text{-}SO_3H$ Bu reaksiya ham radikal mexanizmda boradi.UB nur ta'sirida alkanlardan radikal hosil bo'ladi so'ngra ular SO_2 va O_2 bilan reaksiyaga kirishadi; $R^*+SO_2\rightarrow RSO_2^*$ $RSO_2^*+O_2\rightarrow R\text{-}SO_4^*$ $R\text{-}SO_4^*+R\text{-}H\rightarrow RSO_4H+R^*$(alkanperoksisulfokislota) $RSO_4H+2\ R\text{-}H\rightarrow RSO_3H+2R^*+H_2O$
9	**M.I.Konovalov,18**	Alkanlar suyultirilgan (12.5%li) nitrat kislota bilan 110-140^oC

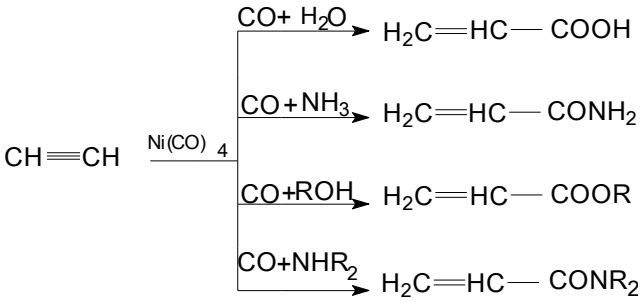
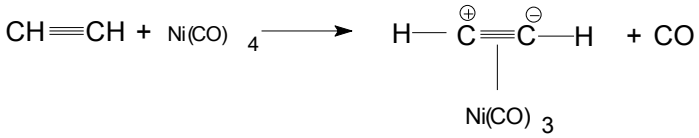
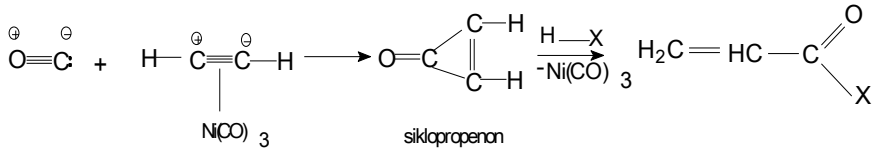
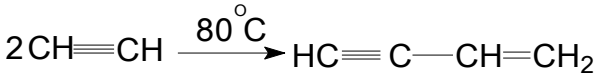
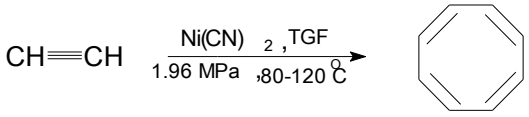
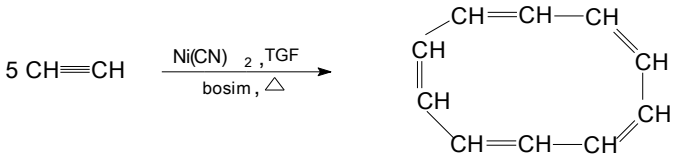
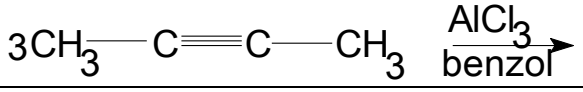
	88-1894yillar	haroratda kavsharlangan nayda qizdirilganda nitroalkanlar hosil bo'ladi. $R\text{-}H+HNO_3==R\text{-}NO_2+H_2O$
10	**Rays, 1931yil**	Alkanlar pirolizida C-C va C-H bog'lari gomolitik uzulib erkin radikal hosil bo'ladi. Propan pirolizida boradigan reaksiyalardan ayrimlarini keltiramiz. $CH_3\text{-}CH_2\text{-}CH_3 \rightarrow CH_3\text{-}CH_2^*+CH_3^*$ $CH_3\text{-}CH_2\text{-}CH_3+CH_3^* \rightarrow CH_3\text{-}CH_2\text{-}CH_2^*+CH_4$ $CH_3\text{-}CH_2^* \rightarrow CH_2=CH_2+CH_3\text{-}CH_3$ $2CH_3\text{-}CH_2\text{-}CH_2^* \rightarrow CH_3\text{-}CH_2\text{-}CH_3+CH_3\text{-}CH=CH_2$ $2CH_3\text{-}CH_2^* \rightarrow C_4H_{10}$ $CH_3\text{-}CH_2^*+CH_3\text{-}CH_2\text{-}CH_2^* \rightarrow C_5H_{12}$
11	**M.Bertlo 1856yil**	Uglerod sulfid va vodorod sulfid aralashmasini qizdirilgan mis ustidan o'tkazib, metan olinadi; $CS_2+2H_2S+8Cu \xrightarrow{qizdirish} CH_4+4Cu_2S$ Bu sintez tarixiy ahamiyatga ega!
12	**Gofman**	Tetraalkil ammoniy gidrooksidi 150^0 C gacha qizdirilganda uchlamchi amin, suv va alken hosil bo'ladi;[3,4,5] $[CH_3N^+\text{-}CH_2=CH\text{-}CH_3OH] \rightarrow CH_3N^+ + CH_2=CH\text{-}CH_3+H_2O$
13	**O.Roelen, 1938yil**	Alkenlar kobaltli katalizatorlar ishtirokida va bosim ostida CO va H_2 bilan reaksiyaga kirishib monokarbonil birikmalarni hosil qiladi; $CH_2=CH_2+CO+H_2 \xrightarrow{katT,90\text{–}150C,10\text{–}30mPa} CH_3\text{-}CH_2CHO$ Bu reaksiya alkenlarni- gidroformillash(oksosintez)ga misoldir;
14	**Braun, 1957yil**	Alkenlar xona haroratida diboran bilan reaksiyaga kirishib alkilboranlarni hosil qiladi.Bu gidroborlash reaksiyalari oddiy va qulay bo'lib yuqori unum bilan amalga oshadi. Diboran BH_3 ning dimeridir; $2BH_3 \leftrightarrow (BH_3)_2$ $(BH_3)_2+R\text{-}CH=CH_2 \rightarrow R\text{-}CH_2CH_2BH_2+R\text{-}CH\text{-}CH_2$ ($R\text{-}CH_2CH_2)_2BH+R\text{-}CH=CH_2 \rightarrow (R\text{-}CH_2CH_2)_3B$ Gidroborlash-oksidlash reaksiyasi orqali birlamchi spirt olinadi. $(R\text{-}CH_2\text{-}CH_2)_3B+3H_2O_2 \xrightarrow{OH^-} 3R\text{-}CH_2\text{-}CH_2\text{-}OH + B(OH)_3$
15	**E.E.Vagner, 1888yil**	Alkenlar ishqoriy muhitda kaliy permanganatning suyultirilgan eritmasi bilan oksidlanganda 1,2-diollar (glikollar) hosil bo'ladi;  Bu reaksiya C=C bogini aniqlashda sifat reaksiya bo'lib , stereoselektiv (2ta OH^- guruhining sis-birikishi bilan) kechadi. 

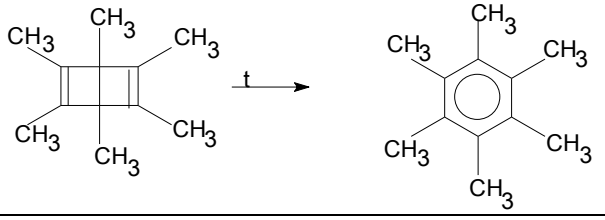
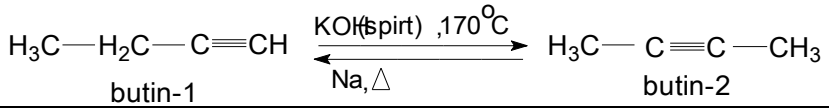
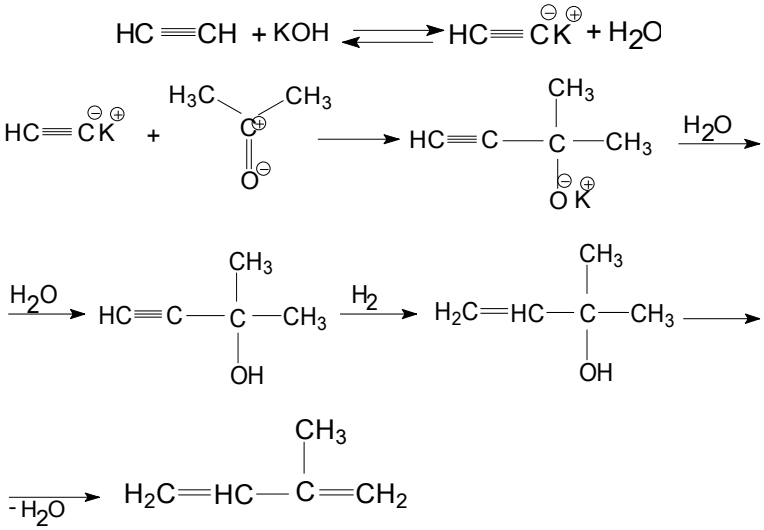
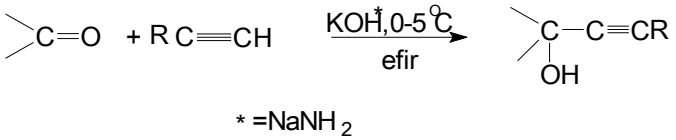
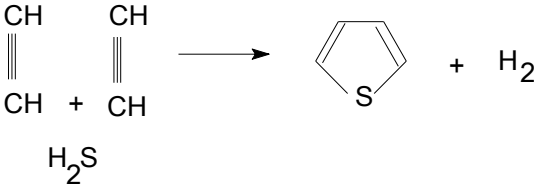
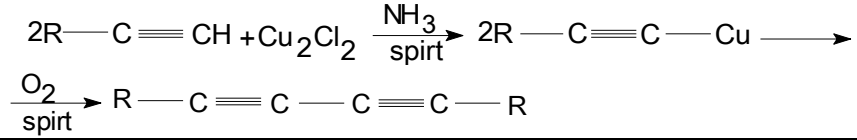
		
16	**N.A.Prilijaev, 1909yil**	Alkenlar peroksibenzoy kislota va boshqa peroksi kislotalar bilan oksidlanganda epoksidlarni hosil qiladi;  peroksibenzoy kislota epoksid propilen m-xlor peroksibenzoy kislota propilen oksid m-xlorbenzoy kislota  2-metil 3-buten trimetiloksiran
17	**M.A.Butlerov**	Izobutilen sulfat kislota ta'sirida dimerlanish, trimerlanish va oligomerlanish reaksiyalariga oson kirishadi; $(CH_3)_2C=CH_2 \xrightarrow{H_2SO_4,80^oC} (CH_3)_3C\text{-}CH_2\text{-}(CH_3)C=CH_2$ (80%) $+(CH_3)_3CCH=C(CH_3)_2 \xrightarrow{H_2Ni} (CH_3)_3\text{-}CH_2\text{-}CH(CH_3)_2$(20%)
18	**M.D.L'vov**	500-600 ^{o}Cda alkenlar galogenlar bilan o'rin olish reaksiyasiga kirishadi; $CH_2=CH\text{-}CH_3+Cl_2 \xrightarrow{500-600^oC} CH_2=CH\text{-}CH_2Cl+HCl$ (82% unum)
19	**Vol-Sigler**	Alkenlarga N-bromamid ta'sir ettirilganda qo'sh boqqa nisbatan α -holatdagi vodorod o'rin olish reaksiyasiga kirishadi .Reaksiyaga kiritiladigan N-bromatsetamid va N-bromruhimid toza bo;lishi shart. $CH_2=CH\text{-}CH_3 \xrightarrow{BrNHCOR^*} CH_2=CH\text{-}CH_2Br$
20	**N.D.Zelinskiy, 1934yil**	Sikligeksenni 650 ^{o}C haroratgacha qizdirilgan naydan o'tkazib , suvga o'tkazilganda butadien-1,3 va etilen hosil bo'ladi. 
21	**Dil's-Alder, 1928yil**	1,3-Alkadienlarga alkenlarning 1,4-birikishidan halqali birikmalar sintez qilindi; 
22	**Krige 1936yil**	Hozirgi kunda alkenlarni gidroksillashda osmiy(VIII) oksidi

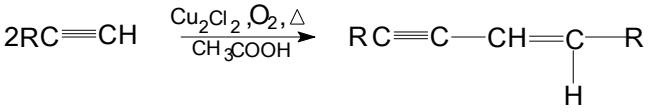
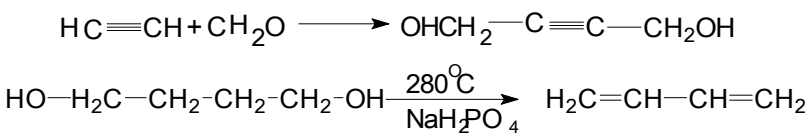
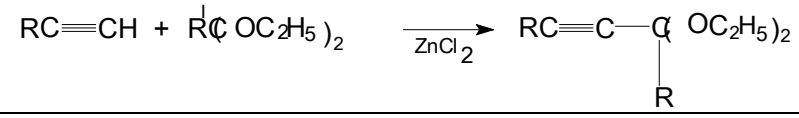
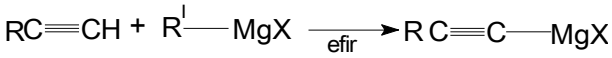
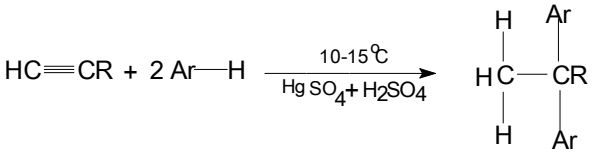
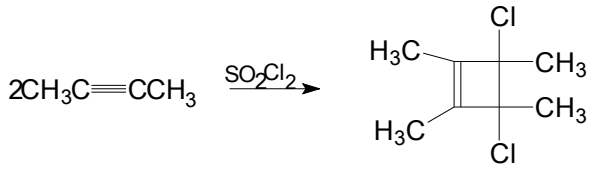
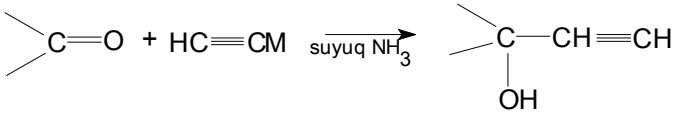
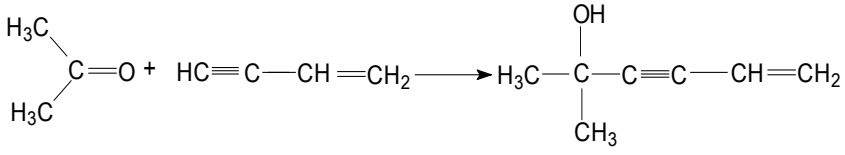
		OsO_4 qo'shiladi. Bu reaksiyada erituvchi sifatida efir benzol siklogeksan yoki xloroformni ishlatish mumkin. CH_3-CH=CH-CH_3 $\xrightarrow{OsO_4\,25^oC,NaHSO_4/H_2O}$ CH_3-CHOH-CHOH-CH_3 +$(HO)_2OsO_2$ Reaksiyaning I bosqichida OsO_4 alkenga birikib halqali efirni hosil qiladi .Bu efirga qaytaruvchi (Zn kukuni ,$NaHSO_3$ yoki $NaHSO_3$+H_2O)bilan ishlov berilganda Os-O bog'i oson uzilib 2,3-diol hosil bo'ladi;
23	**Baker**	Alkenlarni palladiy tuzlari katalizatorligida oksidlab karbonil birikmalar olinadi; CH_2=CH_2+0.5O_2 $\xrightarrow{PdCl_2,H_2O(Cu_2Cl_2)}$ CH_3CHO Etilen atsetaldegid CH_3-CH=CH_2+0.5O_2 $\xrightarrow{PdCl_2,H_2O(Cu_2Cl_2)}$ CH_3-CO-CH_3 Propen atseton
24	**Braun**	Alkenlarni natriyborgidrid bilan toza platina katalizatorligida etanolda qaytarganda alkanlar hosil bo'ladi; CH_2=CH_2 $\xrightarrow{NaBH_4,25^oC,[Pt](a\,tan\,ol)}$ CH_3-CH_3
25	**Meerveyn**	To'yinmadan birikmalarni arildiazoniy tuzlari ta'sirida arillash Meerveyn reaksiyasi deyiladi; RCH=CHR^I+ArN_2X $\xrightarrow[CuCl_2]{}$ ArRCH-CHR^IX yoki XRCH-CHR^IAr $\xrightarrow[-2H]{}$ ArRC=CHR^I yoki RCH=R^IAr Galogenarillash reaksiyalari mis(II) tuzlari ishtirokida amalga oshadi.
26	**K.V.Sigler**	Alkenlarga katalizator (trialkilalyuminiy) ishtirokida bosim ostida alyuminiy va vodorod ta'sir ettirilganda alyuminiyorganik birikmalar hosil bo'ladi.Bu reaksiya gidroalyuminlash deb ham yuritiladi.[5,6] 3(R_2C=CH_2) $\xrightarrow{Al,H_2,bosim(AlR^I_3)}$ (R_2CH-CH_2)$_3$Al
27	**Prev**	Alkenlarni karbon kislotalarning kumushli tuzlari bilan galogenlar aralashmasi katalizatorligida trans-gidroksillaganda diollar hosil bo'ladi; CH_2=CH_2 $\xrightarrow{1.(RCOOAg+X_2)2.H_2O}$ CH_2OH-CH_2OH
28	**Sergeev**	Alkinlar allil holatini gidroperoksidlash havo kislarodi va quyosh nuri ishtirokida boradi; RCH=CH-CH_3 $\xrightarrow{O_2,h\upsilon}$ RCHOOH-CH=CH_2
29	**Ryolen**	Alkenlarni katalitik gidroformillash quyidagicha boradi; CH_2=CH_2 $\xrightarrow{CO,H2,t^o10-20mPa,\{Co(CO)_4\}}$ CH_3CH_2-CHO 2PhCH=CH_2 $\xrightarrow{CO,H_2\,.t^o[Co(CO)_4]}$ $PhCH_2$-CH_2CHO + PhCH(CHO)-CH_3
30	**Lesli-Burjel**	Galogenalkenlarni kislotali muhitda natriyamida bilan 100-160 °C gacha qizdirib degidrobromlash reaksiyasi asosida alkinlar olinadi; RC(Br)=CH_2 $\xrightarrow[2H^{\oplus},100\text{-}160^oC\,(ligroin)]{1.NaNH}$ CH≡CH
31	**Frig-Buttenberg-Buxell**	Kuchli ishqoriy muhitda diarilgalogenalkenlardan diarilatsetilenlar olish quyidagicha kechadi;

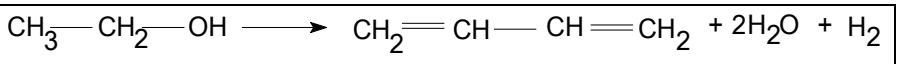
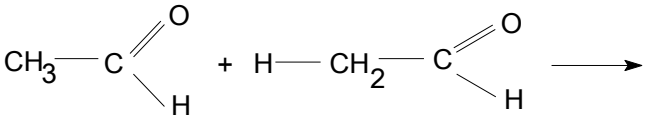
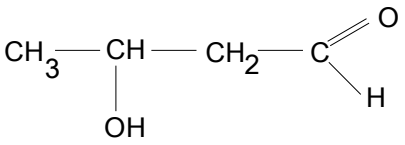
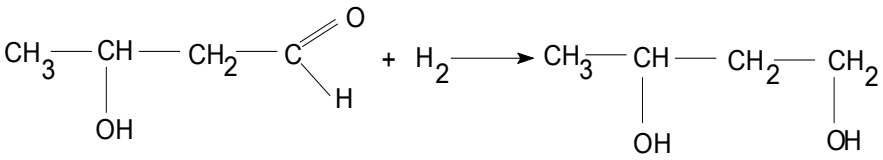
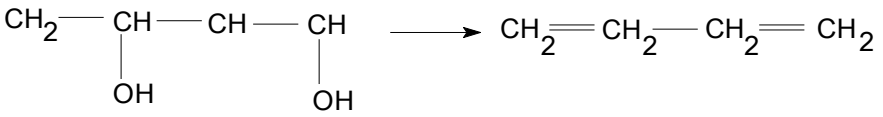
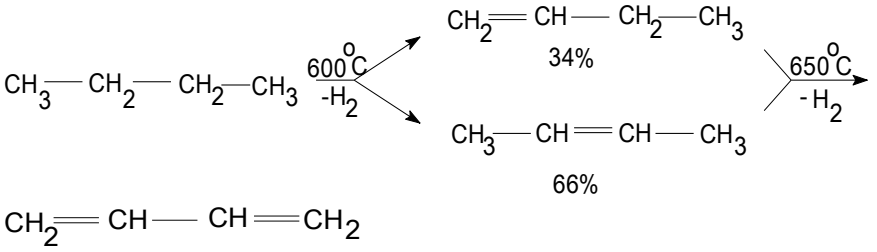
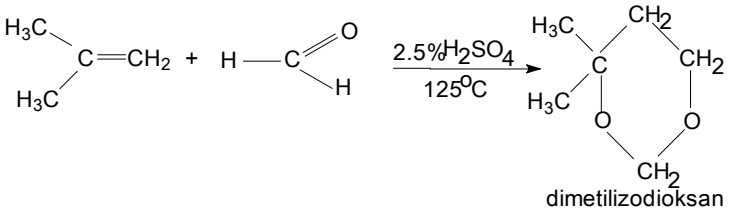
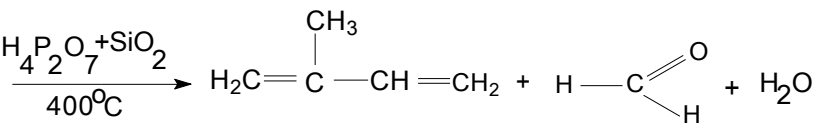
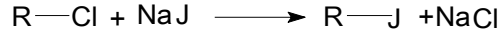
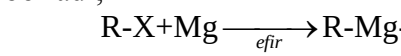
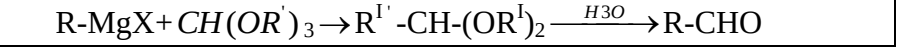
		
32	**Smidt**	Alkenlarni palladiy xloridi ta’sirida suvli eritmada oksidlaganda metilketonlar hosil bo’ladi; 
33	**Lem’yo-Jonson**	Olefinlarni oldin OsO_4 ,so’ngra $NaJO_4$Bilan oksidlab parchalanganda ikkita kislorodli birikma hosil bo’ladi;[7] 
34	**Lem’yo**	Alkenlarni $KMnO_4$+$NaJO_4$;K_2CO_3 bilan oksidlaganda karbon kislota va keton aralashmasi hosil bo’ladi.[7-8] 
35	**Gofman -Zand**	Olefinlarni simob tuzlari bilan ishqorning suvdagi eritmasida oksimerkuriylash(оксимеркурирование) Gofman -Zand reaksiyasi deb yuritiladi;  Z=X,-NO_3,-OCOOCH$_3$
36	**Bott**	Sul’fat kislota va bortriftorid ta’sirida 1,1-dixloretilenga karboniy ionlarini biriktirib so’ngra gidroliz qilinsa, almashingan sirka kislotalar hosil bo’ladi; 
37	**Prins**	Alkenlarga kislotali katalizatorlar ishtirokida formaldegidning birikishi natijasida 1,3-glikollar va1,3-dioksanlar hosil bo’ladi;[5,6,7] 
38	**F.Vyoler, 1862yil**	Kalsiy karbidiga suv ta’sir ettirib atsetilenni sintez qildi; $CaC_2 + H_2O = C_2H_2 + Ca(OH)_2$

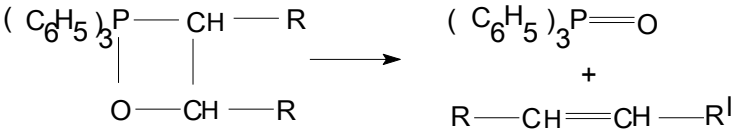
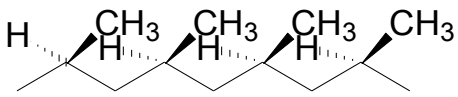
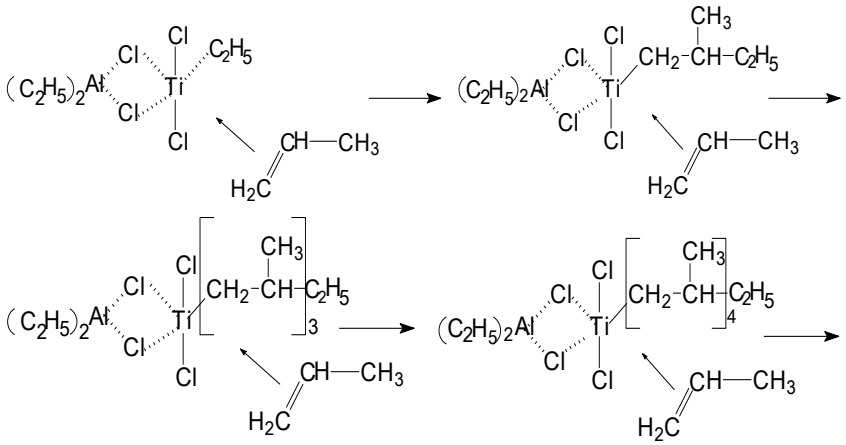
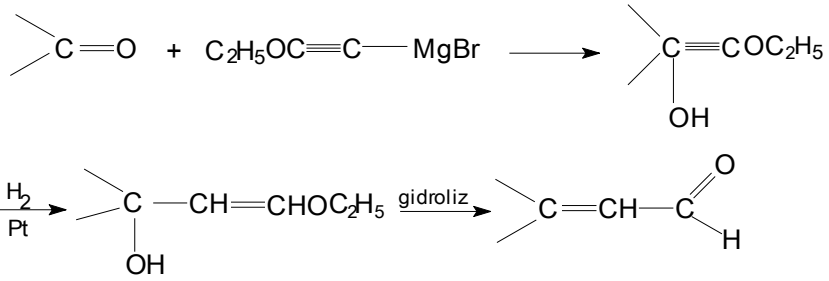
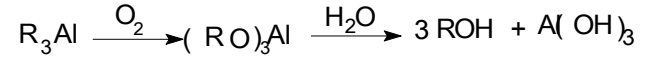
39	**G.Devi 1831 yil**	Kaliy karbidga suv ta'sir ettirib birinchi marta atsetilen oldi; $KC_2 + H_2O = C_2H_2 + KOH$
40	**M.G.Kucherov, 1881yil**	Alkinlar simob(II) tuzlari(masalan $HgSO_4$) ishtirokida sul'fat kislotaning suyultirilgan eritmasida gidratlanadi. Birinchi bosqichda uglerod-uglerod uchbog'iga suv molkulasining nukleofil hujumi natijasida oraliq beqaror enollar hosil bo'ladi, Ular barqaror karbonil birikmalarga qayta guruhlanadi;  vinil spirt
41	**A.P.El'tekov, 1887yil**	Alkinlarning gidratlanishida dastlab beqaror enollar hosil bo'lishi,so'ngra ular tegishli aldegid yoki ketonlarda qayta guruhlanishi A.P.El'tekov qaytaguruhlanishi deb yuritiladi;  vinil spirt
42	**A.E.Favorskiy-M.F.Shostakovskiy-V.Reppe**	Atsetilen va 1-alkinlar KOH katalizatorligida spirtlarni biriktirib,oddiy alkenil efirlarni hosil qiladi; 
43	**A.E.Favorskiy, 1900yil**	Atsetilen o'yuvchi kaliy va boshqa katalizatorlar ishtirokida bosim ostida efir eritmasida aldegid va ketonlar bilan reaksiyaga kirishib alkinol yoki alkindiollarni hosil qiladi;[6-9]   Shu reaksiya asosida sanoatda atsetilen va atsetondan 2-etil-butin3-ol-2 olinadi; 
44	**V.Reppe, 1925-1945 yillar**	Metallarning karbonillari katalizatorligida atsetilen uglerod oksid va harakatchan vodorodi bor birikmalar (masalan suv,spirt, ammiak, birlamchi va ikkilamchi aminlar) bilan reaksiyaga kirishganda akril kislota va uning hosilalari hosil bo'ladi;

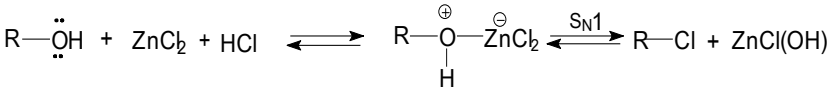
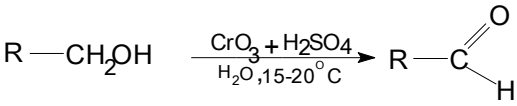
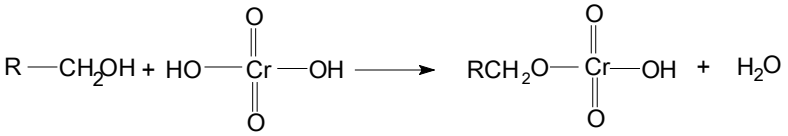
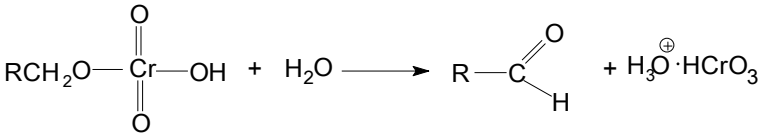
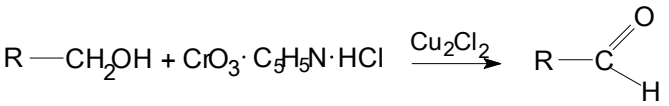
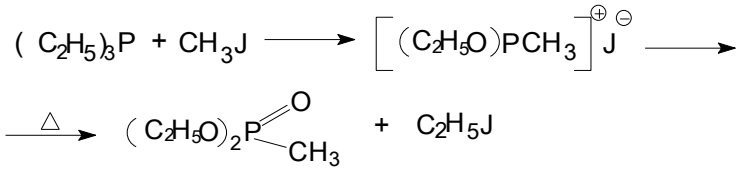
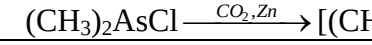
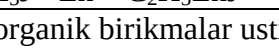
		 Bu oksodintez(karbinollash) reaksiyasining mexanizmi quyidagicha boradi. Katalizator(nikel tetrakarbinol) π-kompleks hosil qilib uchbog'ni faollashtiradi;  So'ngra CO ning π-kompleksga birikishidan oraliq mahsulot (siklopropenon) hosil bo'ladi. Siklopropenon esa reaksiya muhitidagi suv, spirt , ammiak bilan reaksiyaga kirishib oxirgi maxsulotni hosil qiladi;  X=-OH, -OR, -NH_2 ,-NR_2;
45	**Nyulend**	Cu_2Cl_2 vaNH_4Cl ning xlorid kislotadagi eritmalaridan atsetilen o'tkazilganda vinilatsetilen hosil bo'ladi.Atsetilen dimerlanadi;[6,7] 
46	**V.Reppe, 1949yil**	Nikel atsetilenidi yoki nikel sianidning ammiakdagi eritmasi ishtirokida atsetilenning tetramerlanishidan 1,3,5,7-siklooktatetraen ,pentamerlanishidan esa siklodekapentaen hosil bo'ladi;  Benzol va yuqori siklooligomerlar. 
47	**Shiffer, 1966yil**	Dimetil atsetilen $AlCl_3$ ishtirokida benzolga trimerlanib, geksametil-bisiklo -[2,2,0]geksadien (Dyuar benzoli)ni hosil qiladi.U esa qizdirilganda geksametilbenzolga izomerlanadi; 

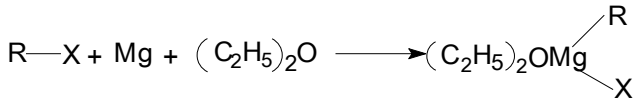
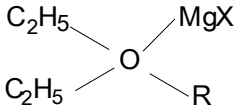
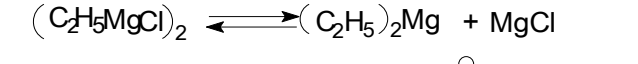
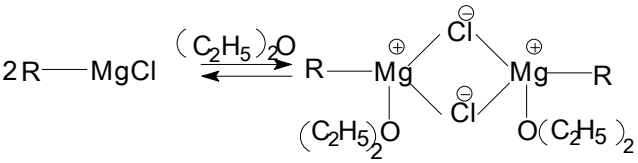
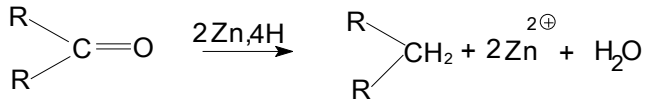
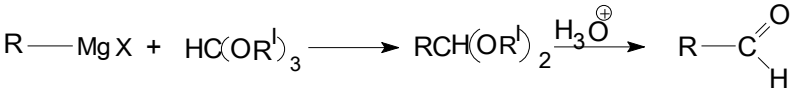
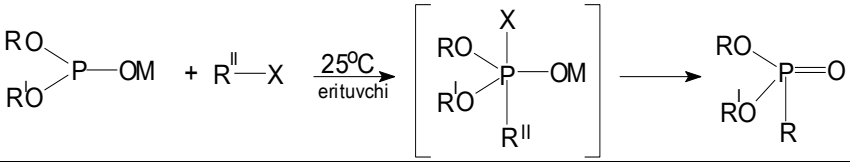
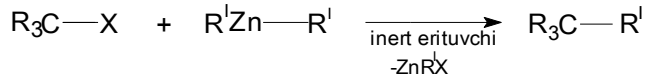
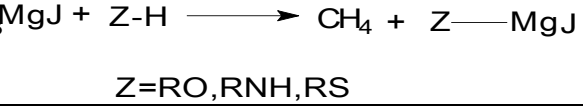
		
48	**A.E.Favorskiy, 1896yil**	Atsetilenning monoalmashingan gomologlari kaliy gidroksidning spirtdagi eritmasi bilan qizdirilganda dialmashingan izomerlarni hosil qiladi.Natriy metali bilan qizdirilganda teskri reaksiya borodi. Masalan;  butin-1 butin-2
49	**A.E.Favorskiy, 1906 yil**	Katalizator (KOH) ishtirokida atsetilan va atsetondan izopren olinadi; 
50	**A.E.Favorskiy**	Karbonil birikmalarni kuchli asoslar ta'sirida ,alkinlar bilan etinillash Favorskiy reaksiyasi deb yuritiladi;[6-8]  * =$NaNH_2$
51	**A.E. Chichibabin**	Atsetilen bilan vodorod sul'fid 400-450^{0}C haroratgacha qizdirilgan $AlCl_3$ ustidan o'tkazilganda tiofen hosil bo'ladi;  H_2S
52	**Glazer 1870 yil**	Alkinlar Cu_2Cl_2 bilan ammiak muhitida reaksiyaga kirishib misalkilatsetilenidni hosil qiladi. Uni havo kislorodi bilan oksidlab 1,3-diinlarni olish mumkun. 

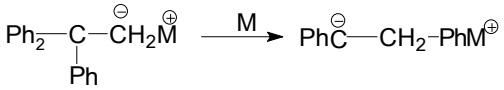
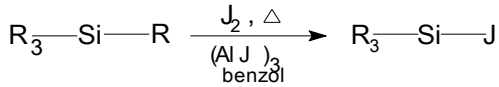
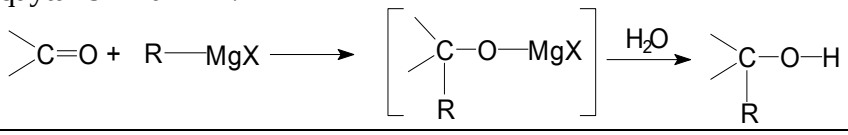
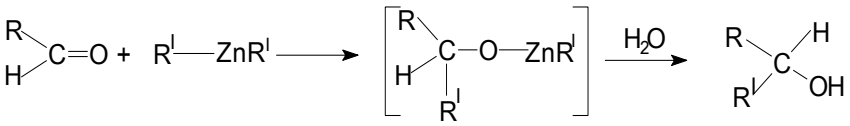
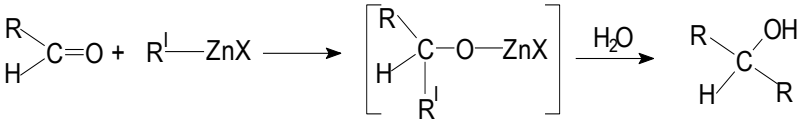
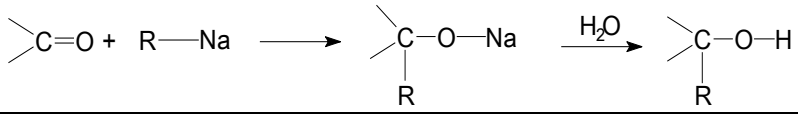
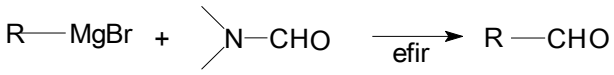
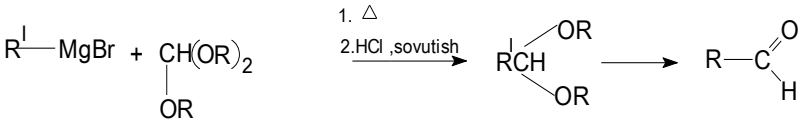
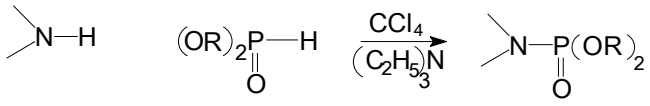
53	**Shtraus**	Monoalmashingan atsetilenlarning dimerlanish reakdiyasi mis xloridi va havo kislarodi ta'sirida boradi Reaksiya natijasida vinilatsetilenidlar hosil bo'ladi; 
54	**Reppe**	Atsetilen va formal'degiddan quyidagi sxema asosida 1,3-butadien olinadi; 
55	**Xauk-Zauer**	Bir almashingan atsetilenlar katalizator (rux xlorid) ishtirokida ortoefirlar bilan ta'sirlashadi; 
56	**Iotsich**	Monoalmashingan atsetilenidlarni Grin'yar reaktivlari ta'sirida metallaganda alkenilmetalgalogenidlar (Iotsich reaktivlari) hosil bo'ladi; 
57	**Rayxert-Nyulend**	Alkinlar molekulsiga kisloli katalizatorlar ishtirokida aromatik halqa kiritiladi. 
58	**Smirnov-Zamkov**	Dimetilatsetilenni bir vaqtning o'zida siklodimerlash va xlorlash quyidagicha kechadi; 
59	**Nef**	Ketonlarni ishqoriy metallar atsetilenidlari bilan etinillash; 
60	**N.I.Nazarov**	Qo'shbog' va uchbog' tutgan to'yinmagan uchlanchi spirt-dimetilvinilatsetilenmeanol kukunsimon kaliy gidrooksid ishtirokida vinilatsetilen va atsetondan olinadi; 
61	**S.B.Lebedov, 1928yil**	Etil spirt bug'ini 400-500^{0}Cda katalizator ($ZnO+Al_2O_3$)ustidan o'tkazish orqali 1,3-butadien oldi.

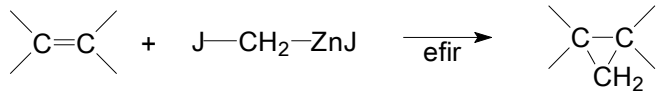
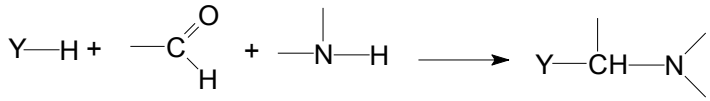
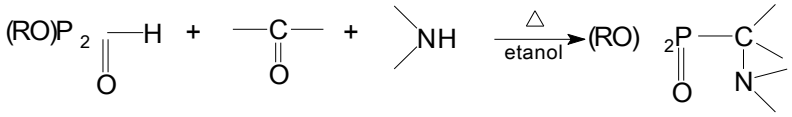
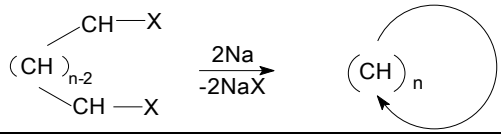
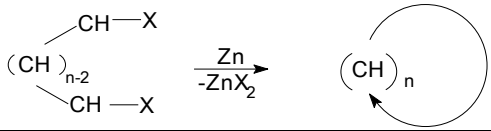
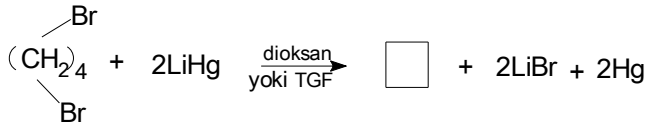
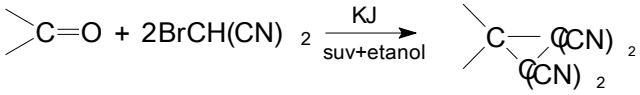
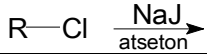
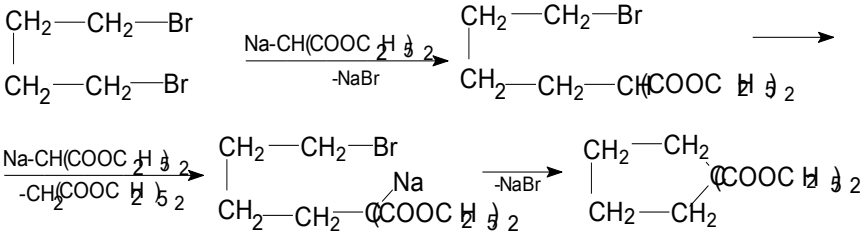
		 Bu jarayon bir necha bosqichda boradi.   III.  IV. 
62	**A.A.Balandin-O.K.Bagdanov**	n-Butanni xromalyuminiyli katalizator ($Al_2O_3+CrO_3+Cu$ (II)tuzlari) ishtirokida 650^0C da degidrogenlaganda oxirgi maxsulot sifatida 1,3-butadien hosil bo'ladi; 
63	**Prins**	Izopren sanoatda izobutilen va fermaldegiddan Prins reaksiyasi asosida quyidagicha olinadi;  dimetilizodioksan 
64	**Finkelshtayn**	Natriy iodidning atsetondagi eritmasiga tegishli alkil xloridlarni ta'sir etirib tegishli alkiliodidlarni olish mumkin; 
65	**Grinyar**	Galogenalkanlar absalyut efir muhitida magniy bilan reaksiyaga kirishganda alkilmagniygalogenidlar(Grinyar reaktivlari) hosil bo'ladi; 
66	**Zelinskiy**	Zelinskiy usuli asosida yuqoridagi reaksiya quyidagicha boradi; 

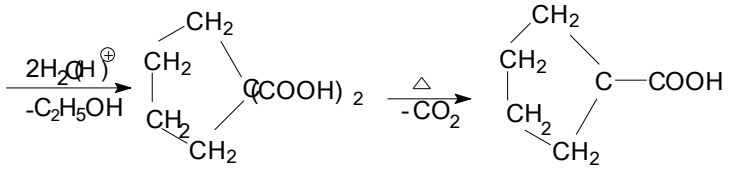
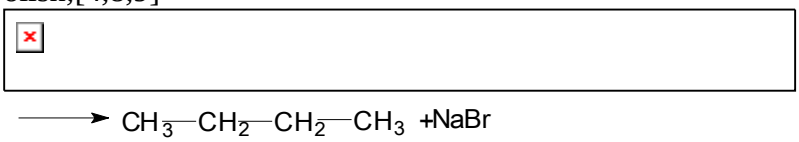
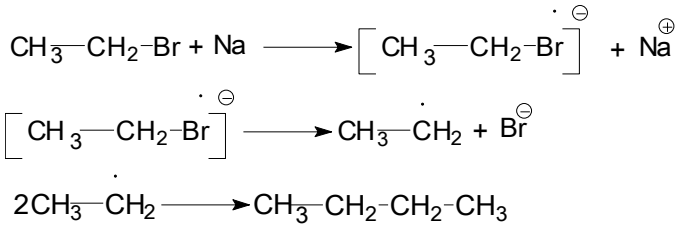
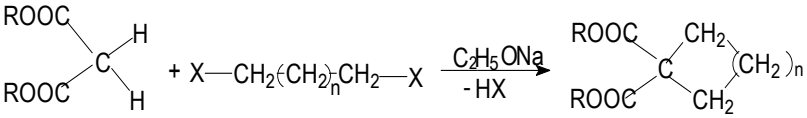
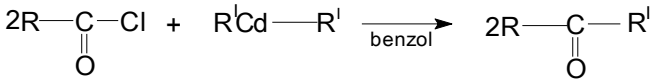
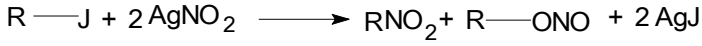
67	**Vittig , 1953yil**	Alkiliden fosforanlar (fodfoniy ilidlari) va al'degid yoki ketonlarning o'zaro reaksiyasida dastlab betainlar hosil bo'ladi. Betainlardan ortafosforetan bosqichi orqali alken va fosfinoksidlar olinadi; 
68	**K.Sigler1950yil** **J.Natta1963yil**	Propilenni 60-70 °C haroratda 6-10 atm bosimda Siglerning kampleks katalizatori $Al(C_2H_5)_3$ va $TiCl_4$ yoki $[(C_2H_5)_3AlCl \bullet TiCl_3]$ ishtirokida benzin yoki n-geptan muhitida polimerlaganda stereoregulyar (izotaktik)tuzilishli polimerlar hosil bo'ladi;  n CH_3-CH=$CH_2 \rightarrow$ ..-$CH(CH_3)$-CH_2-$[CH(CH_3)CH_2]_{n-2}$ - $CH(CH_3)CH_2$…  va hokazc
69	**Arens –Van-Drop**	Karbonil birikmalar va etoksimagniy bromiddan α,β - to'yinmagan al'degidlar olish; 
70	**K.Sigler**	Sanoatda alyuminiyorganik birikmalarni oksidlab alkanollar olinadi.Reaksiya sxemasi; 

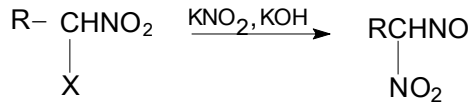
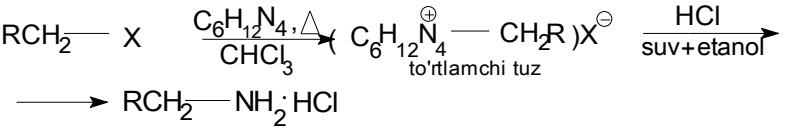
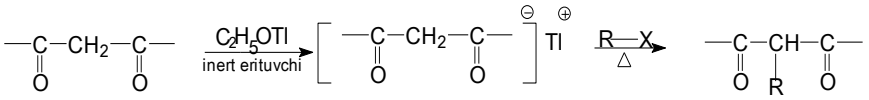
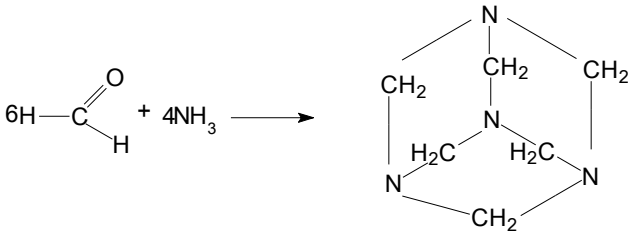
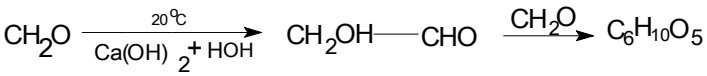
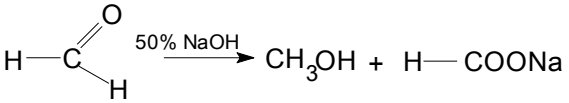
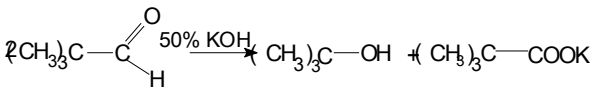
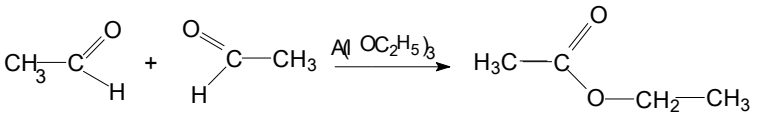
71	**Chugaev – Serevitinov-Terentov**	Alkanollar magniyorganik birikmalar bilan reaksiyaga kirishib alkanlar hosil qiladi.  Ajralib chiqqan metan hajmini o'lchash bilan alkanollarning gidroksil guruhi sonini aniqlash mumkin;
72	**Lukas**	Alkanollardan xloralkanlar sintez qilishda HCl va $ZnCl_2$ aralashmasining spirtdagi eritmasi ishlatiladi HCl va $ZnCl_2$ ning spirtdagi aralashmasi Lukas reagenti deyiladi; 
73	**Jonson**	Birlamchi spirtlarni CrO_3 va H_2SO_4(Jonson reaktivi) ishtirokida oksidlash Jonson reaksiyasi deyiladi;  I.  II. 
74	**Saretta**	Birlamchi spirtlarni Saretta reaktivi (CrO_3*C_5H_5N*HCl) bilan oksidlab al'degidlar olish; 
75	**A.E.Arbuzov-B.A.Arbuzov**	Alkilfosfon kislotalar $R(PO)(OH)_2$ hosilalarini olishda "Arbuzov qayta guruhlanishi"nomli reaksiyasi muhim o'rin tutadi.Bu reaksiyani amalga oshirish uchun fosfit kislotaning turli efirlariga galogenalkanlar ta'sir ettiriladi; [4,6,9] 
76	**R.Bunzen 1837-1843 yillar**	Dimetilarsenxloridi (kakodil xloridi) ga karbonat angidrid muhitida rux metalini ta'sir ettirib tetrametildiarsen oldi; 
77	**Frankland 1849 yil**	Etiliodid va ruxdan ruxorganik birikmalar (etilruxiodid)ni sintez qildi; 
78	**V.Grinyar , 1912 yil**	V.Grinyar magniyorganik birikmalar ustida ishlab Nobel mukofotiga sazovor bo'lgan olimdir .Magniyorganik birikmalar havosiz joyda quruq efir yoki tetragidrofuran (TGF) muhitida alkilgalogenidlarga magniy metalini ta'sir ettirib olinadi;

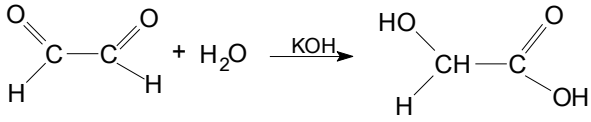
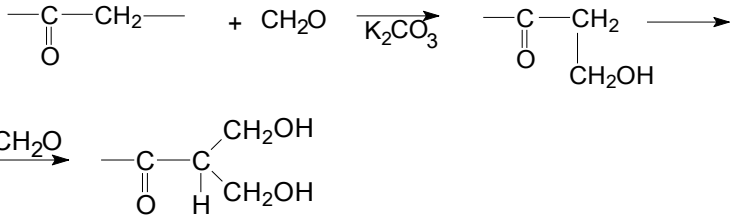
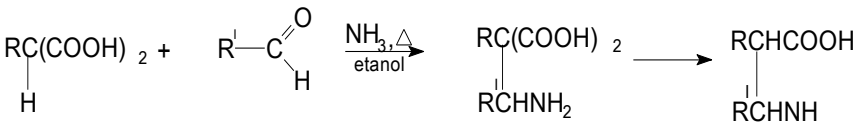
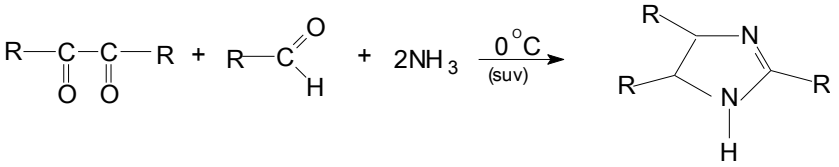
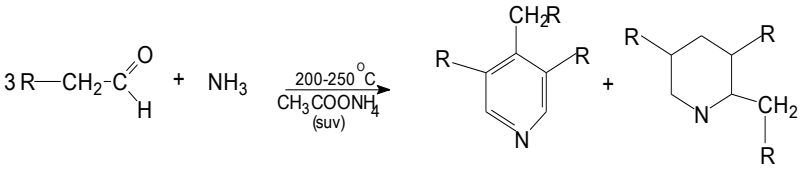
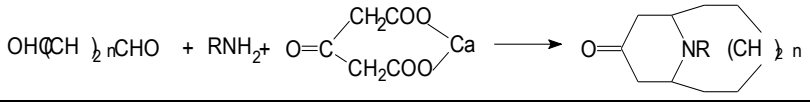
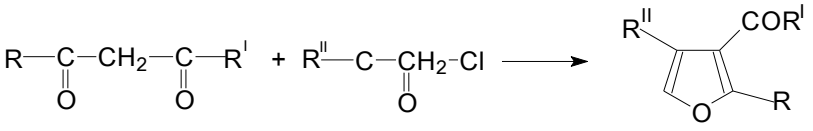
		 Grinyar fikricha MgOB ning efir muhitida olinish jarayonida quyidagi tuzulishli organik oraliq modda hosil bo'ladi  Sof MgOB amalda keng qo'llanilmaydi .Ular eritmada Grinyar reaktivi bilan dinamik muvozanatda bo'ladi va efir muhitida osonlik bilan asotsiatlar hosil qiladi;[4,6,7]  
79	**Klemensen , 1913 yil**	Aldegid va ketonlar rux amalgamasi va konsentrlangan xlorid kislota ta'sirida uglevodorodlarga aylanadi; 
80	**Vilyamson**	Alkogolyatlarga alkilgalogenidlar yoki alkilsulfatlarni ta'sir ettirib, dialkil efirlar olinadi; 
81	**Zelinskiy**	Aldegid guruhi saqlagan birikmalarga Grinyar reaktivi ishtirokida alkil guruhini kiritish ; 
82	**Mixaelis –Bekker**	Dialkilfosfit tuzlaridan alkilfosfon kislotalar olish;[5-7] 
83	**Butlerov-L'vov**	Galogen atomini alkilga almashtirish;[7] 
84	**Chugaev – Serevitinov**	Metilmagniy iodidga MgI-guruhini vodorod atomiga almashinishidan metan hosil bo'ladi . Bu reaksiya yordamida organik birikmalar tarkibidagi harakatchan vodorod miqdori aniqlanadi; 
85	**Grovenstayn-Shimmerman**	Metallar katalizatorligida 1,1,1-trifeniletandan1,1,2-trifeniletanga izomerlanadi;

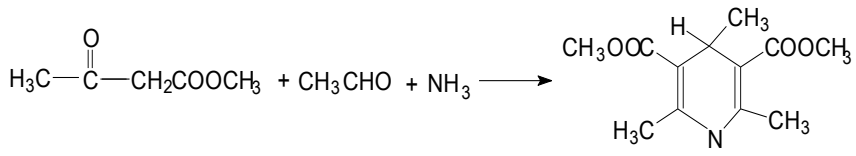
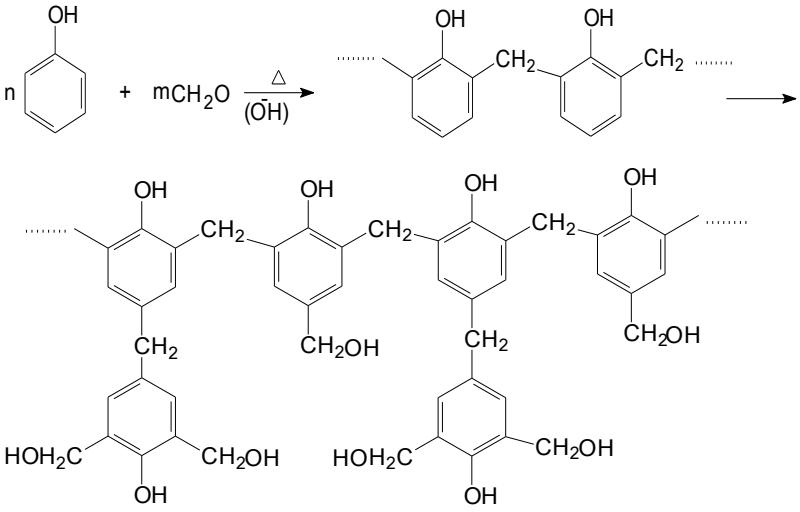
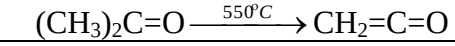
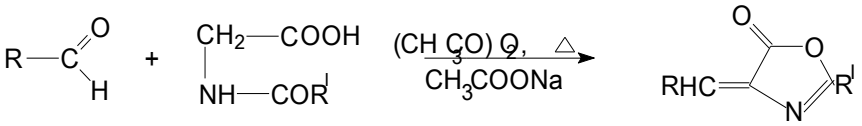
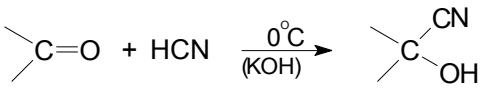
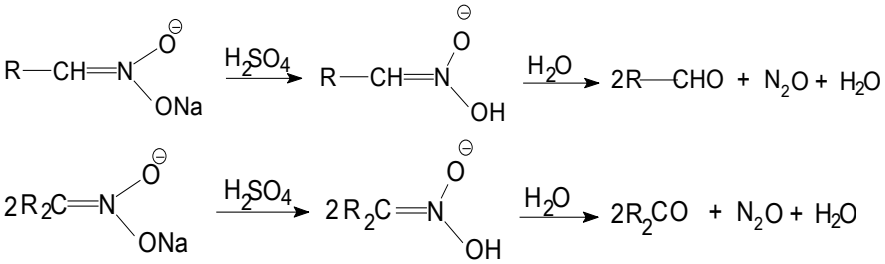
		 Ph = fenil M =Na,K,Li,Mg
86	**Iborn**	Alyuminiy iodid katalizatorligida tetraalkilsilan molekulasidagi alkilni iodga almashtirish ; 
87	**V.Grinyar**	Karbonil birikmalarni Grinyar reaktivi ishtirokida quyidagicha qaytarish mumkin. 
88	**Vagner**	Karbonil birikmalarni dialkilrux bilan qaytarish quyidagi mexanizm asosida amalgam oshadi; 
89	**Zaytsev**	Ketonlar va alkilrux galogenidlardan quyidagi sxema bo'yicha uchlamchi spirtlarni sintez qildi. [4,8,9] 
90	**Shorigin- Vanklin**	Karbonil birikmalar karboniliga natriy organik birikmalar biriktiriladi. Hosil bo'lgan oraliq mahsulot gidroliz qilinganda spirtlar hosil bo'ladi; 
91	**Buvo**	Grinyar reaktivlarini dialmashingan formamidlar bilan formillash; 
92	**Bodr-Chichibabin**	Grinyar reaktivlari bilan ortachumoli efirning reaksiyasidan hosil bo'ladigan atsetalning gidrolizlanishi natijasida al'degidlar hosil bo'ladi;[7,10] 
93	**Aterton-Todd**	Aminlarni asoslar va tetraxlormetan ishtirokida dialkilfosfitlar bilan fosforillash; 
94	**Simmons –Smit**	Alkenlarga Simmons –Smit reaktivi (JCH_2ZnJ) ta'sir ettirilganda siklopropanlar hosil bo'ladi;

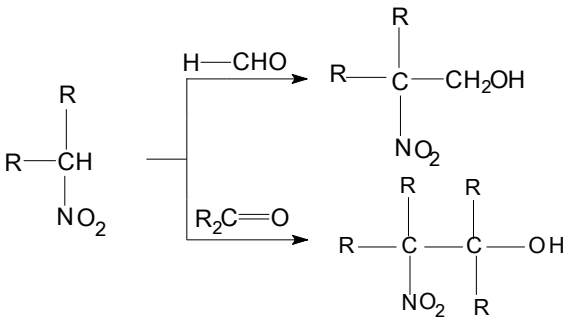
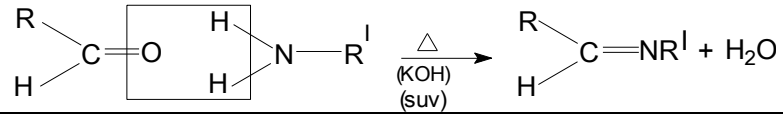
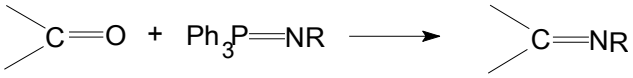
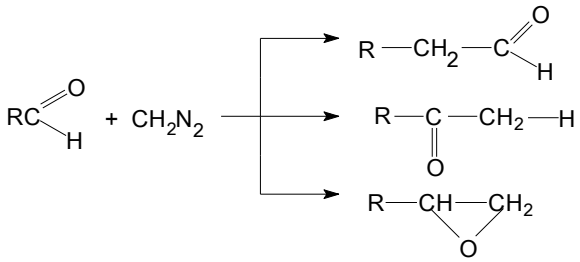
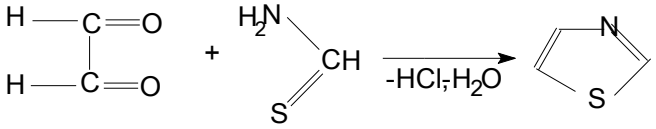
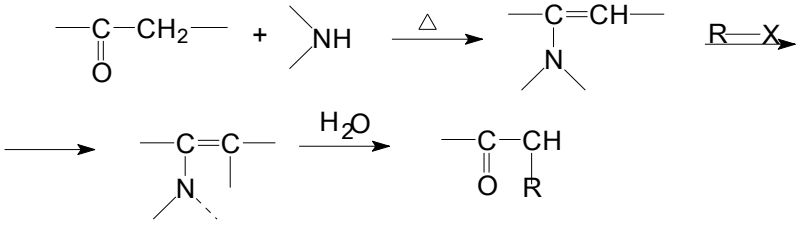
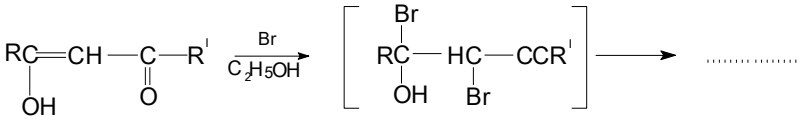
		
95	**Kabachnik-Filds**	Al’degidlar bilan aminlar yoki ammiak reaksiyasi jarayonida vodorod atomi aminoalkil guruhiga almashinadi  Fosfor bilan bog’langan harakatchan vodorod atomining aminoalkil guruhiga almashinishi (P-aminoalkillash) natijasida α-aminoalkilfosfonkislotalarning efirlari hosil bo’ladi; 
96	**Freynd,1882 yil**	Digalogenalkanlarni natriy bilan degalogenlash orqali sikloalkanlar olinadi; 
97	**G.G.Gustavson 1887 yil**	Digalogenalkanlarni rux bilan degalogenlash orqali sikloalkanlar olinadi; 
98	**Kinner-Uilson, 1967 yil**	Siklobutan va siklopentanni olish uchun 1,4 va 1,5 digalogenalkanlarga litiy amalgamasi ta’sir ettiriladi; 
99	**Videkvist**	Brommalon kislota dinitrilining ikki molekulasi bilan al’degid yoki ketonlarni kaliy iodid ishtirokida siklokondensatsiya natijasida siklopropan halqasi hosil bo’ladi;[4,8-10] 
100	**Finkel’shtayn**	Alkiliodidlarni olish uchun natriy iodidning atsetondagi eritmasiga tegishli alkilxloridlar tasir ettiriladi; 
101	**Perkin 1883 yil**	Uch,to’rt ,besh va olti a’zoli sikllarni olish uchun natriymalon efiriga tegishli ravishda 1,2;1,3;1,4;1,5-digalogenalkanlar ta’sir ettiriladi; 

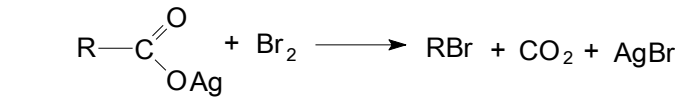
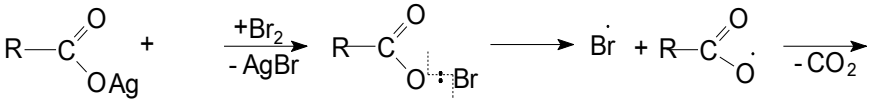
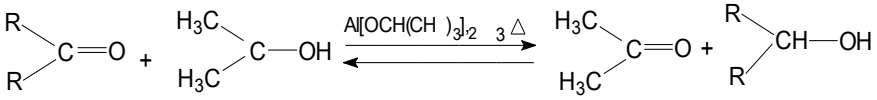
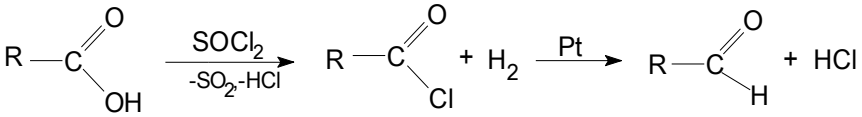
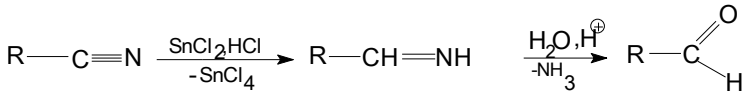
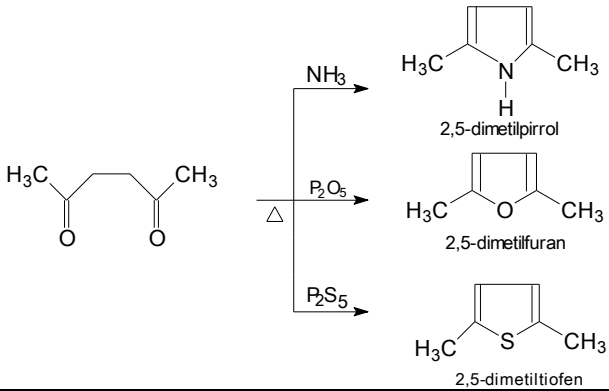
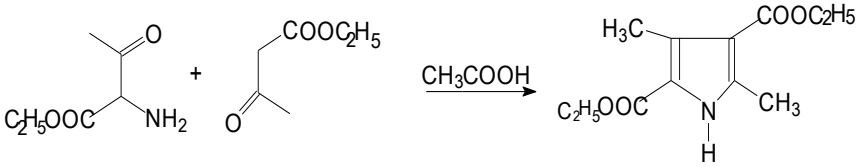
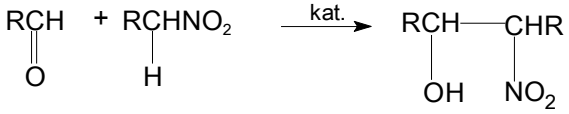
		
102	**Vyurs 1855 yil**	Galogenalkanlarga natriy metali ta’sir ettirib alkanlar olish;[4,8,9] 
103	**P.P.Shorigin**	Shu reaksiya mexanizmini Shorigin ishlab chiqqan; 
104	**Perkin**	β-dikarbonil birikmalarni digalogenalkanlar bilan natriy alkogolyatlar ishtirokida sikloalkillash; 
105	**Kol’be**	Natriy sianid ta’sirida galogenalkanlardan nitrillar sintez qilish; $R\text{-}X \xrightarrow{NaCN,\Delta} R\text{-}CN + NaX$
106	**Grishkevich-Troximovskiy-Mak-Kombi**	Galogensirka kislotalar efirlaridagi galogenni kaliy ftorid ta’sirida ftorga almashinishi; $X\text{-}CH_2\text{-}COOR \xrightarrow{KF,200\text{-}300^0C} F\text{-}CH_2COOR$ X=Cl,Br
107	**Svarts**	Surma triftoridi tasirida poligalogenidlardagi galogen ftorga qisman almashinadi; $CCl_3\text{-}CCl_2\text{-}CCl_3 \xrightarrow{SbF_3(dixloretan)} CF_2Cl\text{-}CCl_2\text{-}CFCl_2 + SbCl_5$
108	**Gilmen-Nelson**	Bu reaksiyada galogenangidrid molekulasidagi xlor alkilga almashinib keton hosil bo’ladi;[3,8] 
109	**V.Meyer , 1872yil**	Iod va bromalkanlarga kumush nitrat ta’sir ettirilganda nitroalkan bilan alkilnitritlar aralashmasi hosil bo’ladi; 
110	**Koriblyum 1947 yil**	Narxi qimmat kumush nitratni kaliy nitrat yoki natriy nitratga almashtirish maqsadida nitroalkanlar olish reaksiyasi aprotonli erituvchilar (Dimetilsulfo kislotalar yoki dimetilformamid)da olib boriladi; $R\text{-}X + NaNO_2 \xrightarrow[(CH_3)_2SO]{(CH_3)_2NCHO} R\text{-}NO_2 + NaX$ Bu reaksiyada ham asosan nitroalkanlar va oz miqdorda alkilnitritlar hosil bo’ladi;
111	**Ter Meer**	α-Galogennitroalkanlarni ishqoriy muhitda nitrolab gem-dinitroalkan olish;

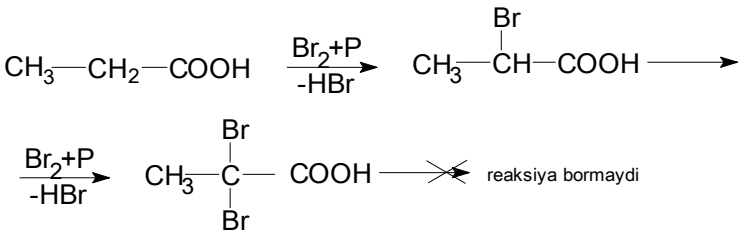
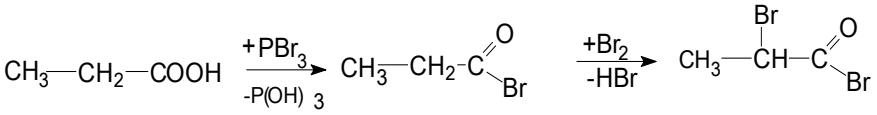
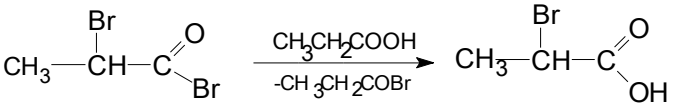
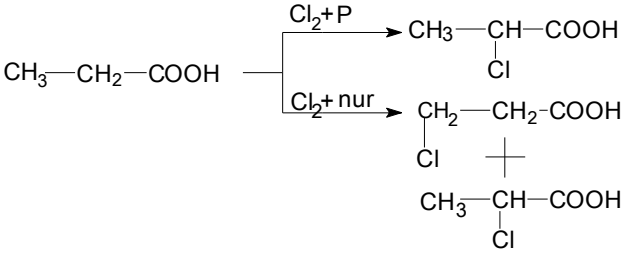
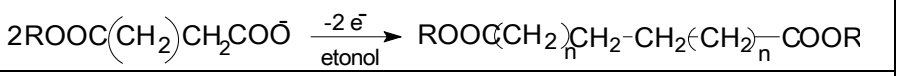
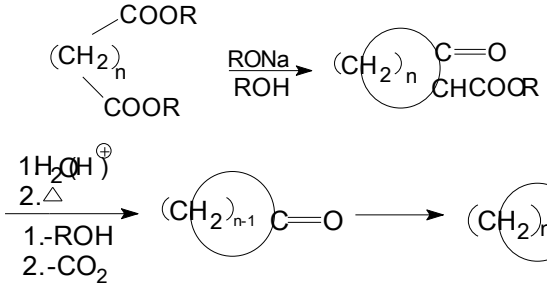
		
112	**Delepin**	Bu bilvosita aminlash reaksiyasiga yaxshi misol bo'la oladi.Urotropin tasirida galogenalkanlardagi galogen atomi amino guruhga almashinadi to'rtlamchi tuzlarning hosil bo'lish bosqichi orqali boradigan bu reaksiya mahsuloti kislotali muhitda gidroliz qilinganda alkilamin xlorgidrati hosil bo'ladi; 
113	**Teylor-Mak-Kilop**	β -Dikarbonil birikmalarni alkillash ularning talliyli tuzlari olish va bu tuzlarni alkilgalogenidlar bilan ta'sirlashuvi orqali amalgam oshadi;[7,8-10] 
114	**A.M.Butlerov**	Chumoli al'degid ammiak ta'sirida geksametilentetraazin (urotropin) ga aylanadi; 
115	**Butlerov**	Farmaldegidning avtokondensatsiyasi natijasida geksozalar ("formozalar ") olinadi;[4,7] 
116	**Kanissaro, 1853 yil**	Harakatchan α -vodorodlari yo'q al'degidlar ishqorning suvdagi yoki spirtdagi konsentrlangan eritmasi ta'sirida oksidlanish-qaytarilish reaksiyasiga kirishib spirt va karbon kislota tuzining ekvimolyar aralashmasini hosil qiladi;  
117	**V.I.Tishchenko**	Al'degidlarga suvsiz muhitda alyuminiy alkogolyat masalan $Al(OC_2H_5)_3$ ta'sir ettirilganda shiddatli reaksiya borib murakkab efirlar hosil bo'ladi;  Bu reaksiyada sirka al'degidning qaytarilgan bir molekulasi ikkinchi molekula hisobiga oksidlanadi. Ketonlar bunday reaksiyaga kirishmaydi;

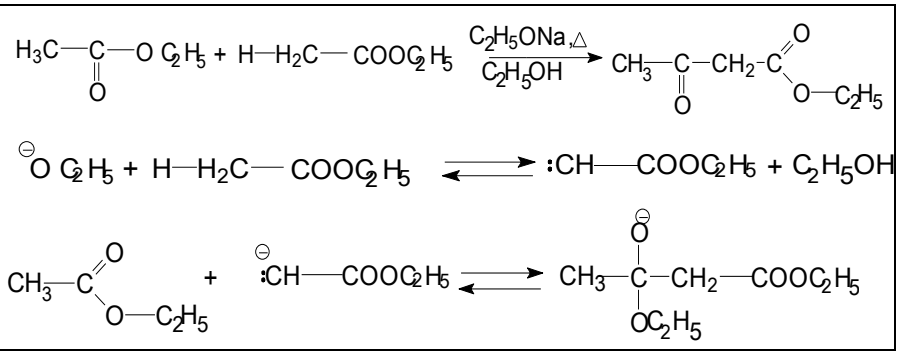
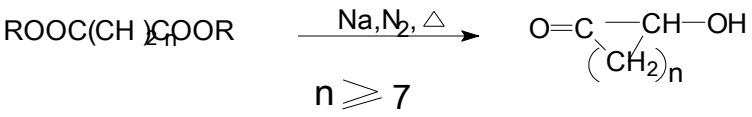
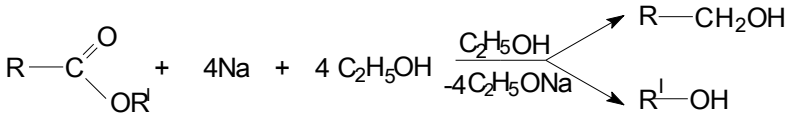
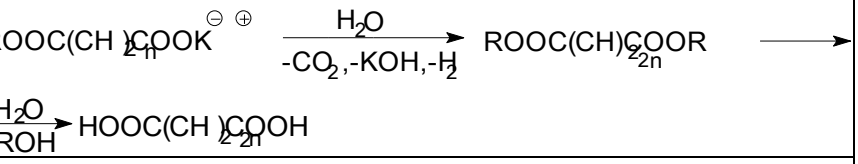
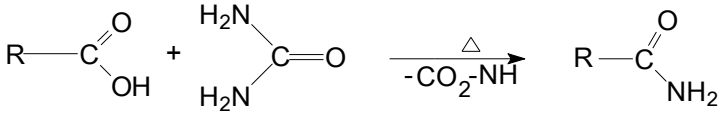
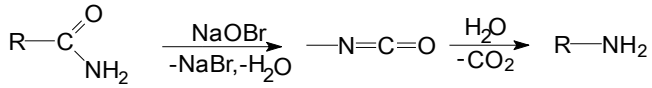
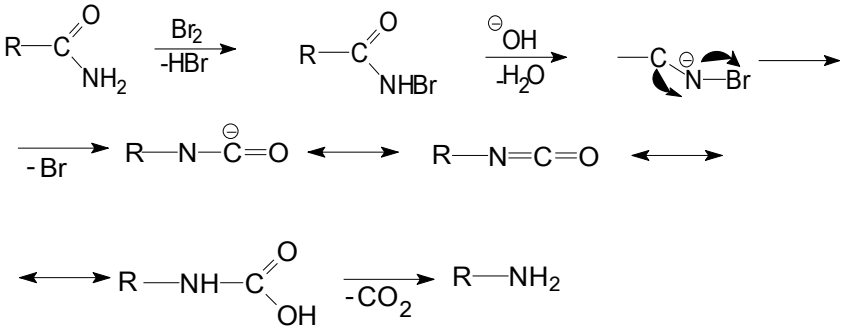
118	**Kanissaro**	Glioksal konsentrlangan ishqor ta'sirida gidroksisirka (glikol) kislotani hosil qiladi; 
119	**Tollens**	Karbonil birikmalarni Tollens bo'yicha oksimetillashda formal'degidning bir necha molekulasi al'dol kondensatsiyasiga kirishadi; 
120	**Radionov, 1926 yil**	Malon kislotani al'degidlar va ammiak bilan o'zaro ta'sirlashuvi –Radionov reaksiyasi bilan aminokislotalar sintez qilishning birinchi bosqichi hisoblanadi; 
121	**Debus**	α -Dikarbonil birikma, al'degid va ikki molekula ammiakning siklokondensatsiyasi natijasida imidozollarning hosil bo'lishi; 
122	**Ganch**	Uch molekula al'degid va bir molekula ammiakning siklokondensatsiyasidan piridinlarning hosil bo'lishi; 
123	**Robinson-Shyopf**	Bu reaksiya uchta molekula ishtirokida boradigan polikondensatsiyaga misol bo'la oladi; 
124	**Fayst-Benar**	β -Dikarbonil birikmalarni α -galogenketonlar bilan asoslar ta'sirida boradigan siklokondensatsiyasi natijasida almashingan furanlar hosil bo'ladi; 
125	**Ganch, 1882 yil**	β -ketokislotalar efirlarining al'degidlar va ammiak bilan siklokondensatsiyasi natijasida olinadigan digidropiridinlarni oksidlab almashingan piridinlar olinadi;

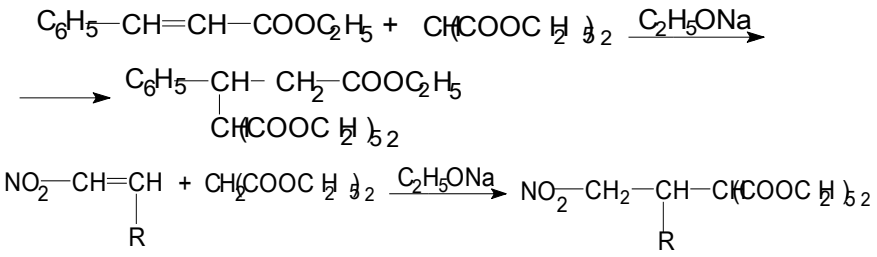
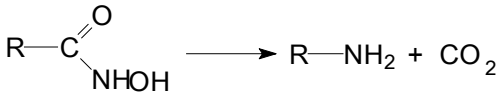
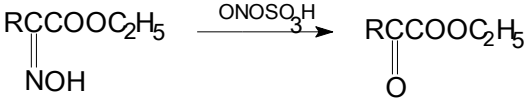
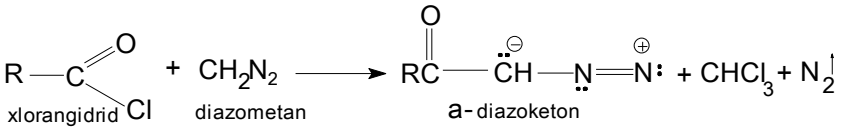
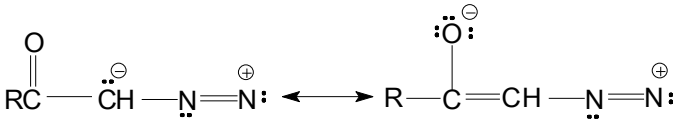
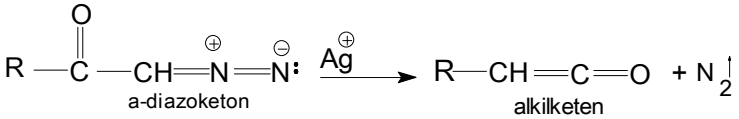
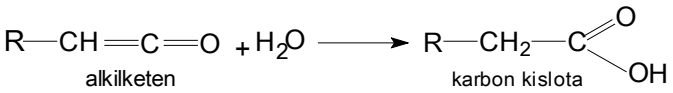
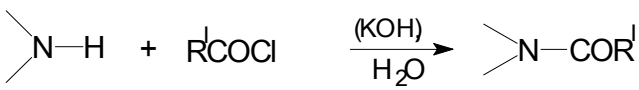
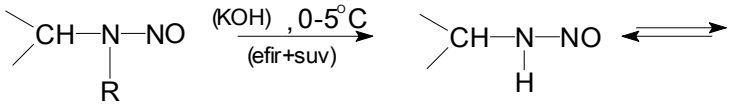
		
126	**Bekeland-Lederer-Manass**	Fenolning mo'l olingan farmal'degid bilan 0polikondensatsiyasi fenol-farmaldegidli smolalar olishning sanoat usuli hisoblanadi; 
127	**Shmidlin-Bergman-Uilsmor**	Atsetonni piroliz qilib keten olish; 
128	**Erlenmeyer - Plyoxl**	N-atsilglitsin aldegidlar bilan sirka angidrid katalzatorligida reaksiyaga kirishganda azlaktonlar hosil bo'ladi; 
129	**Ul't**	Alifatik karbonil birikmalar va sianid kislotadan KOH ishtirokida sianollar olish; 
130	**Nef, 1894 yil**	Birlamchi va ikkilamchi atsenitroalkanlarning tuzlari xona haroratida suyiltirilgan ma'dan kislotalar ta'sirida al'degid va ketonlarni hosil qiladi. Bu jarayonda atse-nitro birikma hosil bo'lishi bilanoq gidrolizlanadi;[7,8] 
131	**Anri**	Birlamchi va ikkilamchi nitroalkanlar kuchsiz ishqoriy muhitda al'degid va ketonlar bilan reaksiyaga kirishib nitrospirtlarni hosil qiladi;

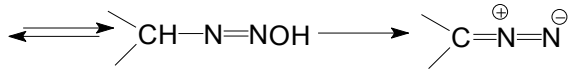
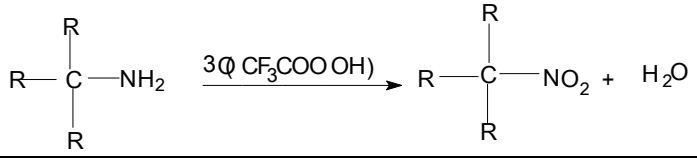
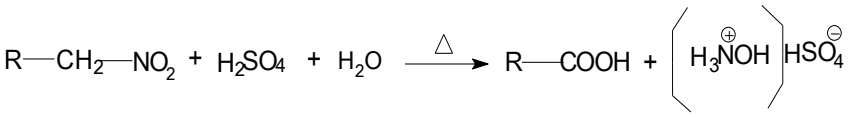
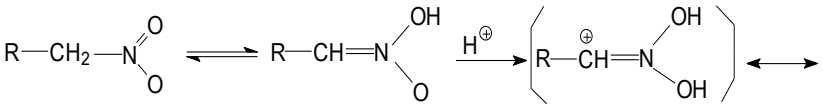
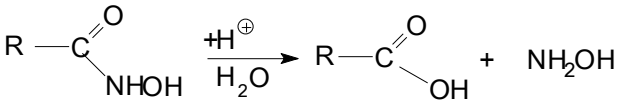
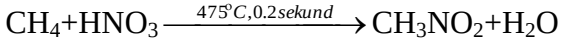
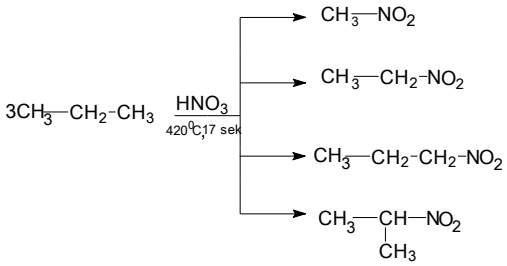
		
132	**Shiff**	Al’degidlarni birlamchi aminlar bilan ishqor ishtirokida iminlash; 
133	**Shtaudinger**	Karbonil birikmalarni iminotrifenilfosforanlar bilan iminlash;  Ph-fenil
134	**Byuxner-Kursius-Shlotterbek**	Al’degidlarni diazometan bilan metilenlanganda uglerod-uglerod,uglerod-vodorod va karbonil guruhga birikish mahsulotlari hosil bo’ladi;[6,7] 
135	**Ganch , 1888 yil**	Tiazol va uning gomolaglarini sintez qilish uchun xlorketon yoki α -xloral’degidlarga tioamidlar ta’sir ettiriladi; 
136	**Stork**	Karbonil birikmalarni α -alkillash uchun ularni dastlab enaminlarga aylantiriladi.So’ngra enaminlar alkilgalogenidlar bilan alkillanadi; 
137	**Meyer**	β -Dikarbonil birikmalar eritmalarida enol shakllar miqdorini aniqlash uchun C=C boqqa bromni birikishidan foydalaniladi; 
138	**Xunsdikker-**	Karbon kislotalar kumushli tuzlarining brom yoki xlor

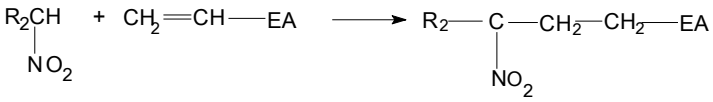
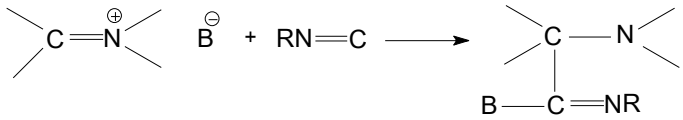
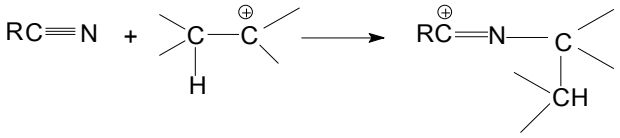
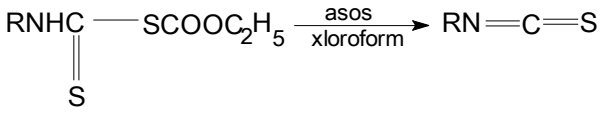
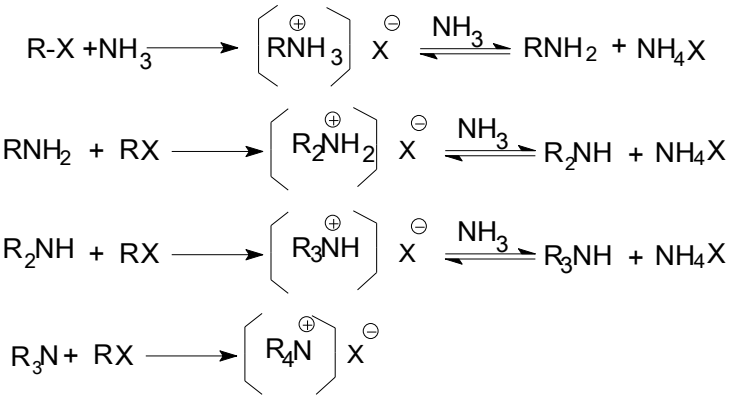
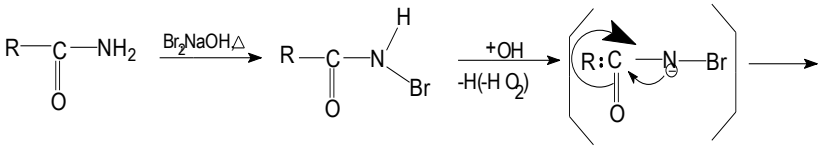
	Barodin	ishtirokida dekarboksillanishidan alkilgalogenidlar hosil bo'ladi;   
139	**Meerveyn-Pondorf -Verley, 1925-1926 yillar**	Aldegid va ketonlarni izopropanol eritmasida alyuminiy izopropilat bilan qizdirilganda ular tegishli ravishda birlamchi va ikkilamchi spirtlargacha qaytariladi; 
140	**Rozenmund 1918 yil**	Karbon kislotalarni aldegidlargacha to'g'ridan-to'g'ri qaytarish qiyin . Shuning uchun ham ularning xlorangidridlarini palladiy ishtirokida qaytarib al'degidlar olinadi; 
141	**Stefen ,1925 yil**	Nitrillarni xlorid kislota $SnCl_2$ bilan qaytarib al'degidlar olinadi; 
142	**Paal-Knorr, 1885 yil**	1,4 –dikaronil birikmalarni ammiak yoki amin bilan qizdirib, almashingan pirollar olinadi;  2,5-dimetilpirrol 2,5-dimetilfuran 2,5-dimetiltiofen
143	**Knorr 1884 yil**	α -aminokarbonil birikmalarni β -ketoefir bilan kondensatsiyaga kiritilganda almashingan pirollar hosil bo'ladi; 
144	**Anri**	Al'degidlar va nitroparafinlardan nitrospirtlar olish; 
145	**Gel-Fol'gard-**	Oz miqdordagi fosfor ishtirokida karbon kislotalar brom va xlor

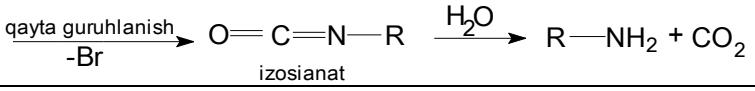
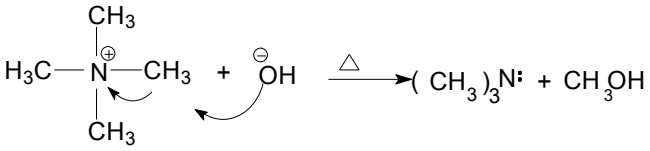
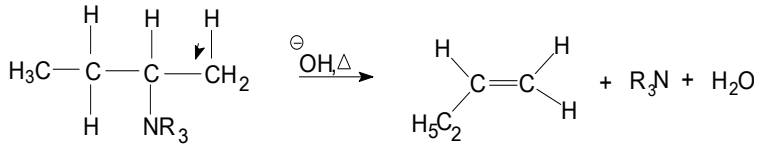
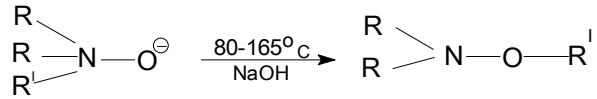
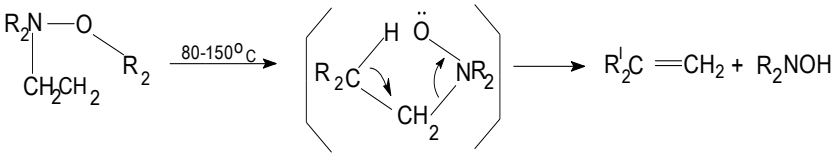
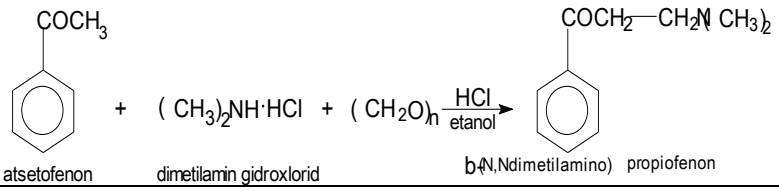
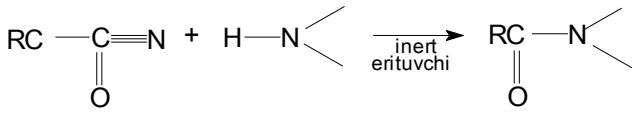
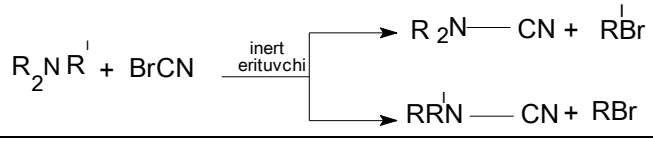
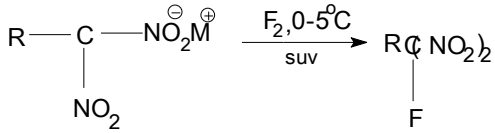
	Zelinskiy	bilan reaksiyaga oson kirishib, α -galogenkarbon kislotalarni hosil qiladi;  Bu reaksiya fosfor ishtirok etmaganda sekin boradi. Fosfor brom bilan reaksiyaga kirishib PBr_3 ni hosil qiladi PBr_3 karbon kislotani uning angidridiga aylantiradi. Bromangidriddagi α -vodorodlar esa bromga oson almashinadi ;   Ajralib chiqqan CH_3CH_2COBr jarayonni davom ettirib, brom mo'l olinsa α,α -dibrompropion kislota hosil bo'ladi; Xlorlash ham bromlashdek boradi lekin elektrofil xlorlash bilan bir vaqtda radikal xlorlash ham borishi mumkun. 
146	**Braun- Uoker**	Dikarbon kislotalar monoefirlari ishqoriy tuzlarining anodli avtokondensatsiyasi;[7-8] 
147	**Dikman, 1901 yil**	Besh,olti va etti a'zoli halqali ketonlar tegishli dikarbon kislotalar murakkab efirlarining alkogolyatlar ta'sirida boradigan kondensatsiya natijasida hosil bo'ladi; 
148	**L.Klayzen**	Etilsirka efirni natriy, natriy etilat yoki natriy amidi ishtirokida qizdirib, atsetosirka efir olish;

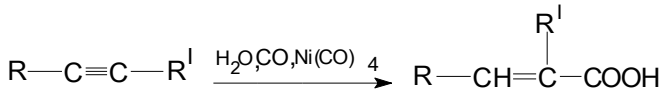
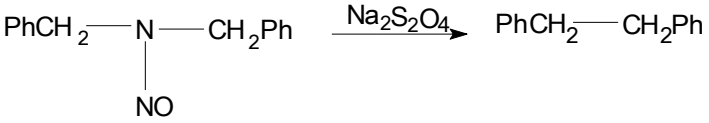
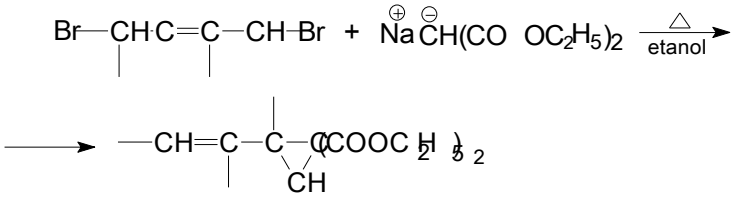
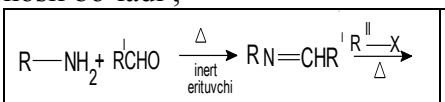
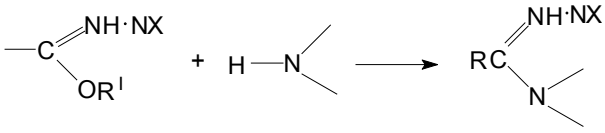
		
149	**Xensli-Prelog-Shtoll**	Dikarbon kislotalar efirlarining natriy ta'sirida siklokondensatsiyasi (sikloketonlanish) natijasida makrosiklik atsiloinlar hosil bo'ladi; 
150	**Buvo-Blan, 1903 yil**	Karbon kislotalar murakkab efirlarini natriy metalini etanolda eritganda hosil bo'ladigan vodorod bilan qaytarganda spirtlar aralashmasi hosil bo'ladi; 
151	**Krum-Braun va Uoker, 1891-1893 yillar**	Dikartbon kislotalar monoefirlari(nordon efirlar) kaliyli tuzlarini elektroliz qilib, dikarbon kislotalar olish; 
152	**Sherbul's, 1946 yil**	Karbon kislotalarni mochevina bilan qizdirilganda yuqori unum bilan amidlar hosil bo'ladi; 
153	**Gofman, 1881 yil**	Azot atomodagi vodorodlari almashinmagan amidlar natriy gipobromod (yoki o'yuvchi natriy eritmasidagi brom) bilan reaksiyaga kirishib bir atom kam tutgan aminlarga qayta guruhlanadi; 
154	**Rayt, 1968 yil**	Gofman reaksiyasining quyidagi mexanizmini Rayt aniqladi; 
155	**Mixael**	Malon efiri asosli katalizatorlar ishtirokida α ,β-to'yinmagan

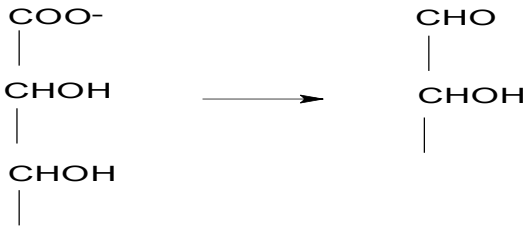
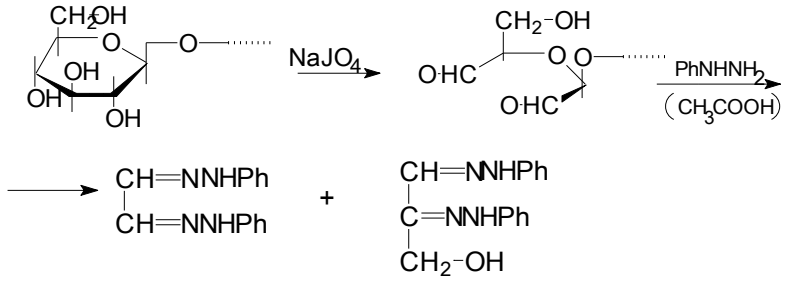
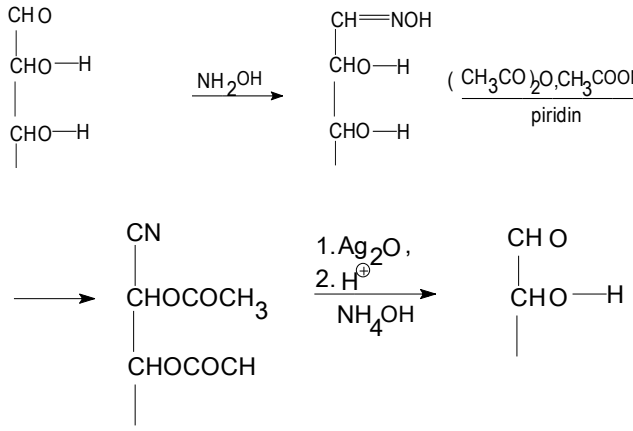
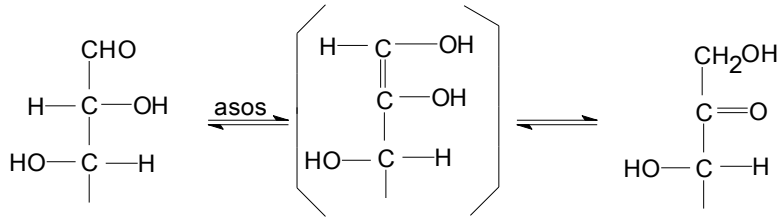
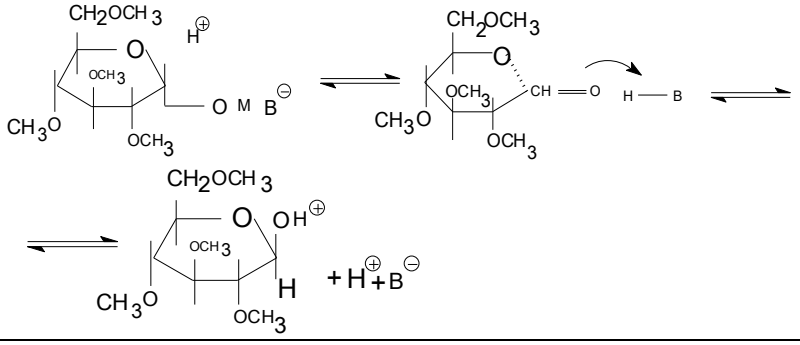
		kislotalarni hosilalarining qo'shbog'iga yoki -CN,NO_2 singsri elektronoakseptor orinbosarlar bilan faollashtirilgan qo'shboqqa nukleofil birikadi; 
156	**Lossen ,1875 yil**	Gidrooksam kislotalat $SOCl_2$, P_2O_5 yoki sirka angidrid ishtirokida birlamchi aminlarga qayta guruhlanadi; 
157	**Buvo-Lokken**	α -izonitroizoefirlardan nitrozil ta'sirida sul'fat kislota α -ketoefirlar oilsh; 
158	**Arntd-Eystert, 1927 yil**	Diazometan karbon kislotalarning xlorangidridlari bilan reaksiyaga oson kirishib α -diazoketonlarni hosil qiladi;  Qaynash harorati yuqori bo'lgan erituvchilar (benzil spirt,2-oktanol)da α -diazoketon qayta guruhlanadi.  160-180^oC haroratda kumush tuzlari ishtirokida alkilketonlar va azot hosil bo'ladi.  Alkilketon girolizidan karbon kislota hosil bo'ladi.  Reaksiya Vol'f qayta guruhlanish asosida boradi (1912yil).
159	**Shotten-Bauman,**	Ishqorning suvdagi eritmasida aminlar va spirtlarni atsilxloridlar ta'sirida atsillash (N va O atsillash). 
160	**Pexman**	Nitrozoaminlarning ishqoriy muhitda gidrolizi natijasida diazoalkenlar hosil bo;ladi; 

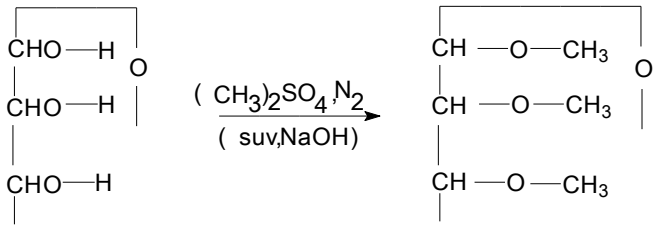
		 R=-COOC$_2$H$_5$,-CONH$_2$
161	**Bamberger**	Uchlamch alkilaminlarni oksidlash orqali nitroalkanlar olish; 
162	**V.Meyer** **1873 yil**	Birlamchi nitroalkanlar yuqori haroratda ma'dan kislotalarning konsentrlangan eritmalari (masalan 85%H_2SO_4 yoki konsentrlangan HCl)ta'sirida gidrolizlanib karbon kislota va gidroksilaminning tuzini hosil qiladi;  Bu reaksiyada atsi-nitrobirikma gidroksam kislotaga qayta guruhlanadi ,so'ngra gidroksam kislota karbon kislota va gidroksilaminga gidrolizlanadi.   Bu reaksiya bilan sanoatda gidroksilamin va ba'zi karbon kislotalar olinadi.
163	**X.Gess, 1930 yil**	Sanoatda alkanlarni konsentrlangan nitrat kislota bilan gaz fazada nitrolab nitroalkanlar olinadi, alkan va nitrat kislotaning bug'i maxsus reaktorda 420-480^{o}C haroratgacha juda qisqa vaqt(0.2-2 sekund)qizdiriladi va tez sovutiladi. Metan qiyin nitrolanadi.  Etan , propan, butan va pentanni nitrolaganda C-C bog'i uzulib mononitroalkanlar hosil bo'ladi;  Reaksion aralashmadan mononitroalkanlar haydash yo'li bilan ajratiladi;
164	**Mixael**	Birlamchi va ikkilamchi nitoalkanlar faol qo'shbog'i bor birikmalar bilan birikish reaksiyalariga kirishadi;

		 EA-elektronoakseptor guruh. EA=-COOCH $_3$,-COCH $_3$,-CHO , -CN , -NO$_2$
165	**Uchi**	Imoniy tuzlari izonitrillar bilan reaksiyaga kirishganda uglerod-azot qo'shbog'i uziladi yangi birikish maxsuloti hosil bo'ladi; 
166	**Ritter**	Nitrillar alkenlardan konsentrlangan sulfat kislota ta'sirida hosil bo'ladigan karbonat ionlar bilan reaksiyaga kirishganda uglerod-azot uchbog'iga birikish boradi.Reaksiya mahsuloti gidroliz qilinganda N-almashingan amidlar hosil bo'ladi;[4,7,9] 
167	**Kaluza**	Asoslar ta'sirida N-almashingan karboetoksiditiokarbomatlarni izotio –sianatlarga aylanishi; 
168	**A.Gofman , 1849 yil**	Galogenalkanlarni spirtli eritmasi ammiak bilan bosim ostida qizdirilganda aminlar aralashmasi hosil bo'ladi. Reaksiyaning birinchi bosqichida alkil guruhining ammiak azotiga birikishidan alkilammoniy tuzi hosil bo'ladi.Bu tuz ortiqcha ammiak ta'sirida alkilamin va ammoniygalogenidga parchalanadi.Alkilamin galogenalkan bilan reaksiyaga kirishib dialkilammoniy, trialkilammoniy va tetraalkilammoniy tuzlarini hosil qiladi. Ammiak mo'l miqdor olinganda asosan birlamchi amin hasil bo'ladi; 
169	**A.Gofman, 1881yil**	Birlamchi aminlar karbon kislotalarni ishqoriy muhitda brom bilan parchalab olinadi; 

		
170	**A.Gofman, 1881yil**	Tetrametilammoniy gidroksidi qizdirilganda trimetilamin va metanolga parchalanadi;  Uglerod radikallari murakkabroq tuzulgan to'rtlamchi ammoniy asoslarining Gofman bo'yicha parchalanishidan uchlamch amin ,alken va suv hosil bo'ladi.  Bu reaksiya E_N2 mexanizm bo'yicha regeoselektiv boradi.
171	**Meyzenxaymer-Kaup**	Aminlarning N-oksidlarini qizdirilganda almashingan gidroksilaminlar (Meyzenxaymer qayta guruhlanishi) yoki alkenlar (Kaup qayta guruhlanishi) hosil bo'ladi; [8-10]  
172	**Mannix , 1912 yil**	Karbonil guruhi saqlagan aromatik birikmalarni kislotali muhitda aminometillash;  atsetofenon dimetilamin gidroxlorid b-(N,Ndimetilamino) propiofenon
173	**Darnov-Taydel**	Ketonitrillardagi uglerod-uglerod bog'ini aminlar bilan parchalaganda karbon kislotalarning amidlari hosil bo'ladi; 
174	**Braun**	Uchlamchi aminlarni sianbromid ta'sirida parchalash; 
175	**Granauskas**	Polinitroalkanlarning tuzlarini ftorlash jarayoni 0-5^{o}C haroratda suvli eritmada olib boriladi ; 
176	**V.Reppe**	Metallarnung karbonillari katalizatorligida alkinlar CO va H_2O

		bilan reaksiyaga kirishib α , β-to'yinmagan monokarbon kislotalarni hosil qiladi; 
177	**Overberger-Lombardin**	1,2-difeniletan quyidagicha olinadi. 
178	**Ipat'ev**	1,4-Dibromalkenlarning natriymalon efiri bilan siklokondensatsiyasi natijasida almashingan siklopropanlar hosil bo'ladi;[7-10] 
179	**Dekker-Forster**	Birlamchi aminlar al'degidlar bilan inert erituvchida qizdiriladi.So'ngra bu mahsulot galogenalkanlar bilan reaksiyaga kiritiladi . Oxirgi mahsulotning gidrolizidan ikkilamchi aninlar hosil bo'ladi ; 
180	**Pinner**	Iminoefirlar gidrogalogenidlarini alkogolizi natijasida ortoefirlar hosil bo'ladi; 
181	**Pinner**	Imino efirlar tuzlarining aminolizi natijasida amidinlar hosil bo'ladi; 
182	**Veerman**	Aminoqandlar uglerod zanjirini oksidlab parchalash reaksiyasi orqali qisqartirish ; 
183	**Ruff-Fenton**	Vodorod peroksid va temir (III) tuzlari ta'sirida uglerod zanjiri bir atomga kamayadi.

		
185	**Berri**	Oligo yoki polisaxaridlardagi gliko guruhlarini periodat bilan va atsetal guruhini fenilgidrazin bilan parchalash; 
186	**Val**	Aldozalar uglerod zanjirini qisqartirish oksimlar va nitrillar hosil bo'lsh bosqichi orqali amalga oshadi; 
187	**Lobri-De Bryuin-Eknshtayn**	Aldozalar ishqoriy muhitda enol hosil bo'lish bosqichi bilan ketozalarga izomerlanadi; 
188	**Louri**	Uglevodlarni bir vaqtning o'zida kislota-asos katalizi natijasida mutaratatsiyasi (eritmada birikmaning optik burilishini doimiy qiymatigacha o'zgarishi).[10] 

189	**Xeyuort**	Monosaxaridlarni dimetilsil'fat bilan ishqorning suvdagi eritmasida metillash; 
190	**Purdi-Irvin**	To'liq metillangan monosaxaridlarni olish uchun qisman metillangan monosaxaridlarga kumush oksidi ta'sirida metil iodid ta'sir ettiriladi;[7-10]

Xulosa

Kurs ish o'zbek va rus tillarida nashr qilingan darslik, o'quv qo'llanma va monografiyalardan hamda internet ma'lumotlaridan foydalanib, ochiq zanjirli organik birikmalar qatoridagi 190 ta olimlar nomi bilan yuritiladigan (nomdor) reaksiyalar umumlashtirildi. Bu nomdor reaksiyalarning kechish sharoiti, sxemalari yoki tenglamalarikeltirildi, muhim nomdor reaksiyalarning mexanizmlari bayon qilindi.

Foydalanilgan adabiyotlar

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