

Samarqand davlat universitetning Kattaqo‘rg‘on filiali Aniq va tabiiy fanlar fakulteti bahorgi semestr Kimyo ta’lim yo’nalishi: 2-kurs talabalariga «Organik reaksiya mexanizmlari» fanidan yakuniy nazorat savollari

Imtihon shakli: yozma

	Mavzu	1-QISM “OSON SAVOLLA R”	2-QISM “ODDIY SAVOLL AR”	3-QISM “MURAK KAB SAVOLL AR”	4-QISM “MURAKKAB SAVOLLAR 2	5-qism “QIYIN SAVOLLAR”
1	Organik reaksiya lar va mexaniz mlar.	Organik reaksiyalar deb nimaga aytiladi	Kondensatsiya reaksiyalari va unga misollar keltiring	Reaksiyalarning molikulyarligi nima. Misollar keltiring	Organik reaksiya mexanizmi nima, unga misollar keltiring.	Quyidagi sxemalarda nomalum moddalarni toping va nomlang? a) $2C_7H_{15}Cl \xrightarrow{2Na} A \xrightarrow{SO_2 + Cl_2, h\nu} B \xrightarrow{2NaOH} C$
2		Organik reaksiya turlari	Birikish va ajralish reaksiyalari nima va unga misollar keltiring	Reaksiya tartibi nima, misollar keltiring.	Organik moddalarda sodir bo'ladigan oksidlanish qaytarilish reaksiyalariga misollar keltiring.	Quyidagi sxemalarda nomalum moddalarni toping va nomlang? b) $CH_3-\underset{\substack{ \\ CH_3}}{CH}-COONa + H_2O \xrightarrow{\text{elektroliz}} A \xrightarrow[110-140^\circ C]{HNO_3 (10 - 12\%)} B$
3	Struktura va oraliqlarning reaksiyon	Organik reaksiyalarda qatnashadigan	Organik moddalarda fazoviy tasirni	Galogenalkanlarda reaksiyon qobiliyat qanday o'zgaradi	Luyis kislotalari bilan boradigan reaksiyalarda qanday oraliq mahsulotlar hosil	Quyidagi sxemalarda nomalum moddalarni toping va nomlang? c) $CH_3CH_2CH_2CH_3 \xrightarrow{h\nu} A \xrightarrow{O_2, kat} B \xrightarrow{CH_3CH_2CH_2CH_3} C \longrightarrow D+E \xrightarrow{[O]} T$

	qobiliyaga ta'siri	zarrachalarga qanday zarrachalar kiradi.	tushuntirish.	va nima uchun.	bo'ladi, misollar bilan tushuntiring.	
4		Organik reaksiyalarda oraliq maxsulotlarning hosil bo'lishi va bu moddalarning mahsulot tarkibiga ta'siri.	Karbon va karbon anionlarning hosil bo'lishini tushuntirish.	Strukturani reaksiya qobiliyatiga ta'siri qanday ekanligini izohlang va misollar keltiring.	Ionli reaksiyalarda mahsulotning umumiy qanday omillarga bog'liq.	Quyidagi sxemalarda nomalumni toping va nomlang? m) $\text{CO}_2 + 4\text{H}_2 \xrightarrow[\text{Ni}]{400^\circ\text{C}} \text{A} \xrightarrow[\text{h}\nu]{\text{Cl}_2} \text{B} \xrightarrow[2\text{Na}]{\text{CH}_3\text{Cl}} \text{C} \xrightarrow{\text{SO}_2 + \text{Cl}_2} \text{D}$
5	Alifatik almashinish: Nukleofil va organometal	Alifatik almashinish reaksiyalariga misollar keltiring	$\text{S}_{\text{N}}2$ reaksiya mexanizmi	Neytral substrat bilan neytral nukleofilning ta'sirlashuvi	Kation substrat bilan neytral nukleofilning ta'sirlashuvi	Quyidagi sxemalarni tushlang va nomalumni aniqlang? a) $\text{C}_2\text{H}_6 \xrightarrow{\text{O}_3} \text{A} \xrightarrow{\text{HBr}} \text{B} \xrightarrow{\text{KOH}} \text{C} \xrightarrow{\text{O}_3} \text{D}$
6		Nukleofil zarrachalar qanday zarrachalar va ular qanday hosil bo'ladi.	$\text{S}_{\text{N}}1$ reaksiya mexanizmi	Neytral substrat bilan anion nukleofilning ta'sirlashuvi	Kation substrat bilan anion nukleofilning ta'sirlashuvi	Quyidagi sxemalarni tushlang va nomalumni aniqlang? b) $\text{CH}_3\text{CHClCH}_2\text{Cl} \xrightarrow{\text{Zn}} \text{A} \xrightarrow{\text{H}_2\text{SO}_4} \text{B} \xrightarrow[\text{t}^0]{\text{H}_2\text{O}} \text{C} \xrightarrow[\text{t}^0]{\text{H}_2\text{SO}_4} \text{D} \xrightarrow{\text{HCl}} \text{E}$
7	Aromatik almashinish:	Aromatik almashinish reaksiyalariga	Yo'naltirish va reaksiya qobiliyat	Nukleofil ta'sirida benzol halqasidagi elektron	$\text{S}_{\text{E}}1$ reaksiya mexanizmi	Quyidagi sxemalarni tushlang va nomalumni aniqlang?

	Elektrofil	a misollar keltiring		zichlikning qayta taqsimlanishi		$\text{c) } \text{CH}_3-\overset{\text{CH}_3}{\underset{\text{OH}}{\text{C}}}-\text{CH}_2-\text{CH}_3 \xrightarrow[t^0]{\text{H}_2\text{SO}_4} \text{A} \xrightarrow[\text{kat}]{\text{H}_2} \text{B} \xrightarrow[\text{h}\nu]{\text{Cl}_2} \text{C} \xrightarrow[2\text{Na}]{\text{CH}_3\text{Cl}} \text{D} \xrightarrow{\text{HNO}_3} \text{E}$
8		Benzoin ionining tuzilishi va hosil bo'lishi.	Areniy ioni ishtirokidagi mexanizm	Elektron donor o'rinbosarlarda benzol halqasidagi elektron zichlikning qayta taqsimlanishi	<i>Ipso</i> -hujum	Quyidagi sxemalarni tushlang va nomalumdoddalarni aniqlang? $\text{f) } \text{CH}_2=\text{CH}-\text{CH}_3 \xrightarrow[\text{kat}]{\text{H}_2} \text{A} \xrightarrow[\text{h}\nu]{\text{Cl}_2} \text{B} \xrightarrow[\text{spirt}]{\text{Zn}} \text{C} \xrightarrow[\text{H}_2\text{O}]{\text{KMnO}_4} \text{D}$
9	Alifatik, alkenyl va alkinil almashinish:	Elektrofil almashinish reaksiyalarining turlari	Elektrofil zarrachalar va ularning reaksiy qobiliyatiga tasiri.	Bimolekulyar mexanizmlar. S _E 2;	Bimolekulyar mexanizmlar. S _E 2	Quyidagi jarayonlarni amalga oshiradigan reaksiyalarni yozing nomalumdoddalarni toping? $\text{d) } \text{CH}_2=\underset{\text{Br}}{\text{C}}-\text{CH}_2\text{Br} \xrightarrow{\text{Zn}} \text{A} \xrightarrow[\text{Pt}]{2\text{H}_2} \text{B} \xrightarrow[\text{h}\nu]{\text{Cl}_2} \text{C}$
10	Elektrofil va organometal	Alifatik elektrofil almashinish reaksiyalariga misollar keltiring	Frontal va orqadan hujum reaksiya mexanizmlarini tushuntirib	<i>Trans</i> -effekt	Qo'sh bog'ning siljishi bilan boradigan elektrofil almashinish;	Quyidagi jarayonlarni amalga oshiradigan reaksiyalarni yozing nomalumdoddalarni toping? $\text{a) } \text{CH}_2=\text{CH}-\text{CH}=\text{CH}_2 \xrightarrow[\text{spirt}]{\text{HBr}} \text{A} \xrightarrow[\text{spirt}]{\text{KOH}} \text{B} \xrightarrow{\text{Br}_2} \text{C} \xrightarrow[\text{spirt}]{\text{KOH}} \text{D}$
11	Aromatik almashinish: Nukleofil va organometal	Aromatik substrat ishtirokidagi almashinish reaksiyalarining turlari	Areniy mexanizm	S _N 1 reaksiyalarida oraliq mahsulot - aril kationi hosil bo'lishini isbotlaydigan omillar	S _N Ar mexanizm	Quyidagi jarayonlarni amalga oshiradigan reaksiyalarni yozing nomalumdoddalarni toping? $\text{b) } \text{CH}_2=\underset{\text{CH}_3}{\text{C}}-\overset{\text{CH}_3}{\text{C}}=\text{CH}_2 \xrightarrow[\text{H}_2\text{O}]{\text{H}_2} \text{A} \xrightarrow[\text{H}_2\text{O}]{\text{Zn}} \text{B} \xrightarrow[\text{H}_2\text{O}]{\text{H}_2} \text{C}$

1 2		Aromatik uglevodorodlarda Dils-Alder reaksiyasi	J.Roberts degidrobe nzol hosil bo'lishini qanday isbotladi	Aromatik uglevodorodlarda S _N 1 mexanizm	Aminlar ishtirokidagi S _N Ar reaksiyalari	Quyidagi jarayonlarni amalga oshiradigan reaksiyalarni yozing nomalum moddalarni toping? c) $C_2H_5OH \xrightarrow[400^0C]{ZnO, MgO} A \xrightarrow{C_2H_4} B \xrightarrow{Br_2} C$
1 3	Almashinish reaksiyalari: Radikal	Almashinish reaksiyalari nima va unga misollar keltiring	Metanni xlorlash reaksiya mexanizmini tushuntirish	Alkanlarni sulfoxlorlash reaksiya mexanizmini yozing	Birlamchi, ikkilamchi va uchlamchi uglerodlarni sulfooksidlash reaksiyasini yozing va maxsulotlarni solishtiring	Quyidagi jarayonlarni amalga oshiradigan reaksiyalarni yozing nomalum moddalarni toping? $CH_3OH \xrightarrow{H_2SO_4} A \xrightarrow{KMnO_4} B \xrightarrow{HBr} C$
1 4		Radikal almashinish reaksiyalari nima va unga misollar keltiring	Birlamchi, ikkilamchi va uchlamchi uglerodlardagi vodorodning xlorga almashinish tezligini solishtiring	Alkanlarni sulfooksidlash reaksiya mexanizmini yozing	To'yinmagan uglevodorodlarda radikal almashinish reaksiya mexanizmi va reaksiya sharoitlarini yozing	Quyidagi jarayonlarni amalga oshiradigan reaksiyalarni yozing nomalum moddalarni toping? f) $CH_2=CH_2 \xrightarrow{Cr_2O_3} A \xrightarrow{H_2O} B \xrightarrow[400^0C]{ZnO, MgO} C \xrightarrow{HCl} D$
1 5	Birikish reaksiyalari: Uglerod-uglerod qo'sh bog'i va uch bog'lari ga	Elektrofil birikish reaksiyalariga misollar ketiring	Ad _E 2 – Elektrofil birikish. Galogenni ng birikishi	Ad _R mexanizmi	Ad _E mexanizmi	Quyidagi sxemalardagi nomalum moddalarni toping va nomlang, reaksiyalarni yozing. $CH_3CH_2CH_2CH_2CH_3 \xrightarrow{NaNH_2} A \xrightarrow{(CH_3)_2SO_4} B \xrightarrow[Limard katalizatori]{H_2} D$
1 6		Uchbog'larga elektrofil birikish	Elektrofil birikish. Sin va Anti birikish	Ad _E 3 mexanizm	Ad _N mexanizmi	Quyidagi sxemalardagi nomalum moddalarni toping va nomlang, reaksiyalarni yozing. b) $CH \equiv CH \xrightarrow{CH_3MgI} A \xrightarrow{CH_3CH_2I} B \xrightarrow{CH_3MgI} C \xrightarrow{CH_3CH_2I} D$

			reaksiyalari			
17	Birikish reaksiyalari: Uglerod-geteroatom multiplet bog'lari	Birikish reaksiyasi qanday ta'riflanadi va uning asosiy turlari qanday?	Geteroatom nima va organik birikmalar da qaysi elementlar geteroatom sifatida ishtirok etadi?	Karbonil birikmalar ga birikish reaksiyalari qanday kechadi?	Uglerod-azot (C=N) bog'iga qanday reagentlar birikishi mumkin?	Quyidagi sxemalardagi nomalum moddalarti toping va nomlang, reaksiyalarni yozing. $a) CH_3-C \equiv CH \xrightarrow[CCl_4]{Br_2} A \xrightarrow[spirt]{KOH} B \xrightarrow[suyuq NH_3]{Na} C \xrightarrow{C_2H_5Br} D$
18		Birikish reaksiyalari qanday omillar ta'sirida tezlashadi yoki sekinlashadi?	Uglerod-oksigen (C=O) bog'iga qanday birikish reaksiyalari xos?	Aldegid va ketonlarga vodorod sianid (HCN) birikish reaksiyasi ning mexanizmini tushuntirng.	Uglerod-galogenga (C-X) bog'ining barqarorligi va uning reaksiyon qobiliyati qanday?	Quyidagi sxemalardagi nomalum moddalarti toping va nomlang, reaksiyalarni yozing. $b) CH_3-CH_2-CH=CH_2 \xrightarrow{Br_2} A \xrightarrow[spirt]{KOH} B \xrightarrow{NaNH_2} C \xrightarrow{i-C_4H_{10}} D$
19	Elimirlanish	Eliminirlanish reaksiyalari	β -eliminirlanish	E1cB mexanizmi	E2 mexanizmi	Quyidagi sxemalardagi nomalum moddalarti toping va nomlang, reaksiyalarni yozing. $c) CH_3CH_2CHBrCH_3 \xrightarrow{A} B \xrightarrow{C} C_4H_8Br_2 \xrightarrow{D} C_4H_6 \xrightarrow{C_4H_{10}}$
20		Anti-eliminirlanish.	Sin-eliminirlanish	E2C mexanizm	E1 mexanizmi	Quyidagi sxemalardagi nomalum moddalarti toping va nomlang, reaksiyalarni yozing. $f) CH_3CH_2CH_2Br \xrightarrow[spirt]{KOH} A \xrightarrow{Br_2} B \xrightarrow[spirt]{KOH} C \xrightarrow{Ag(NH_3)_3OH} D$
21	Qayta guruhlanish	Qayta guruhlanish reaksiyalari tasnifi	Nukleofil qayta guruhlanish	Shmidt qayta guruhlanishi	Karbenlar qayta guruhlanishi	Quyida keltirilgan sxemalarti tugallang, nomalum moddalarni toping va nomlang. $b) CH_3CHCH_3 \xrightarrow{Br_2} B \xrightarrow{KOH} C \xrightarrow{HBr} D \xrightarrow{2Na} E \xrightarrow{CH_3} F \xrightarrow{NaOH} I$

2 2		Molekulalar aro qayta guruhlanish	Erkin radikalli qayta guruhlanish	Bekman qayta guruhlanishi	Elektrofil qayta guruhlanish	Quyida keltirilgan sxemalarti tugallang, nomalum moddalarni toping va nomlang. $\text{e) } \text{CH}_3\text{CHCH}_3 \xrightarrow{2\text{Na}} \text{B} \xrightarrow{\text{Cl}_2} \text{C} \xrightarrow{\text{KOH}} \text{D} \xrightarrow{\text{O}_3} \text{E} \xrightarrow{\text{H}_2\text{O}} \text{F}$
2 3	Oksidlanish va qaytarilish.	Oksidlanish-qaytarilish reaksiyalari tasnifi	Spirtlarning oksidlanishi	Alkanlarning oksidlanishi	Kannissiaro reaksiyasi	Quyida keltirilgan sxemalarti tugallang, nomalum moddalarni toping va nomlang. $\text{d) } \text{CH}_2=\text{CH}_2 \xrightarrow{\text{H}_2\text{O}} \text{A} \xrightarrow{\text{PCl}_5} \text{B} \xrightarrow{\text{CH}_3\text{Cl}} \text{C}$
2 4		Oksidlanish-qaytarilish. Elektronning bevosita ko'chishi	Oppenauer bo'yicha oksidlanish	Karbonil birikmalarining qaytarilish reaksiyalari	Elektronning bevosita ko'chishi. Kolbe reaksiyasi	Quyida keltirilgan sxemalarti tugallang, nomalum moddalarni toping va nomlang. $\text{f) } \text{CH}_2=\text{CH}-\text{CH}_3 \xrightarrow{\text{HBr}} \text{A} \xrightarrow{\text{H}_2\text{O}} \text{B} \xrightarrow{\text{SOCl}_2} \text{C}$
2 5	Alifatik almashtirish : Nukleofil	Pentakordinatali uglerod atomining hosil bo'lishini tushuntir. Misollar bilan	Alifatik almashinish reaksiyasini Gofman reaksiyalari bilan tushuntir	S _N 1 Reaksiyasining energetik diagrammasi	S _N i mexanizm	Quyida keltirilgan sxemalarti tugallang, nomalum moddalarni toping va nomlang. $\text{n) } \text{CaC}_2 \xrightarrow{\text{H}_2\text{O}} \text{A} \xrightarrow{\text{HCl}} \text{B} \xrightarrow{\text{HCl}} \text{C}$
2 6	va organometal	S _N 2 reaksiya mexanizmini tezlik konstantasini keltirib chiqaring.	Noan'ana viy karbokati onlarga misollar keltiring	S _N 2 Reaksiyasining energetik diagrammasi	Kornblyum qoidasini tushuntiring	Quyida keltirilgan sxemadagi nomalum moddalarni toping, va nomlang. Reaksiya tenglamalarini yozing $\text{a) } \text{C}_2\text{H}_6 \xrightarrow{\text{A}} \text{C}_2\text{H}_5\text{Cl} \xrightarrow{\text{B}} \text{C}_2\text{H}_5 \xrightarrow{\text{C}} \text{C}_2\text{H}_5\text{OH} \xrightarrow{\text{D}} \text{C}_2\text{H}_4$
2 7	Aromatik almashinish: Nukleofil	Aromatik almashinish reaksiyalariga misollar ketiring.	Diazoniyl tuzlari bilan bog'liq reaksiyalarga misollar keltiring	Degidrobenezolning hosil bo'lishi va u bilan bog'liq reaksiyalar	Kine-almashinish	Quyida keltirilgan sxemadagi nomalum moddalarni toping, va nomlang. Reaksiya tenglamalarini yozing $\text{b) } \text{Al}_2\text{C}_3 \xrightarrow{\text{A}} \text{CH}_4 \xrightarrow{\text{B}} \text{CH}_3\text{Cl} \xrightarrow{\text{C}} \text{C}_2\text{H}_6 \xrightarrow{\text{D}} \text{C}_2\text{H}_4 \xrightarrow{\text{E}} \text{C}_2\text{H}_5\text{OH}$

28	va organometal	Aromatik birikmalarning reaksiyalar qobiliyatiga turli omillarning tasiri	Nukleofil zarrachalar ning aromatik halqaga tasir mehanizmini tushuntirish	S _N Ar mehanizmda galogenli hosilalarning reaksiyalar tezligi qanday misollar bilan tushuntirish.	S _{RN} 1 mehanizm	Quyida keltirilgan sxemadagi nomalarni toping, va nomlang. Reaksiya tenglamalarini yozing $\text{e) } \text{C}_2\text{H}_2 \xrightarrow{\text{A}} \text{C}_2\text{H}_3\text{Cl} \xrightarrow{\text{B}} \text{C}_2\text{H}_3\text{Cl} \xrightarrow{\text{C}} \text{C}_2\text{H}_5\text{OH}$
29	Birikish reaksiyalari: Uglerod-uglerod qo'sh bog'i va	Atsetilen qatori uglevodorodlariga elektrofil birikish	Nukleofil birikish reaksiyalari	Stereoselektiv birikish	Ad _E 2 – Elektrofil birikish reaksiyalarda enantiomerlarning hosil bo'lishi	Quyida keltirilgan sxemadagi nomalarni toping, va nomlang. Reaksiya tenglamalarini yozing $\text{e) } \text{C}_2\text{H}_6 \xrightarrow[\text{hv}]{\text{Cl}_2} \text{A} \xrightarrow[\text{spirt}]{\text{KOH}} \text{B} \xrightarrow{\text{H}_2\text{O}} \text{C} \begin{cases} \xrightarrow{[\text{O}]} \text{D} \\ \xrightarrow{\text{kat. CO}} \text{E} \\ \xrightarrow{\text{HCl}} \text{F} \end{cases}$
30	uch bog'lari	Etelen qatori uglevodorodlariga elektrofil birikish	1,5 yoki 1,6-dienlarga Ad _R mehanizm	Mixael bo'yicha birikish reaksiyasi	enantiomerlarning eritro va reo shakillarini yozing.	Quyida keltirilgan sxemadagi nomalarni toping, va nomlang. Reaksiya tenglamalarini yozing $\text{f) } \text{CH}_4 \xrightarrow{1200^\circ\text{C}} \text{A} \xrightarrow{\text{HCl}} \text{B} \xrightarrow{\text{Mg}} \text{C} \xrightarrow{\text{H}_2\text{O}} \text{D}$