



eYy[kkac [kGkMP; k , dkxrk o l ello; ; k ?kVdkøj ; kfxd i fØ; kapk i fj .kke vH; kl .ks

i k- fni d l kshxj

*l pkyd] 'kkjhfd f'k{k.k o ØhMk] dyk] foKku o okf.kT; egkfo|ky; ] vks>j fex] ukf'kd-*

**Abstract**

*eYy[kkac gk , d Lo; a m k] Lora= 0; k; ke i d k] Eg. ku i ptyr vks; eYy[kkac [kGkMuk vki ys dks kY; s l knj djrkau mRre i d k] ph , dkxrk o l ello; ; k ?kVdkøh vko'; drk vl rs gh xjt ; kfxd fØ; s>jks i m k] dsh tkon 'kdrs dk\ gs rkl .; kl k Bh eYy[kkac [kGkMP; k , dkxrk o l ello; ; k घटकांवर यौगिक प्रक्रियेचा काय परिणाम होतो हे पाहण्यासाठी १२-१४ वयोगटातील २५ खेळाडूंची निवड l gnd i/nrhus dj. ; kr vkyh gkrh- l nj l d kskukl k Bh i k; kfxd i/nr okij. ; kr vkyh- th-l h-vk; - dl ksh % , dkxrk] g m k] v m dl ksh % l ello; % gh ekfgrh l dyukph l k/kus okij. ; kr vkyh vl u l kf[; dh; fo'ys'k. kl k Bh e/; ekuy] i ek. kfopyu] e/; ekurthy Qjd] , Q em; s ; kapk okij dj. ; kr vkyk- ; kfxd i fØ; kaeGs eYy[kkac [kGkMP; k , dkxrk o l ello; ; k ?kVdkøj ; kfxd i fØ; kapk l kfkd i fj .kke gkrks gs Li "V >kys*

*egRRokP; k l k% eYy[kkac [kGkM] , dkxrk] l ello; ] ; kfxd i fØ; k-*



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i Lrkouk%

Hkkj rkp; k oshko' kkyh l k d d frd okj l k Eg. kts eYy[kkac] fofo/k i d k] P; k Li /kkæ/; s [kGkæ/; s eukph , dkxrk o l ello; gs ?kVd egRRokps vl rkr- R; kpi æk. ks eYy[kkac [kGkr l wnk vk<; k] eM; k] vkl us b- dks kY; djrkau , dkxrk o l ello; vko'; d vl rs eYy[kkac [kGkl k Bh ; kxkpk fdri r mi; kx gkboz ; kph ekfgrh ul Y; kus l d ksk/kdkus ; kxk o eYy[kkac [kG ; kaph l kxM ?kky. ; kl k Bh gk fo" k; gkrh ?kryk vks

eYy[kkac [kGke/; s osxoxGh vkl us dj. ; kl k Bh 'kj hj kph , dkxrk o l ello; egRRokpk vl rks ; kfxd i fØ; s>jks eYy[kkac [kGkMP; k , dkxrk o l ello; ?kVdkøj i Hkro feGou dk; ækukr ok< gkrks dk\ gs vH; kl .; kl k Bh l d ksk/kdkus gk fo" k; fuoMyk vks

l æf/kr l kfgR; kpk vk<kok%

१. dksV+ ] v- o 'kek] fu- १२०१२½ ; kauh ; kx ekb; gypk , dkxrk vkf. k Lej .kkoj gks kjk i fj .kke vH; kl yk ; ke/; s ८०० fo| kF; kph fuoM dsh- dl ksh}okjs vkyS; k i kl rkd kpk fopkj d: u १९९ mPp r. kko o १४२ deh r. kko vl yS; k fo| kF; kph fuoM dsh-

i k; kfxd o fu; f=r xVkp h i o l p k p . k h ? k s ; k r v k y h - i k ; k f x d x V k o j v k l u ] i k . k k ; k e ]  
l k / k u k g s ; k f x d d k ; Ø e j k c f o . ; k r v k y s R ; k u a r j m R r j p k p . k h ? k s ; k r v k y h - R ; k e / k u  
v l s f u " d " k l v k < G u v k y s d h ] ; k f x d d k ; Ø e i u k l d s y s ; k f o | k F ; k P ; k , d k x r r v k f . k  
y ? k p d k y h u L e j . k k r y { k . k h ; o k < v k < G u v k y h -

2. j k e p n u ] 1/2 0 0 s ) ; k a h v e f j d r १ ९ n s २ २ o ; k s V k r h y e Y y [ k k a c [ k G k M P ; k  
d k ; k u k o j i h k k o i k M . k k l ; k ? k V d k p s f o ' y s ' k . k d s y s ; k e / ; s R ; k a h r k d n h p k n e n k j i . k k ]  
y o f p d r k ] o x ] [ k k a ] k p h r k d n ; k ? k V d k a e G s e Y y [ k k a c d k ; k e u o k < r s g s f l / n d s y s  
l d k s / k u k p h m f l " V ; %

1. e Y y [ k k a c [ k G k M a p h , d k x r k o l e l l o ; e Y y [ k k a c [ k G k M a p s d k s k Y ; d k ; k e u ; k  
? k V d k P ; k l | f l F k r h p s p k p . k h } k j s f u j h { k . k d j . k s

2. ; k f x d f Ø ; k P ; k e k / ; e k n u [ k G k M a p h , d k x r k ] e k l o ; o e Y y [ k k a c [ k G k M a p s  
d k s k Y ; d k ; k e u ; k ? k V d k a p s d k ; k e u o k < f o . ; k l k B h d k ; Ø e r ; k j d j . k s

3. ; k f x d f Ø ; k P ; k e k / ; e k n u [ k G k M a p h , d k x æ k ] l e l l o ; o e Y y [ k k a c [ k G k M a p s  
d k s k Y ; d k ; k e u ; k ? k V d k a p s d k ; k e u o k < f o . ; k l k B h d k ; Ø e j k c f o . k s

4. e Y y [ k k a c [ k G k M a p h , d k x r k ] l e l l o ; o e Y y [ k k a c [ k G k M a p s d k s k Y ; d k ; k e u ; k  
? k V d k a p s e k s t e k i r h u e f g l u ; k P ; k i f ' k { k . k k u a r j d j . k s

x f g r d %

1. e Y y [ k k a c [ k G k M i i o l ] e / ; o m R r j p k p . k h n s r k a u k r l p i f ' k { k . k k r l g h k k x h  
g k r k a u k l d k j k R e d i f r l k n n s r h y -

2. l n j l d k s / k u v H ; k l k r h y l o l l k / k u s g h i æ k f . k r v l r h y -

3. l n j l d k s / k u k r v k J ; h p y k o j g k s k k j k i f j . k k e g k L o k J ; h p k y p v l s y -

i f j d Y i u k %

1. H 1 ; k f x d i f Ø ; k a e G s e Y y [ k k a c [ k G k M P ; k , d k x r o j l k F k l d i f j . k k e g k b l y -

2. H 0 1 ; k f x d i f Ø ; k a e G s e Y y [ k k a c [ k G k M P ; k , d k x r o j l k F k l d i f j . k k e g k s k k j  
u k g h -

3. H 2 ; k f x d i f Ø ; k a e G s e Y y [ k k a c [ k G k M P ; k l e l l o ; ; k ? k V d k o j l k F k l d i f j . k k e  
g k b l y -

4. H 0 2 ; k f x d i f Ø ; k a e G s e Y y [ k k a c [ k G k M P ; k l e l l o ; ; k ? k V d k o j l k F k l d i f j . k k e  
g k s k k j u k g h -

5. H 3 ; k f x d i f Ø ; k a e G s e Y y [ k k a c [ k G k M P ; k d k s k Y ; d k ; k e u ; k ? k V d k o j l k F k l d  
i f j . k k e g k b l y -

ε. H03 ; kfxd i fØ; kærGs eYy [kkac [kGkMMP; k dks KY; dk; æku ; k ?kVdloj I kFkd  
i fj. kke gks kkj ukgh-

i fj I hek%

१. i Lnr I d kks/ku gs eYy [kkac [kGkM gh j rp e; kfnr vkgs

२. i Lnr I d kks/kukr १२ rs १४ o; ksVkrthy eYy [kkac [kGkMpkp I ekos'k dj.; kr  
vkyk vkgs

३. i Lnr I d kks/ku ukf'kd 'kgjkrthy eYy [kkac [kGkM gh j rp e; kfnr vkgs

४. i Lnr I d kks/kukr , dkxark o I ello; ; k ?kVdloj fopkj dj.; kr vkyk vkgs

I d kks/ku i /nrh%

i Lnr I d kks/kukl kBh ik; kfxd i /nrhph fuoM dsyh vkgs ik; kfxd vfhkdYi **Time  
Series Design.**

i nØ pkp. kh & ½ eksdGk oG½ & e/; pkp. kh & ik; kfxd i /nr & mRrj pkp. kh-

o१ ..... o२ ..... X ..... o३

U; kn' kL%

tul a[; k% i Lnr I d kks/kukl kBh ukf'kd 'kgjkrthy १२ rs १४ ; k o; ksVkrthy eYy [kkac  
[kGkM gh tul a[; k gks -

U; kn' kL% i Lnr I d kks/kukr ¼n¾ ¼r¾ ukf'kd eYy [kkac Dyc] ukf'kd o ukf'kd o  
i fj I jkrthy [kGkMph I gnd uepk fuoM i /nrhus fuoM dsyh vkgs

ekfgrh I dyukph I k/kus % , dkxark & cj k th-l h-vk; - dl ksh] I ello; & gMckly Vkl ]  
eYy [kkac dks KY; dk; æku-

I a[; k' kL=h; I k/ku% e/; eku] i æk. kfopyu] e/; ekukrthy Qjd] i æk. k=Qh e/; ekukrthy  
Qjd vkf. k , Q&i fj f{kdk b-

ekfgrhps I dyu o fo' ys'k. k% i Lnr I d kks/kuke/; s I d kks/kdkus dl ksv; kP; k vkys'; k  
i klrdkP; k I kf[; dh; fo' ys'k. kkl kBh **SPSS** I kM Vosj ph enr ?kou e/; eku]

i æk. kfopyu] e/; ekukrthy Qjd] i æk. k=Qh Qjd] Lo/khurk ek=k vkf. k , Q eM; s ; kpk  
oki j dsysy vkgs

dk's'Vd Ø- १ cjk th-l h-vk; o gMckly VKll dl kshp; k rhu pkp.; kps e/; eku] iæk.kfopyu o iæk.k =q/h e/; ekukps o. kükRed l kf[; dh

dl kV; k		fo   kf; kph l a[; k	e/; eku	iæk.k fopyu	iæk.k =q/h
cjk	pkp. kh Ø- १	२५	७३.८८	५.०६	१.०१
th-l h-vk; -	pkp. kh Ø- २	२५	७८.७६	४.८३	०.९६
¼, dkxark½	pkp. kh Ø- ३	२५	९८.३६	४.३९	०.८७
gMckly VKll	pkp. kh Ø- १	२५	१९.८०	६.५३	१.३०
¼l ello; ½	pkp. kh Ø- 2	25	21-52	5-77	1-15
	pkp. kh Ø- 3	25	28-28	5-81	1-16

dk's'Vd Ø- १ e/; s th-l h-vk; - o gMckly VKll ; k dl kV; kps e/; eku] iæk.kfopyu] iæk.k=q/h] e/; ekukps l kf[; dh fo'ysk.k n'kföys vkg; T; ke/; s th-l h-vk; - dl kshps e/; eku ७३.८८ iæk.kfopyu ५.०६ rj iæk.k =q/h e/; eku १.०१ brds vkg; rj gMckly VKll dl kshps e/; eku iæk.k] iæk.k fopyu] iæk.k=q/h] e/; eku vuØes १९.८०, ६.५३, १.३० brds vkg;

pkp. kh Ø- २ ud kj th-l h-vk; - dl kshps e/; eku] iæk.k fopyu] iæk.k=q/h] e/; eku vuØes ७८.७६, ४.८३ a ०.९६ brds vkg; rj gMckly VKll ] dl kshps e/; eku २१.५२] iæk.k fopyu ५.७७ o iæk.k=q/h e/; eku १.१५ brds vkg;

pkp. kh Ø- ३ ud kj th-l h-vk; - dl kshps e/; eku ९८.३६] iæk.k fopyu ४.३९] iæk.k=q/h e/; eku 0-87 brds vkg; rj gMckly VKll ] dl kshps e/; eku २८.२८] iæk.k fopyu ५.८१ o iæk.k=q/h e/; eku १.१६ brds vkg;

dk's'Vd Ø- २ xVkrhy rnyuk% th-l h-vk; - o gMckly VKll dl ksh

dl kV; k		oxkph cjh t	Lok/khurk ek=k	oxkps e/; eku	, Q eW;
cjk	xVkrhy	८३९७.७०	२	४१९६.८५	
th-l h-vk; -	xVkrxlr	१६४०.९६	७२	२२.७९	१८४.१४
¼, dkxark½					
gMckly	xVkrhy	१००४.७२०	२	१५०२.३६	
VKll	xVkrxlr	२६३५.२८०	७२	३६.६०	१३.७२
¼l ello; ½					

dk's'Vd Ø- २ ud kj xVkrhy o xVkrxlr th-l h-vk; - o gMckly VKll dl kshph rnyuk dsh vl rk , Q ps eW; vuØes १८४-१४ o १३.७२ brds vkg; gs nklgh eW; s ०.०५ ; k l kFkdrk Lrjkoj l kFkd vkg; R; ko: u vl k fu"d"kl djrk ; bly th-l h-vk; - o gMckly VKll dl kshp; k rhu gh pkp.; kph l jkl jh dk; æukr l a[; k'kkL=h; n"V; k l kFkd Qjd vkg;

dk's'Vd Ø- 3 pkp.; kph cgfo/k rnyuk% th-l h-vk; - o gMckly Vkl dl ksh

dl ksh; k		e/; ekukrhy i æk. k =h/h		
		Qjd		
csj k th-l h- vk; -	pkp. kh Ø- 1	pkp. kh Ø- 2	8.88	1.39
		pkp. kh Ø- 3	28.88	1.39
	pkp. kh Ø- 2	pkp. kh Ø- 1	8.88	1.39
		pkp. kh Ø- 3	19.80	1.39
	pkp. kh Ø- 3	pkp. kh Ø- 1	28.88	1.39
		pkp. kh Ø- 2	19.80	1.39
gMckly Vkl	pkp. kh Ø- 1	pkp. kh Ø- 2	1.92	1.92
		pkp. kh Ø- 3	2.88	1.92
	pkp. kh Ø- 2	pkp. kh Ø- 1	1.92	1.92
		pkp. kh Ø- 3	1.92	1.92
	pkp. kh Ø- 3	pkp. kh Ø- 1	2.88	1.92
		pkp. kh Ø- 2	1.92	1.92

dk's'Vd Ø- 3 ud kj th-l h-vk; - o gMckly Vkl dl ksh; kph cgfo/k rnyuk dsh vl rk th-l h-vk; - dl ksh/e/; s pkp. kh Ø- 1 o 2 e/khy e/; ekukrhy Qjd 8.88 vl u l a[; k' kL=h; n"V; k rks l kfkld ukgh- 10.09/2 rj pkp. kh Ø\ 1 o 3 e/khy e/; ekukrhy Qjd 28.88 , o<k vgs gk Qjd 0.09 ; k l kfkldrk Lrjkoj l kfkld vgs rj pkp. kh Ø 2 o 3 e/khy e/; ekukrhy Qjd 19.80 brdk vgs dh tks 0.09 ; k Lrjkoj l kfkld vgs gMckly Vkl dl ksh/pk fopkj dsh vl rk pkp. kh Ø- 1 o 2 e/khy e/; ekukrhy Qjd 1.92 vgs gk Qjd 0.09 ; k Lrjkoj l kfkld ukgh- pkp. kh Ø- 1 o 3 e/khy e/; ekukrhy Qjd 2.88 brdk vl u l a[; k' kL=h; n"V; k rks 0.09 ; k Lrjkoj l kfkld vgs pkp. kh Ø- 2 o 3 e/khy e/; ekukrhy Qjd 1.92 brdk vgs gk Qjd l qnk 0.09 Lrjoj l kfkld vgs

ojhy nklgh pkp. khph cgfo/k rnyuk dsh; koj vl s y{kk; srs dh] fofo/k ; kfxd i fØ; kægS th=l h=vk; - dl ksh/p; k dk; ækukr rhu efgl; kP; k dkyko/kuarj l a[; k' kL=h; n"Vhdksukru l kfkld v' kh ok< >kyh vgs

rl p rhu efgl; kP; k ; kfxd i fØ; kægS [kGkMP; k gMckly Vkl dl ksh/p; k dk; ækukr rhu efgl; kuarj l a[; k' kL=h; n"Vhdksukru y{k. kh; ok< >kyh vgs vl s fun' kLkl vkys

fu"d"kl

1. ; kfxd i fØ; kægS eYy [kkc [kGkMP; k , dkxrk ; k ?kVdkoj l kfkld i fj. kke gkrks o ; k ?kVdkr ok< gkrS

2. ; kfxd i fØ; kæGs eYy [kkæ [kGkMIP; k l ello; ; k ?kVdkoj l kFkzd i fj. kke gkrks o ; k ?kVdkr ok< gkrks

3. ; kfxd i fØ; kæGs eYy [kkæ [kGkMIP; k dks kY; dk; ækukoj ; k ?kVdkoj l kFkzd i fj. kke gkrks o ; k ?kVdkr ok< gkrks

ppk%

ojhy l a[; k' kkl=h; fo'ys'k.kko: u vl s vk<Gu vkys dh] th-l h-vk; - ; k pkp.khP; k ekxdG; k osGh ¼pkp.kh Ø- 2 o 2 njE; ku½ P; k i klrkædkr l kFkzd Qjd vk<Gr ukgh- iz; kxkoGh ¼pkp.kh Ø- 2 o 3 njE; ku½P; k dk; ækukP; k i klrkædkr l kFkzd Qjd vk<Grks ; k fBdk.kh l d kks/kdkus l d kks'ku i fj dYi uk Ø- 2 pk Lohdkj dsyk vkgs Eg.kt p ; kfxd i fØ; kP; k dk; ØekeGs eYy [kkæ [kGkMIP; k , dkxærk ?kVdkr ok< gkrks gs fl /n >kys

l ello; ; k ?kVdkpk fopkj dsyk vl rk vl s fl /n >kys dh] gMckly VKll dl kvhP; k ekxdG; kosGh ¼pkp.kh Ø- 2 o 2 njE; ku½ P; k i klrkædkr l kFkzd Qjd vk<Gr ukgh o iz; kxkoGh ¼pkp.kh Ø- 3 o 8 njE; ku½ P; k dk; ækukP; k i klrkædkr l kFkzd Qjd vk<Grks ; k fBdk.kh l d kks/kdkus i fj dYi uk Ø- 3 H2 pk Lohdkj dsysyk vkgs Eg.kt p ; kfxd i fØ; kP; k dk; ØekeGs eYy [kkæ [kGkMIP; k l ello; ; k ?kVdkr ok< gkrks vl s fl /n >kys

l nHk] iph

?kj kVj , e-, y- ¼2008½ ; kfxd i fØ; kps ekx'ih'ku- yks kkoGk% yks kkoGk ; kx bfULVV; W- cll h] fc-i- ¼2008½ f'k{k.kkrhy l d kks'ku vfhkdYi - i q k% ugru i xdk'ku- fHk-kMj fo-jk- ¼2009½- 'k{kf.kd l d kks'ku i/nrh- i q k% fuR; ugru i xdk'ku- ns'keq[k] v- ¼2008½ 'kkjhfd o ekuf l d LokLF; kph xq fdYyh ; kxkl u- i pekoRrh] eukj ek i xdk'ku-

t kll u] ch-, y-] usYl u] tsds ¼2009½ 'kkjhfd f'k{k.kkrhy eW; eki ukl kBh i kR; f{k d eki u] 8 Fkh vkoRrh] ckt -

osy] ds, Q- o fMyu] bZds ¼2009½ i kB o i k; kP; k yophdrph dl kvh] fj l pl DokVyh] 23- i ku 229&222.

egj l qjk- ¼2008½ fo | kF; kP; k , dkxærh i k. kk; ekpk gks kjk i fj. kke- i q ks fo | ki hB% f'k{k.k' kkl= foHkx-

jkepinu] ¼2008½ eYy [kkæ [kGkMIP; k dk; ækukoj gks kkl; k i nDy{kh ?kVdkps fo'ys'k. k-