F B G B K L ? J K L < H G : M D B B < U K R ? = H H ; J : A H < : G B Y J H K K B
N ? > ? J : P B B
n _ ^ _ j Z e v g h _] h k m ^ Z j k l \ _ g g h _ Z \ l h g h f g h _ h [j Z a h \ Z l _ e v g h _
h [j Z a h \ Z g b y
K : G D L ? L ? J ; M J = K D B C = H K M > : J K L < ? G G U C M G B < ? J K B L
: W J H D H K F B Q ? K D H = H I J B ; H J H K L J H ? G B Y

D Z n _ ^ j Z ‹

M L < ? J @ > : X
J m d h \ h ^ b l _ e v g Z i j Z \ e _ g b y

^ h p d l g ^ h p

^ h e ` g h k l v m q k l _ i _ g v a \ Z g b _

< D I h g h f Z j _ \

b g b p b Z e u n Z f b e b y

i h ^ i b k v

23 ª b x g 2022]

J : ; H Q : Y I J H = J : F F : > B K P B I E B G U

O b f b ª y

G Z f _ g h \ Z g b k p b i e b g u

D h ^ g Z i j Z \ e _ g b y] h l h \ d k i _ p b Z e v g h k l b	24.05.06
G Z b f _ g h \ Z g b _ g Z i j ih ^] h l h \ d b k i _ p b Z	K b k l _ f u m i j Z \ e _ g b y e _ l Z l _ e v g u f b
G Z b f _ g h \ Z g b _ g Z i j Z \ e _ g g h k l b	I j b [h j u k b k l _ f m i j Z \ e _ g b y e _ l Z l _ e v
N h j f Z h [m q _ g b y	h q g Z y

K Z g - d l l _ j [m q] 2022

Лист согласования рабочей программы дисциплины

l j h] j Z f f m k h k l Z \ b e Z

> h p _ g l d o g ^ h p _ g l	23.06.2022	? : D j b \ q m g
^ h e ` g h k l v m q k l _ i _ g v a \ Z g b _ i h ^ i b k v ^ Z l Z		b g b p b Z e u n Z f b e b y

Программа одобрена на заседании кафедры № 5

«23» июня 2022 г, протокол № 01-06/2022

A Z \ _ ^ m x s b c d Z n 5 _ ^ j h c ‹

^ l g ^ h p	23.06.2022	? : N j h e h \ Z
m q k l _ i _ g v a \ Z g b _	i h ^ i b k v ^ Z l Z	b g b p b Z e u n Z f b e b y

H l \ _ l k l \ _ g g u c ‹ a H Z 24.05.06(04)

^ h p d l g ^ h p	23.06.2022	< D l h g h f Z j _ \
^ h e ` g h k l v m q k l _ i _ g v a \ Z g b _ i h ^ i b k v ^ Z l Z		b g b p b Z e u n Z f b e b y

A Z f _ k l b l ^ _ b e j v d l h j Z b g k l b i m l f Z _ l ‹ h ^ b q _ k d h c j Z [h l _

K l Z j r b c i j _ i h ^ Z \ Z l _ e v	23.06.2022	< ? L Z j Z l m g
^ h e ` g h k l v m q k l _ i _ g v a \ Z g b _ i h ^ i b k v ^ Z l Z		b g b p b Z e u n Z f b e b y

:gghlZpby

>bkpbiebgu ho\Zlu\Z_l ke_^mxsb_ mq_[gh]h ijhe_dkbZb eZ[hjZlhjguZhjZlhyllu_evkgZlyZjZ[mqZxs_]hk dhgkmev.lZpbb

Ijh]jZffhc ^bkpbiebgu ij_^mkfhlj_gub^ue_d^mxsbey l_dm dhgljhev mki_\Z_fhklb ijhf_`mlyhqmZhyfZhln_kjlZgpbbjh\Zggh]h aZ

H[sZy ljm^h_fdhklv hk\h_gby ^bkpbiebgu_lgbklZ_\^bg_bpu qZkh\

Yaud h[mq_gby ih ^gbkkbkdbcg_

1. l_j_q_gv ieZgbjm_fuZ\ h\ ahhmq_gby ih ^bkpbiebg_

1.1. P_eb ij_ih^Z\Zgby ^bkpkbihebgbu_ klm^_glZfb l_hj_lbq_ h[s_c obfbb obfbb \Z`g_crbo we_f_glh\ b bo kh_^bg_gbc n fure_gby m klm^_glh\ jZa\blb_ gZ\udh\ bkihevadhZ\ g_bkydb\o_^ k\hckl\Zo jZaebqguo kbkl_f ^ey kbgl_aZ khhl_lkl\mxsbo l_jfh^bgZfbq_kdbo b dbg_lbq_kdbo jZkq_lh\ ljbh[j_l_gb wdki_jbf_glZevguo bkke_^h\Zgbc ^ey jZajZ[hldb gh\uo f_lh fZl_jbZeZf aZ^Zbjmhdlmju b dhfie_dkZ k\hckl\ lj_^klZ\e_g klm^_glZf jZa\blv b ijh^_fhgkljbjh\Zlv gZ\udb \ h[eZklb bggh

1.2. >bkpbiebgbZ^bl \ khklZ\ h[yaZl_h[yZahc\ZlZ_kbjmhZffu \ukr_]h h[jZah\Zgby HI ^ZHe__

1.3. l_j_ggv ieZgbjm_fuo j_amevlZlh\ h[mq_gby ih ^bkpbi ieZgbjm_fufb j_amevlZlZfb<hk\h_gby HI

< j_amevlZl_ bamq_gby ^bkpbiebgu h[mqZxsbcky ^he`_ dhfi_l_gpbyfb beb bdhfi_l_gpbb ^bdZlhjm^hklb`_gby ijhn_ lZ[ebp_

LZ[ebp_ Zl_j_q_gv dhfi_l_gpbb ^bdZlhjm^hklb`_gby

DZl_]hjby]jm dhfi_l_gpbb	Dh^ b gZbf_g dhfi_l_gpb	Dh^ b gZbf_gh\Zgb_ bg ^hklb`_gby dhfi_l_gp
H[s_ijhn_kkbhg dhfi_l_gpbb	HID- Kihkh[_ ijbf_gylv _klkl_gghgZ b h[s_bg`_g_ agZgby f_lh fZl_fZlbq_kdl ZgZebaZ b fh^_ebjh\Zgb l_hj_lbq_kdh wdki_jbf_glZ bkke_^h\Zgby j_r_gby bg`_g_jguo a ijhn_kkbhgZe ^_yl_evghklb	HID- A agZlv jZa^_eu fZl_fZlbq_kdbo b _kl_kl_ lhf qbke_ h[s_bg`_g_jgh]h g_h[oh^bfu_ ^ey hk\h_gby ijhn_kkbhgZevguo ^bkpbie j_r_gby bg`_g_jguo aZ^Zq ijhn_kkbhgZevghc ^_yl_ev f_lh^u fZl_fZlbq_kdh]h Zg fh^_ebjh\Zgby l_hj_lbq_k wdki_jbf_glZevgh]h bkke_ HID- M mf_lv ijbf_gylv a h[eZklb fZl_fZlbq_kdbo b gZmd \ lhf qbke_ h[s_bg` [ehdZ ^ey j_r_gby ijZdlb \ ijhn_kkbhgZevghc ^_yl_ HID- < bf_lv gZ\udb l_hj b wdki_jbf_glZevgh]h bkk ijhn_kkbhgZevghc ^_yl_evgh
Ijhn_kkbhgZevg dhfi_l_gpbb	ID- Kihkh[_g ij_^klZ\eylv j_amevlZlu bkke_^h\Zgbc nhjf_ hlq_lh\ j_n_jZlh\ h[a im[ebdZpbc ^hdeZ^h\ b a gZ bah[j_l_gl	ID- A agZlv]hkm^Zjkl_ klZg^Zjlu b ijZ\beZ hnhjfe l_dklhZmqguo im[ebdZpbc l_ogbq_kdhc ^hdmf_glZpb ID- < \eZ^_lv gZ\udZfb nhjfmebjh\Zgby b baeh`_g j_amevlZlh\-bgZkmq_gh\Zl_e hiulgdhgkljmdlhjkdbo jZ[h

2. F_klh ^bkpbiebgu \ kljmdlmj_ HI

>bkpbiebgbZ_l[Zabj\Zlvgy agZogbjZg__ ijbh[j_l_mqgZxsbfbky ijb bamq_gbb ke_^mxsbo ^bkpbiebg

– ©FZl_fZlbq_kdbc ZgZeba
– ©Nbabdz

AgZgby ihemq_ggu_ ijb bamq_gbb fZl_jbZeZ ^Zgghc kZfhklhyl_evgh_ agZq_gb_ lZd b fh]ml bki^ijemvJab\Zbvkpybiebgb

– ©FZl_jbZeh_a^_gb_
– ©Wdheh]by

3. H[t_fb ljm^h_fdhklvbiebgu

>Zggu_ h[h[s_f h[t_f_ ^bkpbiebgu ljm^h_fdhklb hl^_e jZ[hlu ih ^bkpbiebg_ b jZkij_^_e_gb_ wlhklj_m^hj_fdhklZlbe_ibgu lZ[ebp_

LZ[ebpZ±H[t_f b ljm^h_fdhklv ^bkpbiebgu

<b^ mq_[ghc jZ[hlu	<k_]h	Ljm^h_fdhkl k_f_kljZf
		<
1	2	3
Общая трудоемкость дисциплины, A? qZk	3/ 108	3/ 108
Из них часов практической подготовки	8	8
Аудиторные занятия \k_]h qZk	51	51
\lhf qbke_		
e_dpbb E qZk	34	34
ijZdlbq_kdb_ k_fbgZjkdb_ qZk		
eZ[hjZlhjgu_ jZ[hlu EJ	17	17
dmjkh\hc ijh_dl jZ[hlZ D		
wdaZf_g qZk		
Самостоятельная работа \k_]h qZk	57	57
***Вид промежуточной аттестации*:** aZq_ ^bnn aZq_l wdaZf_g AZ Wda	>bnn AZq	>bnn AZq

ljbf_qZg*bdZg^b^Zlkdbc wdaZf_g

4. Kh^_j`Zgb_ ^bkpbiebgu

4.1. JZkij_^_e_gb_ ljm^h_fdhklb ^bkpbiebgu ih jZa^_eZf JZa^_eu l_fu ^bkpbiebgu ih ljm^h_fdhklv^_gu \blpZ[e

LZ[ebp±ZJZa^_eu l_fu ^bkpbiebgu bo ljm^h_fdhklv

JZa^_eu l_fu ^bkpb	E_dpbb qZk	lA K qZk	EJ qZk	DI qZk	KJK qZk
K_f_kljl					
JZa^_e_^_gb_ \obfbx	**1**		**5**		**4**
L_fZ1.1. lhgylb_ _s_kl obfbq_kdhc j_Zdpbb hij_^_gby	1		1		1
L_fZ1.2. Kl_obhf_ljbq_kdb_ Nmg^Zf_glZevgu_ ihgyl obfbb			2		1
L_fZ1.3. Kihkh[u hij_by dhebq_kl\Z _s_kl\Z wd\b\Zgeh\			2		2

JZa^_e Kljh_gb_ _s_kl\Z	**10**		**-**		**11**
L_fZ 2 Hkgh\gu_ k_ kljh_gbZ blhfh\ d\Zglh\u_	2				1
L_fZ I_jbh^bq_kdbc a F_g^_e__\Z	2				2
L_fZ 2.3 Obfbq_kdZy k\y obfbq_kdhc k\yab	1				3
L_fZ 2.4 F_lh^ \Ze_glgu dh\Ze_glgZy k\yav	2				2
L_fZ 2.5 F_lh^ fhe_dm hj[blZe_c	2				1
L_fZ 2.6 G_\Ze_glgu_ lbi bhggZy k\yav f_lZeeb \h^hjh^gZy k\yav -k^b-je <ZZevkZ	2				2
JZa^_e Obfbq_kdb_ .l H[sb_ aZdhghf_jghklb ijhp_kkh\	**15**		**4**		**12**
L_fZ Wg_j]_lbdZ ob ijhp_kkh\ \gmlj_ggyj wglZeviby wgljhiby	2		4		2
L_fZ gW_j]by =b gZij\Ze_gghklv obfb ijhp_kkh\ bfbqp_kdh_ b r jZ\gh_kb_	2				1
L_fZ 3.3 Kdhjhklv obfl j_Zpbb b f_lh^umebjjh\]Z aZdhg ^_ckl\by fZkk	2				2
L_fZ 3.4 Wg_j]bZydlb\Zp mj\Zg_gb_ :jj_gbjZkZeh < =hnnZ dZlZebaZlh dZlZeb_kbdp_ kbkl_fu	2				1
L_fZ 3.5. JZkl\hju ^bki kbkl_fu kihukhu[jZ`_gby k jZkl\hjh\	2				2
L_fZ 3.6 We_dljhebll ^bkkpbZpby\h^gu_ jZkl we_dljhe \h^hjh^g ihdZaZl_ev j_Zdpbb]b^jhebaa khe_c	2				2

L_fZ 3.7. K\hckl\Z jZa[Z\ jZkl\hjh\ g_we_dljhe^glu jZkl\hju we_dljheblh\ jZa[Z\e_gby Hkl\Zev^Z JZmey	2				2
JZa^_e Hkgh\u we_dljhob ijhp_kkh\	**4**		**8**		**16**
L_fZ Hebk_e-v \hkklZgh\bl_evgu._ j_Zd	1				4
L_fZ bCfbq_kdb_ bkl we_dljbq_kdh]h lhdZ = we_f_glu	1		4		4
L_fZ 4.3. We_dljheba NZZ^_y	1				4
L_fZ 4.4. Dhjjhaby b [hjv[Z	1		4		4
JZa^_e K\hckl\Z fure_g-g \Z`guo we_f_glh\ b bo kh_	**4**				**14**
L_fZ .1. DeZkku obfb kh_b g_gbc k\hckl\Z ijh \Z`guo we_f_glh\ b bo k	2				7
L_fZ Obfbq_ b^_glbnbdZpby obfbq_kdh]h hbZkke y^b Zg _s_kl\ b b\oZis gbc	2				7
Blh]h \ k_f_klj_	34		17		57
Blh]h	**34**	**0**	**17**	**0**	**57**

ljZdlbq_kdZy ih^]hlh\dZ aZdexqZ_lky \ g_ihkj_^kl\ h[mqZxsbfbky hij_^_e_gguo ljm^h\uo nmgdpbc k\yaZ ijhn_kkbhgZevghc ^_yl_evghklvx

4.2. Kh^_j`Zgb_ jZa^_eh\ b u_aZegylbc Kh^_j`Zgb_ jZa^_eh\ b u_aZegylbc g_gfue aZgylbc g_gh \ lZ4.[ebp_

LZ[ebp±Z4.1 Kh^_j`Zgb_ jZa^_eh\ b l_f e_dpbhgh]h pbdeZ

Ghf_j jZa^_	GZa\Zgb_ b kh^_j`Zgb_ jZa^_eh\ b l_f e_dp
JZa^_e	<_^_gb_ \.obfbx
L_fZ 4.1.	Ihgyb_ _s_kl\Z b obfbq_kdhc j_Zdpbb hkgh
L_fZ 4.2.	Kl_obhf_ljbq_kdb_ aZdhgu Nmg^Zf_glZev obfbb
L_fZ 4.3.	Kihkh[u hij_b y_ed_hgebq_kl\Z _s_kl\Z aZdhg\
JZa^_e	Kljh_gb_ _s_kl\Z
L_fZ 4.1.	Hkghu g_k_^_gby h kljh_gbb Zlhfh\ d\Zglh\u
L_fZ .	I_jbh^bq_kdbc aZdFhg^≥eB_kZyav I K kh k ZlhfZ

Ghf_j jZa^_	GZa\Zgb_ b kh^_j`Zgb_ jZa^_eh\ b l_f e_dp
L_fZ3.	Obfbq_kdZy k\yav \b^u obfbq_kdhc k\yab
L_fZ4.	F_lh^ \Ze_glguo k\ya_c dh\Ze_glgZy k\yav
L_fZ .	F_lh^ fhdm_eyjghujbblZe_c
L_fZ.6	G_\Ze_glgu_ lbiu k\ya_c bhggZy k\yav \h^jh^gZy k\yav -k^b_e<uZ_ZZ_gkZ
JZa^_e	Obfbq_kdb_ kbkl_bfu aZdhghf_jghklb obfbq_k
L_fZ1.	Wg_j]_lbdZ obfbq_kdbo ijhp_ykh\g_jbmylj_b wnn_dl obfbq_kdbo j_Zdpbc aZdhWgujhlibjyh^ nmgdpby kh,kwhgyZ_by Obyfbq_kdbc ihl_gpbZe
L_fZ2.	Wg_j]by =b[[kZ gZijZ\e_gghklv obfbq_kdbo nZah\h_ jZ\gh_kb_
L_fZ3.	Kdhjhklv bqb_kdhc j_Zdpbb b f_lh^u __ j_] ^_ckl\by f.Zkk
L_fZ4	Wg_j]by Zdlb\Zpbb mjZ\g_gbjZ\b:ejh_gh-mkZh dZZebaZlhju b dZlZeblbq_kdb_ kbkl_fu obfbq_kdhc dbg_lbdb dbg_lbq_kdh_ mjZ\g_ gZ kdhjhklv obfbq_kdhc j_Zdpbb mjZ\g_g ijhl_dZgbZy Zeblbq_kdbo j_Zdpbc Obfbq_kdh_ E_RZl_ev_
L_fZ5	JZkl\hju ^bki_jkgu_ kbkhl_ufu \ujkZh_kgby k jZkhjh\L_jfh^bgZfbq_kdb_ oZjZjdhlp_jkkhbjZah\ jZkl\hjh\ bkvgu_ b keZ[u_ we_dljheblu bh \h^guo jZkl\hjZo ijhba_^_gb_ jZkl\hjbfhklb
L_fZ6	We_dljheblbq_kdZy ^bkhgpbZjZkl\hju we_ \h^hjh^guc ihdZaZl_ev j_Zdpbb h[f_gZ]b^j
L_fZ7	K\hckl\Z jZa[Z\e_gguo gjZwe\hdjh\hedhhe\eb]Zlb k\hckl\Z jZklaZjdh\gu .JZmey
JZa^._e	Hkgh\u we_dljhobfbq_kdbo ijhp_kkh\
L_fZ1.	Hdbkebl_-ehgkhlZgh\bl_evgu_ j_Zdpbb
L_fZ2.	Obfbq_kdb_ bklhqgbdb we_dljbq_kdh]hkd we_dlu klZg^Zjlgue_dljh^guihl_gpb.Zeb\hcg we_dljbq_kdbc kehc MjZ\gZ\gbh_Gkyjgkl\Zljh^ ihl_gpbkZleZg^Zjlguc \h^hjh^guc we_dljh^
L_fZ .	We_dljheba aZdhgu NZjZ^_y
L_fZ4	Dhjjhab Fylh^u aZsblu hl .dhjjhabb
JZa^._e	K\hckl\Z ijhfur-e\Zg`ghuwe_f_glh\ b bo k.h_^bg_
L_fZ1.	DeZkku obfbqhkdbo_kbc k\hckl\Z ijhZ`ugu we_f_glh\ b bo kh_^bg_gbc Dhfihabpbhfgu nmejeg dZj[bgKh_^bg_gby lbiZ -wndbjZ KmijZfheyjgue ihjnbjbgh\u_ kbkl_fu hfie_ dZebdkZj_gh\ Fhe_dmeyjgu_ b kmijZ.fhe_dn
L_fZ .	Obfbq_kdZy b^_glbnbdZpby F_lh^u obfbq_ ZgZebaZ _s_kl\ b bo ij_\jZsg **bc** bDZhqekq_ ZgZeba

4.3. ljZdlbq_kdb_gZkkdlb_ aZgylby
L_fu ijZdlbq_kdbo aZgylbc b bo ljm^h_fdhklv ijb_^_gu \

LZ[ebp±Z ljZdlbq_kdb_ aZgylby b bo ljm^h_fdhklv

‹ i i	L_fu ijZdlbq_ aZgylbc	Nhjfu ijZdlbq_k aZgylbc	Ljm^h_fdh qZk	Bagbo ijZdlbq_ ih^]hlh\ qZk	‹ jZa^_ ^bkp ebgu
Mq_[guf ieZghf g_ ij_^mkfhlj_gh					
<k_]h					

4.4. EZ[hjZlhjgu_ aZgylby
L_fu eZ[hjZlhjguo aZgylbc b bo ljm^h_fdhklv ijb_^_gu \

LZ[ebp±Z EZ[hjZlhjgu_ aZgylby b bo ljm^h_fdhklv

‹ i i	GZbf_gh\Zgb_ eZ[hjZlhjg	Ljm^h_fdhklv qZk	Bagbo ijZdlbq_k ih^]hlh\c qZk	‹ jZa^_ ^bkpl ebgu
K_f_klj				
1	Kl_obhf_ljbq_kdb_ Nmg^Zf_glZevgu_ ihgylby obfbb Kihkh[u hij_^h_ebgb _s_kl\Z	2		1
2	Wd\b\Ze_gl AZdhg wd\b\Ze	3		1
3	L_ieh\hc wnmg_lZevoby obfb j_Zdpbb	4		3
4	Obfbq_kdb_ j_Zdpbb we_dljbq_kdbc lhd \ ihl_gpbZeu b we_dljh^\b`m	4		4
5	Dhjjhaby f_lZeeh\	4		4
<k_]		17		

4.5. Dmjkh\h_ ijh_gbbjh\Zihe g_gb_ dmjkh\hc jZ[hlu
Mq_[guf ieZghf g_ lij_^mkfh

4.6. KZfhklhyl_evgZy jZ[hlZ h[mqZxsboky
<b^u kZfhklhyl_evghc jZ[hlu fdh_klvlijb_^_gu 7. \ lZ[ebp_

LZ[eb7p±Z <b^u kZfhklhyl_evghc jZ[hlu b __ ljm^h_fdhklv

<b^ kZfhklhyl_evgh	<k_] qZk	K_f_klj qZk
1	2	3
Bamq_gb_ l_hj_ fZ q_jkodZhe]Z	20	20

^bkpbiebgu LH		
Dmjkh\h_ ijh_dlbjh\Zgb_		
JZkq_-Ijgh\ Znbq_kdb_ aZ^Zgl		
<uiheg_gb_ j_n_jZlZ J		
Ih^]hlh\dZ d l_dms_fm dh mki_\Z_fhklb LDM	22	22
>hfZrg__ aZ^Zgb_ >A		
Dhgljhevgu_ jZ[hlu aZhqg		
Ih^]hlh\dZ d ijhf_`mlhqgh Zll_klZpbb I:	15	15
<k_]	57	57

5. I_j_q_gv mq_[guo ba^Zgbc ihq_lhg^bq_kdh]h h[_ki_q_gby ^ey kZfhklhyl_evghc jZ[hlu h[mqZxsboky ih ^bkpbiebg Mq_[-ihlh^bq_kdb_ fZl_jbZeu ^ey kZfhklhyl_evghc jZ[hlu \ i i 7-11.

6. I_j_q_gvqZlguo b we_dljhgguo mq_[guo ba^Zgbc I_j_qgv_qZlguo b we_dljhgguo mq_[guo ba^Zgbc LZ[ebh]Z I_j_q_gvqZlguo b we_dljhgguo mq_[guo ba^Zgbc

Rbn/j URL Z^j_k	;b[ebh]jZnbq_kdZy kk	Dhebq_l wda_fiey \[b[ebh_c djhf_ we_dljhg wda_fiey
https://urait.ru/bcode/388983	=ebgdZE H[sZy obfby: \ l mq_[gbd ^ey ZdZ^_fbq_kd [ZdZeZ\jbZGEZ=ebgdZh^ j_^Zdpb_:clhidh\Z : < ;Z[dh\²Z19-_ ba^ i_j_jZ ^hi² Fhkd\ZBa^Zl_evkjZcl 2016. ² 729 k ² ;ZdZeZ\j :dZ^_fbq_kdbc² ISBN 978-5-9916-6445-5. ² L_dkl we_dljhg	
https://e.lanbook.com/book/104946	H[sZy obfby L_hjby b aZ ihkh[b_ G < Dhjh\bg C H G =hgqZjmd >b ^jb@c < Dhjh\bgZ G < ²D3-m_eb_a kl_j² KZg-dl_j[mj] EZgv ² k² ISBN 978-5-8114-1736-0. ² L_dklwe_dljhgguc	
https://urait.ru/bcode/444652	IjZdlbdmf ih h[s_c mbqf_b[bh ihkh[b_ ^ey ZdZ^_fbq_kdh [ZdZeZ\jbZGEZ=ebgdZ < : Ihidh\ < ;Z[dh\ H < G_kl_jh²\Z Fhkd:\Z Ba^Zl_evkl\h XjZ²cl248 k ² ;ZdZeZ\j :dZ^_fbq_²kdbc ISBN 978-5-9916-4058-9. ² L_dkl we_jhlgguc	

https://e.lanbook.com/book/75521	KlZkv G N J_r_gb_ aZ^ obfbb mq_[gh_ ihkh[b_ : < Dhjrm²g3h_ ba^ ²kl_j KZg-dl_l_j[mj] EZgv² k ² ISBN 978-5-8114-2274-6. ² L_dkl we_dljhgguc	
https://urait.ru/bcode/384671	Km\hjh\< :H[sZy b g_hj]Zg obfby \ mhq_[^gebyd ZdZ^_fbq_kdh]h [Z/dZeZ\jb : < Km\hjh\; Gbdhevk²dl6-c_ ba^ bkij ²b F^hmkd:\Z Ba^Zl_evkl\h XjZ²l607 k ² ;ZdZeZ\j :dZ^_fbq_kdbc ISBN 978-5-9916-5219-3. ² L_dkl we_dljhgguc	

7. l_j_q_gvwe_dljhgguo h[jZauhj\Zklmjekh\ bgnhjfZpb-hggehdhffmgbdZpbhgghc k_lb ©Bgl_jg_lª

l_j_q_gvwe_dljhgguo h[jZah\Zl_evgh]h ijhp_kkZ ih ^bkpbiebg_ l_e_dhffmgbdZpbhgghc ©Bgl_jg_lª h[oh^bfuo ^ey hkms_kl\e_gbb ijb_^_g \ lZ[ebp_

LZ[ebp 9Z ± l_j_q_gvwe_dljhgguo h[jZah\Zl_evgh]h ijhp_kkZ ih ^bkpbiebg_ l_e_dhffmgbdZpbhgghc ©Bgl_jg_lª

URL Z^j_k	GZbf_gh\Zgb_
http://www.xumuk.ru/	KZcl h obfbb
http://www.hemi.nsu.ru	Hkgh\u obfbb Bmkd[jgbdl

8. l_j_q_gv bgnhjfZpbhgguo l_oghehbc

8.1. l_j_q_gv ijh]jZffgh]h h[_kkijq_gbyh ifjb hkms_kl\e_gbb h[jZah\Zl_evgh]h ijhp_kkZ ih ^bkpbiebg_ l_j_qgvbkihevam_ifh]jZffgh]h h[_kiijq_gbyh\e_gZ[ebp 10.

LZ[ebp 10Z l_j_q_gvijh]jZffgh]h h[_ki_q_gby

‹ i i	GZbf_gh\Zgb_
	G_ ij_^mkfhlj_gh

8.2. l_j_q_gv bgnhjfZpb-hkgjZh\hqguo kbkilhefvam_fuo ijh hkms_kl\e_gbb h[jZah\Zl_evgh]h ijhp_kkZ ih ^bkpbiebg_ l_j_qgvbkihevam_fguo bgnhjfZpb-hkgjZh\hqguo kbikl^fklZ\e_g \ lZ[ebp 11.

LZ[ebp 11Z l_j_q_gvbgnhjfZpb-hkgjZh\hqguo kbkl_f

‹ i i	GZbf_gh\Zgb_
	G_ ij_^mkfhlj_gh

9. FZl_jbZelv_gohgbq_kdZy [ZaZ

KhklZ\fZl_jbZelv_gohgbq_kdhc, gZ[auohhbf^ey hkms_kl\e_gbb h[jZah\Zl_evgh]h ijhp_kkZ, ijh_^kblZ\e_gZ[ebp 12.

LZ[ebp 12Z ± KhklZZl_jbZelv_gohgbq_kdhc [Zau

‹ i i	GZbf_gh\Zgklb qZklb fZl_jbZe\ghc [Zau	Ghf_j Zm^blh ijb g_h[oh^bf
1	Fmevlbf_^bcgZy e_dpbhggZy Zm^blhj	32-01 =Zkl_eeh
2	Ki_pbZebabjhd\Zgguc aZqzl bkihevah\f ^_fhgkljZpbhgguo ieZdZlh eZ[hjZlhjguo kb_mkhZgh\hd ^ey hij_^_ wd\b\Ze_glZ f_lZeeZ baf_j_gby we_ kdhjhklb dhjjhabb f_lZeehkdZgZe we_ _ku hjZ[lhjgu-fjGu gj_bnmbdZehjbf_	33-02, 33-04 =Zkl_eeh

10. Hp_ghqgju^kl\Z ^ey ijh_^_gby ijhf_`mlhqghc Zll_kl

10.1. KhklZ\ hp_ghqguo^ekjjh^\kl^_gby ijhf_`mlhqghc Zll_klZ h[mqZxsboky ih ^bkjbie\bg_\ lZ[ebp_ LZ[ebp 3 ±KhklZ\ hp_ghqguo^ekjjh^\kl^_gby ijhf_`mlhqghc klZpbb

<b^ ijhf_`mlhqghc Zll_k	l_j_q_bgy hp_ghqguo kj_^k
>bnn_j_gpbjh\Zgguc aZqzl	Kibkhd \hijhkh\ L_klu

10.2. < dZq_kl_ djbl_jb_\ hp_gdb mjh\gy knhjfbjh\Zg dhfi_l_gpbc h[mqZxsbfbky ijZfe_gvgZky rdZeZ hp_gdb knhjfbj dhfi_l_gpbc dhlhjZy\ijZb\e^b_gZ< l_q_gb_ k_f_kljZ fh`_l bkihe 100-[ZeevgZy rdZeZ -jhc^bey\hc kbkl_fu Mgb_jkbl_lZ bkihevah\Zgby ehkllZjhc\e_gu khhl_lkl\mxsbf ehdZevguf ghjf =M:J LZ[ebp 4 ±Djbl_jbb hp_gdb mjh\gy knhjfbjh\Zgghklb dhfi_l_gpb

Hp_gdZ dhfi_l 5-[ZeevgZy rd	OZjZdl_jbklbdZ knhjfbjh\Zgguo dhfi_
©hlebqgh ª ©aZql_gh ª	±h[mqZxsbfky ijZfe_gvgZky rdZeZ hp_gdb knhjfbjh\Zgguo dhfi_l_gpbc b hlhjZy\ijZb\e^b_gZ mk\hbe ijh fZl_jbZe ±m_j_ggh eh]bqgh ihke_^h\Zl_evgh b]j ±hibjZykv gZ agZgby hkgh\ghc b ^hiheg l_kgh ijb\yau\Z_l mk\h_ggu_ gZmqgu_ ih ^_yl_evghklvx gZijZ\e_gby ±mf_ehkg[h\u\Z_l b Zj]mf_glbjm_l \u^\b]Z_ ±^_eZ_l \u\h^u b h[h[s_gby ±k\h[h^gh \eZ^_l kbkl_fhc ki_pbZebabjh\
©ohjhrh ª ©aZql_gh ª	±h[mqZxsbfky ijZfe_gvgZky rdZeZ hp_gdb knhjfbjh\Zgguo dhfi_l_gpbc b hlhjZy\ijZb\e^b_gZ mk\hbe ijh]jZffguc fZl_jb ih kms_kl\m baeZ]Z_l _]h hibjZykv gZ agZgby hkgh\ ebl_jZlmju ±g_^himkdZ_l kms_kl_gguo g_lhqghkl_c ±m\yau\Z_l mk\h_ggu_ agZgby k ijZdlb gZijZ\e_gby ±Zj]mf_glbjm_l gZmqgu_ iheh`_gby ±^_eZ_l \u\h^u b h[h[s_gby ±\eZ^_l kbkl_fhc ki_pbZebabjh\Zgguo ih
©m^h\hjbl_evg ©aZql_gh ª	±h[mqZxsbfky ijZfe_gvgZky rdZeZ hp_gdb knhjfbjh\Zgguo dhfi_l_gpbc b hlhjZy\ijZb\e^b_gZ mk\hbe lhevdh hkgh\ghc ijh]jZ ih kms_kl\m baeZ]Z_l _]h hibjZykv gZ ebl_jZlmju ±^himkdZ_l g_kms_kl_ggu_ hrb[db b g_l ±bkiulu\Z_l aZljm^g_gby \ ijZdlbq_kdgb gZijZ\e_gby ±keZ[h Zj]mf_glbjm_l gZmqgu_ iheh`_gby

Hp_gdZ dhfi_l 5-[ZeevgZy rc	OZjZdl_jbklbdZ knhjfbjh\Zgguo dhfi_
	±aZljm^gy_lky \ nhjfmebjh\Zgbb \u\h^h\ b ±qZklbqgh \eZ^__l kbkl_fhc ki_pbZebabjh
©g_m^h\e_l\hj ©g_ aZql_g	±h[mqZxsbgky mk\hbe agZqbl_evghc qZh fZl_jbZeZ ±^himkdZ_l kms_kl_ggu_ hrb[db b jZkkfhlj_gbb ijh[e_f \ dhgdj_lghf gZijZ\e_ ±bkiulu\Z_l ljm^ghklb \ ijZdlbq_kdhf ijbf_ ±g_ fh`_l Zj]mf_glbjh\Zlv gZmqgu_ iheh`_ ±g_ nhjfmebjm_l \u\h^h\ b h[h[s_gbc

10.3. Lbh\u_ dhgvghe_ aZ^Zgby beb bgu_ fZl_jbZeu <hijhku aZ^Zqb ^ey wdaZf_gZ ij_15.klZ\e_gu \ lZ[ebp_ LZ[ebp 5Z <hijhku aZ^Zqb ^ey wdaZf_gZ

‹ i i	l_j_q_gv \hijhkh\ aZ^Zq ^ey \	Dh^ bg^bdZl
	Mq_[guf ieZghf g_ ij_^mkfhlj_gh	

<hijhku aZ^Zqb ^ey aZ^Zqb_nhZq_ijZ^klZ\e_gu \ lZ[ebp_ LZ[ebp 16Z <hijhku aZ^Zqb ^ey aZ^Zq_lZ

‹ i i	l_j_q_gv \hijhkh\ aZ^Zqb ^ey	Dh^ bg^bdZlhj
1	D\Zglhf_hoZgbq_kdZy fh^_ev kljh_gby Z	HID- A
2	:lhf ljbgpbihig_^_e_gghklb =_ca_g[_j >_ ;jhcey <hegh\Zy nmgdpby	HID- M
3	MjZ\g_gb_ Rj_^bg]_jZ D\Zglh\u_ qbk ljZ\beh Omg^qZh\Dehjh	HID- <
4	l_jbh^bq_kdZy kwel_ffZglh>\B F_g^_ KlSmdlmSZ i_Sbh^bq_kdhc_Sbhk^u_f] ih^]Smiiu	ID- A
5	l_jbh^bqghklv baf_g_gby k\hckl\ we_f b bhgh\ wg_j]bb bhgbaZpbb kjh^ we_dljhhljbpZl_evghklv -\hdkkZgh\ev_ kihkh[ghklv K\yav l K kh kljh_gb_f Z	ID- <1
6	Hkgh\gu_ lbiu obfbq_kdhc k\yab D F_oZgbafu h[jZah\Zgby dh\Ze_glghc ^hghSZgdhp_ilhSguc	HID- A
7	G_\Ze_glgu_ lbiu k\ya_c bhggZy k k\yav h\h^gZy k\yav -k^b_e<uZ ZZ gkZ	HID- M
8	L_hjby]b[jb^baZpbb b]_hf_ljby fhe_ iheyjbam_fhZev gdhc k\yab b fhe_dme	HID- <
9	F_`fhe_dmeyjgu_ \aZbfh^_ckl\by <h^h	ID- A
10	Obfbq_kdZy l_jfh^bgZfbdZ WglZevi WglShiby __ baf_g_gbo \SZ kZo l wg_S=by[kZ__ baf_g_gbo_msZy kbeZ S_Z	ID- <
11	Obfbq_kdZy dbg_lbdZ Obfbq_kdh_ jZ\	HID- A
12	JZkl\hju Kihkh[u \ujZ`_gby dhgp_gl	HID- M

	Dheeb]Zlb\ghuc_klkZ jZkl\hjh\	
13	>bki_gku_ kbkl_fu lh_joghkl.gu_ y\e_g	HID- <
14	JZkl\hju we_dljheblh\ We_dljheblbq_l	ID- A
15	>bkkhpbZpby \h^u >bkkhpbZpby db <h^hjh^guc ihdZaZl_ev	ID- <
16	Ijhba_^_gb_ jZkl\hjbfhklhlbf_gBhugghj_Z =b^jheba khe_c	HID- A
17	Hdbkebl_ehvgklZgh\bl_evgu_ j_Zdpbb	HID- M
18	<hagbdgh_gb_ we_dlSh^gh]h ihl_ we_dlSbq_kdbc kehc AZ\bkbfhklv we hl l_fi_SZlmSu b dhgp_glSZpbb MSZ\	HID- <
19	We_dlbjaedZd \ugm`^_ggZy H<J J_Zd gZ bg_jlguo b Zdlb\guo we_dljh^Zo \ We_dljheba jZkieZ\h\ AZdhg NZjZ^_y	ID- A
20	H[sb_ k\hckl\Z f_lZeeh\ Dhjjhaby f aZsblu hl dhjjhabb	ID- <

I_j_q_gv l^_fydmjk\h]h ijhbjdh\Zgby \uiheg_gby dmjkh\hc ij_^klZ\e_gu \ lZ[ebp_

LZ[eb17Z±I_j_q_gv f^eymjk\h]h ijhbjdh\Zgby \uiheg_gby dmjkh\hc

‹ i i	Ijbf_jguc_ji_q_gv l_dm^kly\h]h ijhbjdh\Zgby \uihe dmjkh\hc jZ[hlu
	Mq_[gufZghf g_ ij_^mkfhlj_gh

<hijhku ^ey ijhy_i^jhgb`mlhqghc Zll_\klZ^bb_klbjh\Zgb ij_^klZ\e_gu \ lZ[ebp_

LZ[eb18Z±Ijbf_jguc i_j_q_gv \hijhkh\ ^ey l_klh\

‹ i i	Ijbf_jguc i_j_q_gv \hijhkh\ ^ey l_k	Dh^ bg^bdZll
1.	Wg_j]bx we_dlejhgZlvx oZjZdl_jbamxl d\Zgl a • mb; b. n bm•; c. m• bms; d. n b • e • mg	HID- A
2.	< Zlhf_ we_dljhggZy nhjfmeZ dhlhjh]h $1s^22s^22p^63s^23p^63d^{10}4s^24p^64d^35s^2$ « \Ze_glguo we«_dljhgh a. 13; b. 2; c. 9; d. 11; e. 5	HID- M
3.	Kibgh\Zy \Ze_glghklv we_kgl_ggZf khklhygbb a. 5; b. 1; c. 2; d. 3; e. 4	HID- <
4.	< Zlhf_ obfbq_kdhZh «wejhf_g_ we_dljhg gZ \g_rg wg_j]_lbq_kdhf mjh\g_ a. Sc; b. Se; c. Sb; d. Ge ; e. Si	ID- A
5.	Dbkehlguf hdkb^hf y\ey_lky «	ID- <

	a. MnO_2; b. Mn_2O_7 ; c. MnO ; d. Mn_2O_3	
6.	JZkihehˋblv wel_fihgfjujmiiu \ ihjy^d_ mkbe_g f_lZeebq_kdbo k\hckl\ a. Be, Mg, Ca, Sr, Ba, Ra; b. Mg, Be, Ca, Ra, Sr, Be; c. Ca, Mg, Be, Sr, Ra, Ba; d. Sr, Ra, Ba, Ca, Be, Mg; e. Ra, Ba, Sr, Ca, Mg, Be	HID- A
7.	< oehjb^_ dZaCl2 pkbgbfbqZkydk\yav a ^hgh-jZdhp_ilhjgZy b g_iheyjgZy dh\Ze_glgZy c iheyjgZy dh\Ze_glgZy d bhggZy e f_lZeebq_kdZy	HID- M
8.	>hghjgZdp_ilhjgZy obfbq_kdZy k\yav bf__lk a djbklZee_ nlhjbZ?FZ eblby b fhe_dme_ [jhfhlbr^hjh^Z c djbklZe\eZj_jgghc NaCl eb d dZlbhg_]b^jhO+k;hgby e fhe_dme_ AzZHjkbgZ	HID- <
9.	< fhe_dme_ H2O=CHgZ lbi]b[jb^baZpbb p_gljZ ZlhfCZ a. sp; b. sp^2 ; c. sp^3 ; d. sp^2d^2 ; e. sp^3d	ID- A
10.	Ko_fZ i_j_dbv\Zdhfguo hj[blZe_c \ fhe_dme a. $BeBr_2$; b. BH_3 ; c. BBr_3 ; d. BeH_2 ; e. $SiBr_4$	ID- <
11.	Wdahl_jfbq_kdZy j_Zdpby oZjZdl_jbam_lky a Hu§ b Hu>0 ; c Hu<0; d Su0 ; e Su>0	HID- A
12.	NhjfmeZ ^ey jZkq_lZ baf_g_gby wglZevil j_Zdpbb ijhl_dZxs_c ih mjZ\g_gbx $ % « a. $\Delta H^0 = (\Delta H_C + \Delta H_D) - (\Delta H_A + (\Delta H_B)$; b. $\Delta G^0 = (\Delta H_C + 4\,\Delta H_D) - (2\,\Delta H_A + 3\,\Delta H_B)$; c. $\Delta H^0 = (2\,\Delta H_A + 3\,\Delta H_B) - (\Delta H_C + 4\,\Delta H_D)$; d. $\Delta H^0 = (\Delta H_C + 4\,\Delta H_D) + (2\,\Delta H_A + 3\,\Delta H_B)$; e. $\Delta H^0 = (\Delta H_A + \Delta H_B) + (\Delta H_C + \Delta H_D)$	HID- M

13.	J Z \ g h \ _ k b _ \ k b k l _ f _ &)I + 2 H_2] ⇄ CH_4] $^{\circ}h$ = -74,9 d > ` f h ` g h k f _ k l b l v «	H I D - <
	a M \ _ e b q _ g b _ f d h g p $_4$; g l S Z p b b & +	
	b M f _ g v r _ g b _ f d h g p _ $_4$; g l S Z p b b & +	
	c M \ _ e b q _ g b _ f d h g p $_2$; _ g l S Z p b b +	
	d l h \ u r _ g b _ f ^ Z \ e _ g b y	
	e l h g b ` _ g b _ f l _ f i _ S Z l m S u	
14.	< u j Z ` _ g b _ ^ e y d h g k l Z _ g k l u y j k Z b g k h \ f u h [j Z l b f u c 2 N_2] O_2] < N_2O] b f _ _ l \ b ^ «	I D - A
	a. $K = \frac{[N_2O]^2}{[N_2]^2[O_2]}$; b. $K = \frac{[N_2O]}{[N_2][O_2]}$	
	c. $K = \frac{[N_2]^2[O_2]}{[N_2O]^2}$; d. $K = \frac{[N_2O]^2}{[N_2]^2}$	
15.	F h e _ d m e y j g h c n h j f h c d j Z l d h] h b h g g h] h m j Z	I D - <
	$Ni(OH)_2 + 2H^+ = Ni^{2+} + 2H_2O$	
	y \ e y _ l k y «	
	a. $Ni(OH)_2 + H_2S = NiS + 2H_2O$;	
	b. $3Ni(OH)_2 + 2H_3PO_4 = Ni_3(PO_4)_2 + 6H_2O$;	
	c. $Ni(OH)_2 + 2HNO_3 = Ni(NO_3)_2 + 2H_2O$;	
	d. $Ni(OH)_2 + H_2SO_3 = NiSO_3 + 2H_2O$;	
	e. $Ni(OH)_2 + H_2CO_3 = NiCO_3 + 2H_2O$	
16.	M d Z ` b l _ g Z [h j \ _ s h _ k Z \ d h k h j h] h \ o h ^ y l l h e v h d b k e b l _ e b a Z k S q _ l Z l h f h \	H I D - A
	a. SO_2; H_2SO_3; $KHSO_3$;	
	b. SO_3; H_2SO_4; $KHSO_4$;	
	c. H_2S; Na_2S; SO_2 ;	
	d. S; SO_3; SO_2 ;	
	e. Na_2SO_4; Na_2SO_3; SO_2	
17.	G Z w e _ p d h ^ Z \ o] Z e v \ Z g b q w k e d h f f g l _ Fe | $Fe(NO_3)_2$ || $Pb(NO_3)_2$ | Pb i j h l _ d Z i x j h p _ k k u	H I D - M
	a. $Fe^0 - 2e = Fe^{2+}$; $Pb^{2+} + 2e = Pb^0$;	
	b. $Pb^0 - 2e = Pb^{2+}$; $Fe^{2+} + 2e = Fe^0$;	
	c. $Pb^0 - 2e = Pb^{2+}$; $Pb^{2+} + 2e = Pb^0$;	
	d. $Fe^0 - 2e = Fe^{2+}$; $Fe^{2+} + 2e = Fe^0$;	
	e. $Fe^0 - 3e = Fe^{3+}$; $Pb^{2+} + 2e = Pb^0$	
18.	l S b w e _ d l S h e b a _ \ h ^ g h] h g S Z S k l g h u S Z w e _ g d Z S h \ u ^ _ e y x l k y e v d h ^ h S h ^ b d b k e h S h ^	H I D - <
	a. $ZnCl_2$; b. KF ;	
	c. $ZnSO_4$; d. KCl ;	
	e. $CuSO_4$	

19.	ljb we_dljheba_ \h^gh]h jZkl\hjZ « gZ we_ ijhp_kku $2H_2O + 2e = H_2 + 2OH^{\pm}$, $S^{2\pm} \pm 2e = S^0$ a. Na_2SO_4; b. $CdSO_4$; c. CuS ; d. Na_2S ; e. Na_2SO_3	ID- A
20.	lSb we_dlShobfbq_kdhc dhSShabhehk\hkl\f dbkehc kS_^_ gZ dZlh^_ h[jZam_lky « a. Mg^{2+} ; b. Sn^0 ; c. Sn^{2+} ; d. $OH^{\pm}$; e. H_2	ID- <
21.	>ey aZsblu dZ^fby hl dhjjhabb \h \eZ`ghf \ dZlh^gh]h ihdjulby fh`gh bkihevah\Zlv « a. Al ; b. Mn ; c. Co ; d. Cr ; e. Mg	HID- A
22.	lSb we_dlShobfbq_kdhc dhSShabhkb\g_kpb\kl_f g_clSZevghc kS_^_ gZ Zgh^_ h[jZam_lky « a. Zn^{2+} ; b. O_2 ; c. Pb^{2+} ; d. $OH^{\pm}$; e. H^+	HID- M

l_j_q_gv lh_flj dhevogjuZ[hlh ^bkpbiehb[m_qZxsboky aZhqghc h[mq_gby_y^klZ\e_gu \ lZ[ebp_

LZ[ebp 19 Z l_j_q_gv dhvglj hevjgZu[ml

‹ i i	l_j_q_gv dhvglj hevjgZu[ml
	G_ ij_^mkfhlj_gh

10.4. F_lh^bq_kdb_ fZl_jbZeu hij_^_eyxsb_ ijhp_^m bg^bdZlhjh\ oZjZdl_jbamxsbo wlZiu nhjfbjh\Zgby dhfi_l_ ehdZevguo ghjfZlb\guo ZdlZeoZf=gMbljmxjs_bo ihjy^hd b ijhp ijh_^_glb_ydm]shdhgljhemki_\Z_fhklb b ijhf_`mlhqghc[mZqlZ_xslbZqkbyb = M : J

11. F_lh^bq_kdb_ mdZaZgby ^ey h[mqZxsboky ih hk\h_g

11.1. F_lh^bq_kdb_ mdZaZgby ^ey h[mqZxsboky ih hk fZl_jbZeZ

Hkgh\gh_ gZagZq_gb_ e_dpbhegh]bhq_fkZdl_jbkZjehZ gh_ kbk]em[hdh_ b ykgh_ baeh`_gb_ mq_[gh]h fZl_jbZeZ GZagZd jZfdZo ^bkpbiebgu g_ \ lhf qlh[u ihemqblv \kx bgnhjfZpbx nmg^Zf_glZevguof ^jbhk[pbiebgu_lh^h\ gZmqgh]h ihagZgby ^hklb`_gbc gZmqghc fukeb < mq_[ghf ijhp_kk_ e_dpby \ui hj]ZgbaZpbhggmx b bgnhjfZpbhggmx nmgdpbb E_dpby jZkd dhgdj_lghc h[eZklb agZgby _z_ejvhgl_fuij_^kZl_l\ep_gb_ h ^bk ihdZau\Z_l \aZbfhk\yav k ^jm]bfb ^bkpbiebgZfb

IeZgbjm_jfuamevlZlu ijb hk\h_gbbkyl[mqZxsbgh]h:fZl_jbZ

– ihemq_gb_ kh\j_f_gguo p_ehklguo \aZbfhk\yaZgg dhlhjuo hij_^_ey_lky p_ehchd mZklZgh\dhgdj_lghc l_f_

– ihemq_gb_ hiulZ l\hjq_kdhc jZ[hlu kh\f_klgh k ij_ih^Z

– jZa\blb_ ijhn_kk-h_gehvgh dZq_kl\ ex[\b d ij_^ kZfhklhyl_evgh]h l\hjq_kdh]h fure_gby

– ihy\e_gb_ g_h[oh^bfh]h bgl_j_kZ g_h[oh^bfhjZh^ey kZ

– ihemq_gb_ agZgbc h kh\j_f_gghf mjh\g_ jZa\blby g ijh]gha_ bo jZa\blby gZ [eb`Zcrb_]h^u

– gZmqkyl f_lh^bq_kdb h[jZ[Zlu\Zlv fZl_jbZe \u^_eylv iheh`_gby ijboh^blv d dhgdj_lguf \u\h^Zf ih\lhjylv nhjfmebjh\dZo

– ihemq_gb_ lhqgh]h ihgbfZgby \k_o g_h[oh^bfuo l_jfbg

E_dpbhggfuZd_jbZeh`_l khijh\h`^Zlvky ^_fhgkljZpb_c k bkihevah\Zgb_f jZa^Zlhqgh]h fZl_jbZeZ ijb ijh_^_gbb d hkh[_gghklyo ijbf_g_gbyfZl^deivgu^bklpbiebg_

Kljmdlmjz ij_^hklZ\e_gby e_dpbhggh]h fZl_jbZeZ

<klmie_gbqZklv e_dpbev dh-lajZhbcgl_j_kh\Zlv b gZkljhblv Z gZ kihjbylb_ mq_[gh]h fZl_jbZeZ < _]h khklZ\ \oh^yl nhjfr oZjZdbklbdZ– ijhn_kkhgZevghc agZqbfhklb gh\bagu b kl_i_gb e_dpbbæh`b_gb_ ieZgZ e_dpbb \dexqZxs_]hkgZ\gfu_gh\hZigbkyh ih^e_`Zsbkkfjhj_gbx gZ e_dpbb oZjZdl_jbklbdZ j_dhf_g^ g_h[oh^bfhc ^Zgybaj_bb kZfhklhyl_ehgu klm^_glh\ j-ljhki gZihfbgZgb_ h \hijkhkZ_gbx ijZrehc e_dpbb k\yav bo k fZl_jbZehf mdZaZgb_ gZ _]h jhev f_klh b agZq_gb_ \ ^Z kbkl_f_ ^jm]bo gZmd

Hkgh\gZy qZkalvh`_gb_ kh^_j`Zdbyl kljhbf khhl_lkl\b ij_^eh`_gguf ieZghf <dexqZ_l jZkdju\Zxsbc l_fm e_dpbb nZdlbq_kdbc fZl_jbZe _]h ZgZeba b hp_gdm jZaebqgu_ ^hdZaZl_evkl\Z \u^\b]Zq_fkdblo_hi_elh`_gbc

AZdexq_gbih^_^_gb__]h[sblh]Z e_dpbb h[h[s_gb_ f nhjfmebjh\dZ^h\u\ih l_f_ e_dpbb hl_lu gZ \hijhku klm^_glh\

>ey gZ^e_`Zs_]h hk\h_gby dmjkZ obfbb bkihevamxlky kj_^kl\Z k ihfhsvx dhlhjuo fh`gh i_j_^Z\Zlv klm^_glZf bgn h[t_dlZo b_kk\msnbabq_kdbo b obfbq_kdbo ij_\jZs_gbc >_f fh^_eb djbkl_Zebo qj_rzlhd lZ[ebpu b ieZdZlu k wg_j]_lbq_ h[jZah\Zgby fhe_dme j_Zdpbc k dZlZebaZlhjZfb b [_a gbo b

11.2. F_lh^bq_kdb_ mdZaZgby o^eyy iu[imqZxsbx eZ[hjZlhjg jZ[hl

< oh^_ \uihegZ[hjZlhjg jZ[hl h[mqZxsbckym]ehdl^bg aZdjb_livagZybijZdlbdb_kZ\ubd h\eZv^kh\j_f_gghc f_lh^bdhc b l_ wdki_jbf_glZ \ khhl_lkl\bb k d\Zebnbd Zpbhlgmqc Zxsbkyl Zdl_ <uiheg_gb_ eZ[hjZlhjgbkl[hjZ[hlba wdki_jbifjZdlZbqv_gkhc jZkq_ ZgZeblbq_kdhc qZkl_c b dhgljhevguo f_jhijbylbc

<uiheg_gbZ[hjZlhjgjuZ[hlh[mqZxsbfkyylky g_hlt_fe_fhc qZk bamq_gby ^bkpbiebgey_fhc mq_[guf biebgbhky d kj_^kl\Zf h[_ki_qb\Zxsbf j_r_gb_ ke_^mxsbchmkgZxsu_hkZ^Zq

– ijbh[j_l_gb_ gZ\udh\ bkke_^h\Zgby ijhp_kkh\ y\e bamqZ_fuo \ jZfdZo ^Zgghc ^bkpbiebgu

– aZdj_ie_gb_ jZa\blb_ b ^_lZebaZpby l_hj_gbuo_kgZbo e_dpbyo

– wdaZf_±g nhjfZ hp_gdb agZgbc h[mqZxsbifkyhl^_evguf jZa^_eZf ^bkpbiebgu ijhp_kk_ bamq_gby \k_c ^bkpbiebgu beb __ qZklb gZ\udh\ kZfhklhyl ijbf_gylv bo ^ey j_r_gby ijZdlbq_kdbo aZ^Zq Wdhalkfy_g\ d i_jbh^ wdaZf_gZpbhgghc k_kkbb b aZ_jrZ_lky Zll_klZpbh ©ohjhrhª ©m^h\e_l\hjbl_evghª ©g_m^h\e_l\hjbl_evghª

– aZq±lwlh nhjfZ hp_gdb agZgbc h[mqZxsbifkyhl^_evguf jZa^_eZf ^bkpbiebgu \ p_ehf beb ihijhmdl_h`mqZhgqbZy k_f_kljZ hp_g mq_[ghc ^bkpbiebgu \ p_ehf beb ihijhmdl_h`mqZhgqbZy k_f_kljZ hp_g h[mqZxsbifkyhl^_evguf jZa^_eZf ^bkpbiebgu k Zll_klZpbhggh beb ©g_ aZql_ghª

– ^bnn_j_gpbjh\ZaZqu±l wlh nhjfZ hp_gdb agZgbc ih h[mqZxsbifkyhl^_evguf jZa^_eZf bamq_gbb ^bkpbiebgu ijb \uibeigh_gbb \dmqkhj jZ[hl gZ-mkqgh_^h\Zl_evkdbo jZ[hl b ijhoh`^_gbb ijZdlbd k Zl ©hlebqghª ©ohjhrhª ©m^h\e_l\hjbl_evghª ©g_m^h\e_l\hjbl

Ijhf_`mlhqgZy Zll_klZpby ijh\h^blky ih NHK ijb_^_ggl jZ[hq_n]ijZffu ^bkpbiebgu

Ebkl \g_k_gby baf_g_gbc \ jZ[hqmx ijh]jZffm ^bkpb

>ZlZ \g_k_ baf_g_gbc ^hiheg_gb lh^ibkv \g_k baf_g_gb	Kh^_j`Zgb_ baf_g_gbc b ^l	>ZlZ b < ijhlhdhe aZk_^Zg dZn_^ju	lh^ibkv aZ\ dZn_^j