New York State Regents Examination in United States History

2015 Technical Report

3UHSDUHG IRU WKH 1HZ <RUN 6WDWH 'HSDUWPHQW

E\

'DWD 5HFRJQLWLRQ &RUSRUDWLRQ

$SULO

'HYHORSHG DQG SXEOLVKHG XQGHU FRQWUDFW ZLWK WKH 1H
5HFRJQLWLRQ &RUSRUDWLRQ
&RS\ULJKW ‹ E\ WKH 1HZ <RUN 6WDWH (GXFDWLRQ 'HSDUW

List of Tables

TABLE 1 TOTAL EXAMINEE POPULATION, REGENTS EXAMINATION IN UNITED STATES HISTORY 2
TABLE 2 MULTIPLE CHOICE ITEM A

GLPHQVLRQDOLW\ RI WKH GDWD ORFDO LWHP LQGHSHQGHQF

)LJXUH 6FUHH 3ORWV 5HJHQWV ([DPLQ

XQLGLPHQVLRQDOLW\ LV YLRODWHG +HUH RWKHU QXLVDQFH
GHWHUPLQH VWXGHQW SHUIRUPDQFH WKLV FDQ EH FDOOHG
ZKHQ UHVSRQVHV WR DQ LWHP GHSHQG RQ UHVSRQVHV WR D
LQGHSHQGHQFH DQG FDQ EH FDOOHG UHVSRQVH GHSHQGHQF
GHSHQGHQFH RQH FDQ VHH WKDW ZKLOH ORFDO LQGHSHQGH
GLIIHUHQW DVVXPSWLRQV DQG WKHUHIRUH UHTXLUH GLIIHUH

5HVLGXDO LWHP FRUUHODWLRQV SURYLGHG LQ :,167(36 IRU I
GHSHQGHQFH5HDHPRQV WKH LQDWLRQ LQ 8QLWHG 6WDWHV +LVW
DUH FRPSXWHG DV IROORZV)LUVW H[SHFWHG LWHP SHUIRU
XVLQJ

Item Fit

$Q LPSRUWDQW DVVXPSWLRQ RI WKH 5DVFK PRGHO LV WKDW
SURYLGHV WZR LWHP ILW VWDWLVWLFV LQILW DQG RXWILW
SUHGLFWV WKH REVHUYHG LWHP UHVSRQVHV IRU D JLYHQ VH
D PHDQ VTXDUH 0Q6T VWDWLVWLF RU RQ D VWDQGDUGL]HG
0Q6T YDOXHV DUH PRUH RULHQWHG WRZDUG SUDFWLFDO VLJ
WRZDUG VWDWLVWLFDO VLJQLILFDQFH ,QILW 0Q6T YDOXHV D

Chapter 4: Reliability (Standard 2)

7HVW UHOLDELOLW\ LV D PHDVXUH RI WKH LQWHUQDO FRQVL
WKH H[WHQW WR ZKLFK WKH LWHPV RQ D WHVW SURYLGH FR
GRPDLQ 5HOLDELOLW\ VKRXOG XOWLPDWHO\ GHPRQVWUDWH
DQG WKHUHIRUH PLQLPL]H HUURU RU WKHRUHWLFDOO\ VSHD
ZRXOG JHW WKH VDPH VFRUH HDFK WLPH

$FFRUGLQJ WR WKH 6WDQGDUGV IRU (G³XFDWLRQDO DQG 3V\
KDYH VLJQLILFDQW HIIHFWV RQ UHOLDELOLW\ SUHFLVLRQ D
PLVLQWHUSUHWDWLRQV RI WHVW VFRUHV LI QRW WDNHQ LQ
OHQJWK DQG WKH YDULDELOLW\ RI REVHUYHG VFRUHV FDQ E
IHZHU LWHPV RU ZLWK D ODFN RI KHWHURJHQHLW\ LQ VFRUH
6HFRQG UHOLDELOLW\ LV VSHFLILFDOO\ FRQFHUQHG ZLWK U
RI LQFRQVLVWHQF\ GXH WR UDQGRP HUURU VRXUFHV LV ZKD
DVVRFLDWHG ZLWK ORZHU UHOLDELOLW\ DQG PRUH FRQVLV
FRXUVH V\VWHPDWLF HUURU VRXUFHV DOVR H[LVW

7KH UHPDLQGHU RI WKLV FKDSWHU GLVFXVVHV UHOLDELOLW\
+LVWRU\ DQG WKUHH DGGLWLRQDO VWDWLVWLFDO PHDVXUH
LQWHUSUHWDWLRQ RI WKH ([DP¶V UHOLDELOLW\

- VWDQGDUG HUURUV RI PHDVXUHPHQW
- GHFLVLRQ FRQVLVWHQF\
- JURXS PHDQV

5HOLDELOLW\ ,QGLFHV 6WDQGDUG &RDVVLFDO\WGHHWWUULEHRU UHOLDELOLW\ DV D PHDVXUH RI WKH GHILQHG DV WKH SURSRUWLRQ RI WUXH VFRUH YDULDQFH FR FRQWDLQV WZR FRPSRQHQWV WKH YDULDQFH LQ WUXH VF WKH PHDVXUHPHQW SURFHVV 3XW GLIIHUHQWO\ WRWDO YDU

$$U_{;} = \frac{V_{7}}{V_{;}} \qquad \frac{V_{7}}{V_{7} V_{(}}$$

5HOLDELOLW\ FRHIILFLHQWV LQGLFDWH WKH GHJUHH WR ZKL
WKH DWWULEXWH EHLQJ WHVWHG UDWKHU WKDQ UDQGRP IOX
GLIIHUHQFHV LV SDUWO\ GXH WR UHDO GLIIHUHQFHV LQ WKH
HUURU LQ WKH PHDVXUHPHQW SURFHVV HUURU YDULDQFH

5HOLDELOLW\ FRHIILFLHQWV UDQJH IURP WR 7KH LQGH
LWWUXH ,I DOO RI WKH WHVW VFRUH YDULDQFHV ZHUH WUXH
SXUH UDQGRP QRLVH L H DOO PHDVXUHPHQW HUURU ,I W
SHUIHFWO\ FRQVLVWHQW L H FRQWDLQ QR PHDVXUHPHQW

$ FRYDULDQFH WHUP LV QRW UHTXLUHG DV WUXH VFRUHV DQG HUURU D

SUDFWLFH LW LV FOHDU WKDW ODUJHU FRHIILFLHQWV DUH F
OHVV LQIOXHQFHG E\ UDQGRP HUURU

Coefficient Alpha
5HOLDELOLW\ LV PRVW RIWHQ HVWLPDWHG XVLQJ WKH IRUPX
LQWHUQDO FRQVLVWHQF\ LQGH[,W FDQ EH FRQFHSWXDOL]H
IURP WKH VDPH GRPDLQ ZRXOG UHVXOW LQ D VLPLODU UDQN
UHIOHFWHG LQ WKLV LQGH[([FHVVLYH YDULDWLRQ LQ VWXG
QH[W VKRXOG EH RI SDUWLFXODU FRQFHUQ IRU DQ\ DFKLHYH

$ JHQHUDO FRPSXWDWLRQDO IRUPXOD IRU $OSKD LV DV IROO

ZKHUH LV WKH QXPEHU RI SDUWV WKH YDULDQFH RI WKH REVHUYHG
WKH YDULDQFH RI SDUW

6WDQGDUG (UURU RI 6WDQGDUGV
5HOLDELOLW\ F

G L F K R W R P R X V O \ V F R U H G L W H P P

FRQVLVWHQF\ PHDVXUH ZRXOG EH UHIOHFWHG E\ WKH H[WHQ
IURP WKH ILUVW VHW RI HQWULHV WR WKH VHFRQG VHW
WKH WDEOHV EHORZ

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DYDLODEOH D ZHOO NQRZQ PHWKRG GHYHORSHG VSHFLILQJ W
VFRUH PRGHO LV XVHG

6HYHUDO IDFWRUV PLJKW DIIHFW GHFLVLRQ FRQVLVWHQF\ DC
RI WKH VFRUHV $OO RWKHU WKLQJV EHLQJ HTXDO PRUH UH
UHFODVVLILFDWLRQV DQG OHVV PHDVXUHPHQW HUURU $QRW
GLVWULEXWLRQ 0RUH FRQVLVWHQW DQG DFFXUDWH FODVVL
DZD\ IURP WKH PDVV RI WKH VFRUH GLVWULEXWLRQ 7KH QXI
FRQVLGHUDWLRQ &RQVLVWHQF\ DQG DFFXUDF\ LQGLFHV IRU
WKRVH EDVHG RQ WZR FDWHJRULHV 7KLV LV QRW VXUSULVL
OHYHOV ZRXOG DOORZ PRUH RSSRUWXQLW\ WR FKDQJH DFKL
FODVVLILFDWLRQ HUURUV DQG OHVV DFFXUDF\ ZLWK IRXU DF
LQGLFHV

5HVXOWV DQG 2EVHUYDWLRQV VRU WKH GLFKRWRPLHV FUHDWH
SUHVHQWHG LQ WDEOH 7KH WDEOH %%&RQVHQ DQG GHULXV
WKH /LYLQJVWRQ DQG /HZLV PHWKRG 'HFLVLRQ FRQVLVWHQ
DFFXUDF\ UDQJHG IURP WR %RWK GHFLVLRQ FRQVLV
FXW SRLQWV LQGLFDWH YHU\ JRRG FRQVLVWHQF\ DQG DFFXU

7DEOH 'HFLVLRQ &RQVLVWHQF\ DQG $FFXUDF\ 5HVXOWV 5H
+LVWRU\

6WDWLVWLF
&RQVLVWHQF\
$FFXUDF\

*URXS 6WDQGDUG
0HDQ VFDOHG VFRUH 6WDQGDUG EDVHG RQ UHSRUWHG JHQGHU UDF
VWDWXV HFRQRPLFDOO\ GLVDGYDQWDJHG VWDWXV DQG VW
7DEOH

Chapter 5: Validity (Standard 1)

5HVWDWLQJ WKH SXUSRVH DQG XVHV RI WKH 5HJHQWV ([DPL
PHDVXUHV H[DPLQHH DFKLHYHPHQW DJDLQVW 1HZ <RUN 6WDW
E\ WHDFKHU H[DPLQDWLRQ FRPPLWWHHV DQG 1HZ <RUN 6WDW
VSHFLDOLVWV LQ HDFK WHDFKHUV DQG VWXGHQWV ZLWK LPSRUW
SHUIRUPDQFH DJDLQVW WKH HVWDEOLVKHG FXUULFXOXP VWD
VWXGHQW VWUHQJWKV DQG QHHGV WR JXLGH FODVVURRP WH
VWXGHQWV SDUHQWV FRXQVHORUV DGPLQLVWUDWRUV DQ
XQGHUVWRRG DFKLHYHPHQW LQIRUPDWLRQ WKDW PD\ EH XVH
YRFDWLRQDO GHFLVLRQV DERXW VWXGHQWV $V D 6WDWH SU
([DPLQDWLRQ LQ 8QLWHG 6WDWHV +LVWRU\ LV LQWHQGHG IR
VWXGHQWV ZKR KDYH ILQLVKHG D FRXUVH RI LQVWUXFWLRQ
H[DP FRXQWV WRZDUG UHTXLUHPHQWV IRU D KLJK VFKRRO G
GLSORPD UHTXLUHPHQWV 7KH 1HZ <RUN 6WDWH Q\VHG JRY FLDL JUDGUHT *UD
5HJHQWV ([DPLQDWLRQ LQ 8QLWHG 6WDWHV +LVWRU\ PD\ DO
UHTXLUHPHQWV D p•

Content Validity

&RQWHQW YDOLGLW\ LV QHFHVVDULO\ FRQFHUQHG ZLWK WKH
WKH WHVW SURYLGHV DQ DFFXUDWH PHDVXUH RI H[DPLQHH S
EOXHSULQW IRU WKH 5HJHQWV ([DPLQDWLRQ LQ 8QLWHG 6WD
FRQVWUXFWLQJ WKH H[DP ,W SURYLGHV H[SOLFLW GHILQLWL
WKH H[DP 7KH WHVW GHYHORSPHQW SURFHVV GLVFXVVHG
H[WHQW SRVVLEOH WKDW WKH EOXHSULQW LV PHW LQ DOO R

7DEOH GLVSOD\V WKH WDUJHWHG LWHP W\SHV IRU HDFK FR

7DEOHHVW %OXHSULQW 5HJHQWV ([DPLQDWLRQ LQ 8QLWHG

,WHP 7\SH	6WDQGDUGV
0XOWLSOH &KRL	6HH 6SHFLILFDWLRQV *
7KHPDWLF HVVD	6WDQGDUGV 8QGHUVWDQGLQJ 6WUXFWXUH\
	6WDQGDUGV DQG*UDPPHU
'RFXPHQWEDVHG TXH	6WDQGDUGV 8QGHUVWDQGLQJ 6WUXFWXUH\
	6WDQGDUGV(QJOLVK

6HH SDJHV IRU ZZZ S OHQYHGGHVWDOL VRFVW SXE VDPXV

Item Development Process

7HVW GHYHORSPHQW IRU WKH 5HJHQWV ([DPLQDWLRQ LQ 8QL
SURFHVV RI GHYHORSPHQW DQG UHYLHZ F\FOHV $Q LPSRUW
DUH GHYHORSHG E\ 1HZ <RUN 6WDWH HGXFDWRUV LQ D SURF
H[SHUWV %ULQJLQJ H[SHULHQFHG FODVVURRP WHDFKHUV LQ
GUDZ D VWURQJ FRQQHFWLRQ EHWZHHQ FODVVURRP DQG WH

2QO\ 1HZ <RUN 6WDWH±FHUWLILHG HGXFDWRUV PD\ SDUWLFL
'HSDUWPHQW RI (GXFDWLRQ DVNV IRU QRPLQDWLRQV IURP G
RI SDUWLFLSDQWV LQ PLQG LQFOXGLQJ GLYHUVLW\ LQ JHQG
H[SHULHQFH (GXFDWRUV ZLWK LWHP ZULWLQJ VNLOOV IURP
WKH 5HJHQWV ([DPLQDWLRQ LQ 8QLWHG 6WDWHV +LVWRU\ XQ
RpÀ HQVWRFHp€ LQ pFH@° V@WHU0°Dq€Ø@ SÀ@S@UH@K@SWE@KWE@

) L J X U H 1 H Z < R U N 6 W D W H (G X F D W L R Q ' H S D U W P H Q W 7 H

Item Review Process

7 KH W ' H Y3| ” U 0€@ W]' 5p

$FFRPPRGDWLRQ 3ODQV 3ODQV)XOO WHVW DGPLQLVWU
KWWS ZZZ S Q\VHG JRY DVVHVVPHQW KVJHQ

7KH LPSOHPHQWDWLRQ RI ULJRURXV VFRULQJ SURFHGXUHV C
WHVW VFRULQJ SUDFWLFHV WKHUHIRUH IRFXV RQ SURGXFLQ
VFRUHG YLD ORFDO VFDQQLQJ DW WHVWLQJ FHQWHUV DQG V
7KHUH DUH PDQ\ VWXGLHV WKDW IRFXV RQ YDULRXV HOHPHQ
FRQVWUXFWHG UHVSRQVH LWHPV EXW JHQHUDOO\ DWWHQW
VFRUHV IRU FRQVWUXFWHG UHVSRQVH LWHPV

4XDOLW\ WUDLQLQJ +R\W .HUQV /XPOH\ 0F1DPD
*RUPDQ 5HQWVFK 6FKOHLFKHU 'D\ %URQVWR
+XIIFXWW -RKQVRQ 3HQQ\ DQG *RUGRQ :HLJ
'HWHFWLRQ DQG FRUUHFWLRQ RI UDWLQJ ELDV 0F4XHH
0\IRUG :ROIH %DUNDRXL 3DW] -XQNHU
&RQVLVWHQF\ RU UHOLDELOLW\ RI UDWLQJV &RQJGRQ
1XQJHVWHU 6ZDQVRQ 1DQGDNXPDU 0F4XHHQ &R
0HUR 0RWRZLGOR :HLQURWW -RQHV

Up QWpðV ðQ ÖUHðQVÖU ° LRQ• ZL XPDU@`ð0@À°pÀ0

GLVWUDFWRUV LQ WKH PXOWLSOH FKRLFH LWHPV DOO DSSHD
H[DPLQHHV DUH QRW EHLQJ GUDZQ WR DQ XQLQWHQGHG FRQ

5.3 Evidence Based on Internal Structure

7KH WKLUG VRXUFH RI YDOLGLW\ HYLGHQFH FRPHV IURP WKH
WHVW GHYHORSHUV HYDOXDWH WKH WHVW VWUXFWXUH WR H
HYDOXDWLRQ PD\ LQFOXGH DWWHQWLRQ WR LWHP LQWHUDFW
IRU RU DJDLQVW RQH RU PRUH VXEJURXSV RI H[DPLQHHV GHV
DQDO\VLV (YDOXDWLRQ RI LQWHUQDO WHVW VWUXFWXUH DO
DQDO\VHV WHVW UHOLDELOLW\ DQG WKH ,57 VFDOLQJ DQG

7KH IROORZLQJ DQDO\VHV ZHUH FRQGXFWHG IRU WKH 5HJHQ

- x LWHP GLIILFXOW\
- x LWHP GLVFULPLQDWLRQ
- x GLIIHUHQWLDO LWHP IXQFWLRQLQJ
- x ,57 PRGHO I
- x WHVW UHOLDELOLW\
- x FODVVLILFDWLRQ FRQVLVWHQF\
- x WHVW GLPHQVLRQDOLW\

Item Difficulty

0XOWLSOH VHDQ OORZ DQ HYDOXDWLRQ RI LWHP GLIILFXOW\ LWHP ORFDWLRQ HVWLPDWHV ZHUH FRPSDUHG WR WKH 5HJHQ
8QLWHG 6WDWHV +LVSDQLF SRSXODWLRQ ZDV XVHG WR ZLWK WKH WDU
YDOXHV UDQJH IURP WR

Item Discrim Discri4Tf0nDisc2W

WKDQ D UHVSRQVH HDUQLQJ D VFRUH RI ³ ´ DQG ³ ´ LV EHWV
RWKHU KDQG UHIHUV WR WKH FRPSDULVRQ RI PHPEHUV IURP
WKH PDWFKLQJ YDULDEOH²WKH WRWDO WHVW VFRUH LQ RXU
3K\VLFV H[DP

)XOO GLIIHUHQWLDO LWHP IXQFWLRQLQJ UHVXOWV DUH UHSR
UHSRUW DQG $SSHQGL[(RI WKH DQG $OO UHSRUWV
KWWS ZZZ S Q\VHG JRY DVVHVVPHQW UHSRUWV HDUWK

IRT Model Fit

0RGHO ILW IRU WKH 5DVFK PHWKRG XVHG WR HVWLPDWH ORF
5HJHQWV ([DPLQDWLRQ LQ 8QLWHG 6WDWHV +LVWRU\ SURYLG
WKH WHVW LV RI KLJK WHFKQLFDO TXDOLW\ 7KH QXPEHU RI
UHSRUWHG LQ 7DEOH 7KH PHDQ LQILW YDOXH LV ZLWK
@ $V WKH UDQJH RI > @ LV XVHG DV JXLGH IRU LGHD
FRQVLGHUHG LQGLYLGXDOO\ ,Q WKLV FDVH WKH PD[LPXP YI
KDV DQ LQILW RI 7KH RYHUDOO KLJK SHUIRUPDQFH RI H[
UHGXFLQJ WKH YDULDQFH RI VFRUHV IRU PDQ\ LWHPV ZKLFK

Test Reliability

$V GLVFXVVHG WHVW UHOLDELOLW\ LV D PHDVXUH RI WKH L
PHDVXUH RI WKH H[WHQW WR ZKLFK WKH LWHPV RQ D WHVW
RI WKH GRPDLQ 5HOLDELOLW\ VKRXOG XOWLPDWHO\ GHPRQV
FRQVLVWHQF\ DQG WKHUHIRUH PLQLPL]H HUURU RU WKHRUH
PXOWLSOH WLPHV ZRXOG JHW WKH VDPH VFRUH HDFK WLPH
([DPLQDWLRQ LQ 8QLWHG 6WDWHV +LVWRU\ LV VKRZLQJ
VHFWLRQ RI WKLV UHSRUW IRU DGGLWLRQDO GHWDLOV

Classification Consistency and Accuracy

$ GHFLVLRQ FRQVLVWHQF\ DQDO\VLV PHDVXUHV WKH DJUHHP
WHQW RI UHSRUWHG FODVVLILFDWLRQV RQ WZR SDUDOOHO p€@OOHOEp UDS½ WKH
VW€KH FRQVLVWHQF\ R½ WKH PHDVXUH ZRXOG EH UH½OHFWL
GHFLVLRQ D DGHEp€P 0p°€0ILUVW VHW RI- 0`p0`FRUHV PD0ÀF
VFRUHV HFLVLRQ DFFXUDF\ L DDQ LQGH[WR GHP0€ULQH WKH
FODVVLILFDWLRQ LÄ`L€UHQW WKDQ H[SHFWHG IURP WKH WUX
SURYLGHV VWURQJ HYLGHQFH WKDW WKH LQWHUQDO VWUXFV

)RU WKH 5@ JHQWV ([DPLQDWLRQ À 0€ ÀpHG 6WDP0€` +LVWRU

GHFLVLRQ FRQVLVWHQF\ DQG DFFXUDF\ YD@€€`0P@VHG RQ À

FRQVLVWHQF\ @QG DFFXUDF\ RI-H[DPLQHH FODVVLILFDWLRQV

Dimensionality

,Q DGLÄWLRQ WR PRGHO ILW @ VWURQJ DVVXPSWLRQ RI WKH

EULHI VXUYH\ RI ZHEVLWHV IRU 1HZ <RUN 6WDWH XQLYHUVLW
GHILQHG XVH DV D WHVWLQJ UHTXLUHPHQW WRZDUG JUDGXD
8QLWHG 6WDWHV LQVWLWXWLRQV WR LQFUHDVH [HG WR LQIRUP DGPLVVI
GHFLVLRQV 6XFK XVHV FDQ EH FRQVLGHUHG UHDVRQDEOH I
5HJHQWV ([DPLQDWLRQ LQ 8QLWHG 6WDWHV +LVWRU\ DUH FR
ZKLFK D VWXGHQW LV VHHNLQJ HQUROOPHQW RU SODFHPHQW
SODFHPHQW SXUSRVHV DUH DGYLVHG WR H[DPLQH WKH VFRU
6WDWHV +LVWRU\ DQG WR DVVHVV WKHLU DSSURSULDWHQHV
SODFHPHQW

$V VWDWHG WKH QDWXUH RI YDOLGLW\ DUJXPHQWV LV QRW
SURFHVVHV DQG VWXGLHV GHVLJQHG WR DFFXPXODWH VXSSR
WKLV UHSRUW GRFXPHQWV WKH HYLGHQFH WR GDWH WKDW V
6WDWHV +LVWRU\ VFRUHV IRU WKH SXUSRVHV GHVFULEHG

8. Avoid excessive ^ Á] v } ÁŒ • •] v P X _

   The item should contain only material relevant to its solution, unless selection of what is relevant is part of the problem.

9. Make the [illegible]

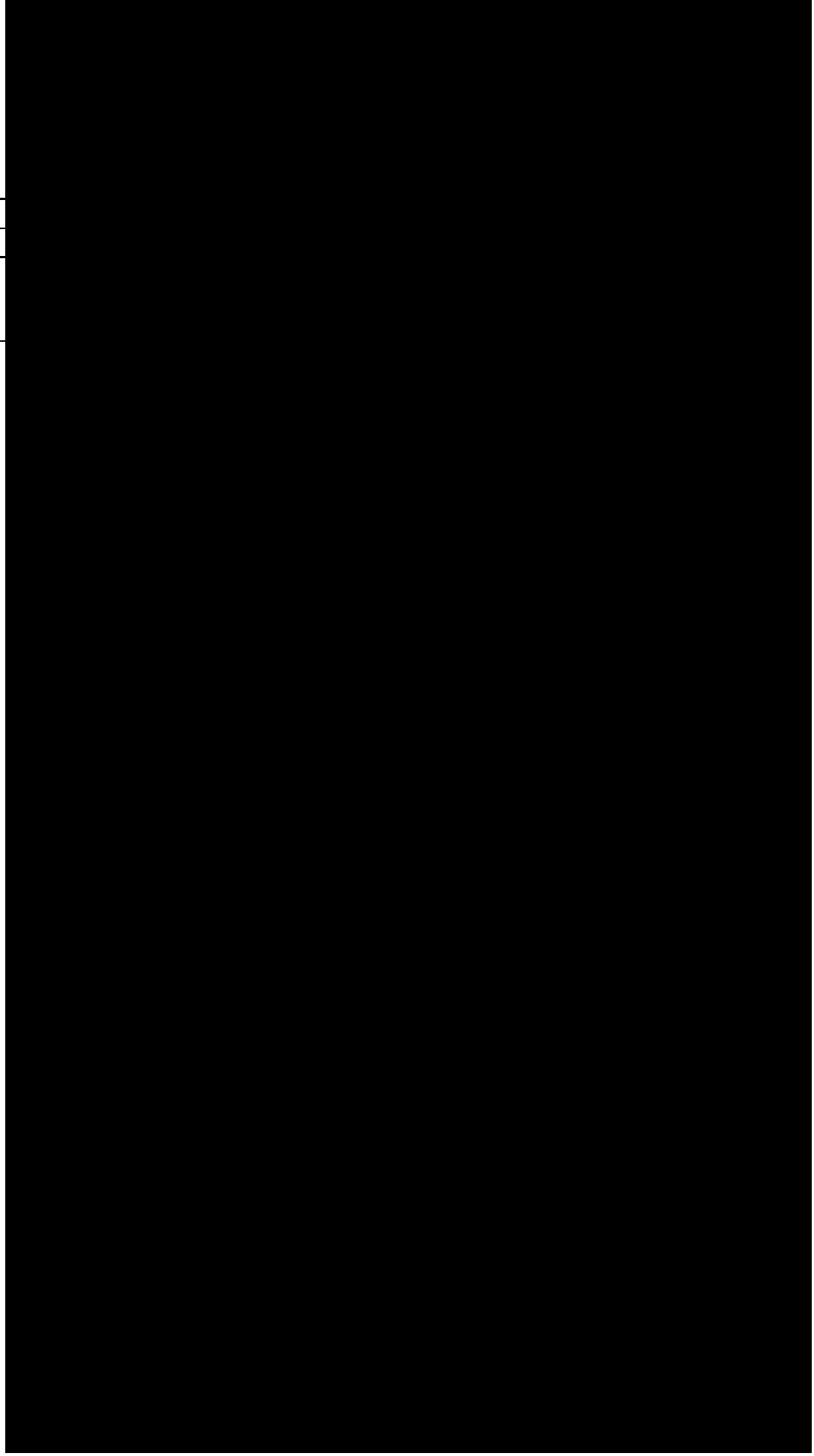
)LJXUH % 6FDWWHUSORW 5HJHQWV ([DPLQDWLRQ L

)LJXUH % 6WXGHQW 3HUIRUPDQFH 0DS 5HJHQWV ([DPLQ

)LJXUH % 6FUHH 3ORWV 5HJHQWV ([DPLQDWLRQ LQ

7DEOH % 6XPPDU\ RI ,WHP 5HVLGXDO &RUUHODWLRQV 5HJH
+LVWRU\

6WDWLV\ 9DOXH
1
0HDQ
6'
0LQLPXP
3
3
3
3
3
0D[LPXP
! _ _



)LJXUH & 6FUHH 3ORWV 5HJHQWV ([DPLQDWLRQ LQ

7DEOH & 6XPPDU\ RI ,WHP 5HVLGXDO &RUUHODWLRQV 5HJH
+LVWRU\

6WDWLV\ 9DOXH
1
0HDQ
6'
0LQLPXP
3
3
3
3
3
0D[LPXP
!_ _

7DEOH & 6XPPDU\ RI ,QILW 0HDQ 6TXDUH 6WDWLVWLFV 5HJ
+LVWRU\

	,QILW 0HDQ 6TX
	0HD 6' 0LQ 0D[>
8QLWH	
6WDWH	
+LVWRU	

7DEOH & 5HOLDELOLWLHV DQG 6WDQGDUG (UURUV RI 0HDVX
6WDWHV +LVWRU\

	&RHIIL	
6XEMHI	$OSK	*SEM*
8QLWHG (		
+LVWRU\		

7DEOH &LV'LRQ &RQVLVWHQF\ DQG $FFXUDF\ 5HVXOWV 5HJHC
+LVWRU\

6WDWL
&RQVLV
$FFXUD