Instructions to run SAS programs

Steps 1 -5 are for testing the program

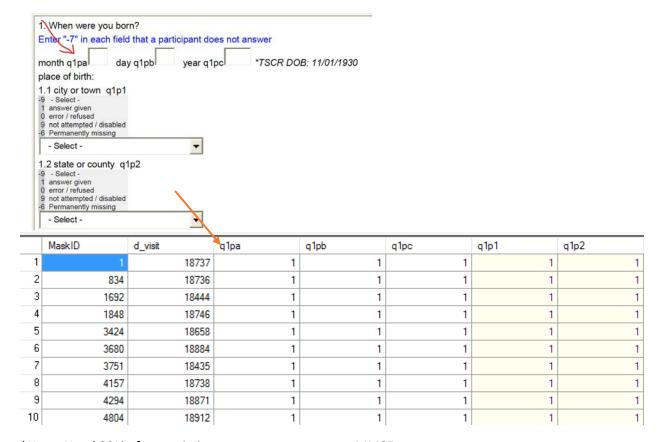
Steps 6-8 are for running the program for your data set

To test the programs

- 1. Go to link: https://www.phs.wakehealth.edu/public/downloads.cfm#apps
- 2. Download the two SAS programs and one test data set and store all the following 3 files (2 SAS program files Macro.3MSE.Scoring.sas, Test_3MSE_scoring_Supp.sas, and a SAS data file test3mse_finalsample) under the same directory (called LOCATION for example).
- 3. Open the file test.3MSE.Scoring.sas and put in LOCATION for paths in libname and % include.
- 4. Run the program, which will automatically run PROC CONTENTS for the output file.
- 5. The output data set is labeled TEST3MSE. Within the file the two columns (variables) named _3MSE and MMSEs_derived respectively contain the 3MSE and the MMSE score. *

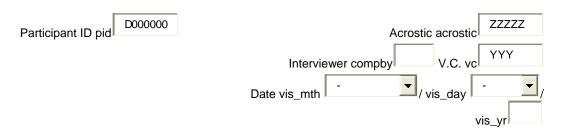
To apply the program to your own data file

- 6. Follow variable names that accompany the 3MS form in this file.
- 7. Example: The variable q1p1 is for the first question part a. (see below)



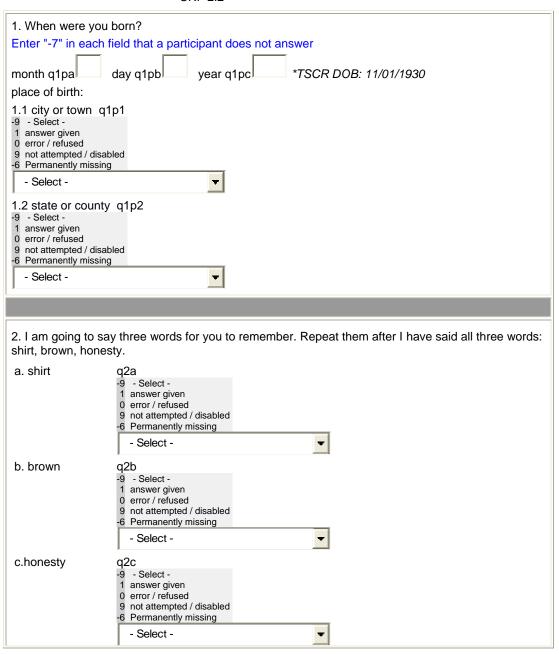
*Note: Need 80% of non-missing responses to generate MMSE score

8. Edit the file Macro.3MSE.Scoring.sas so it has the proper path for where your data set is stored and run the program in Macro.3MSE.Scoring.sas.

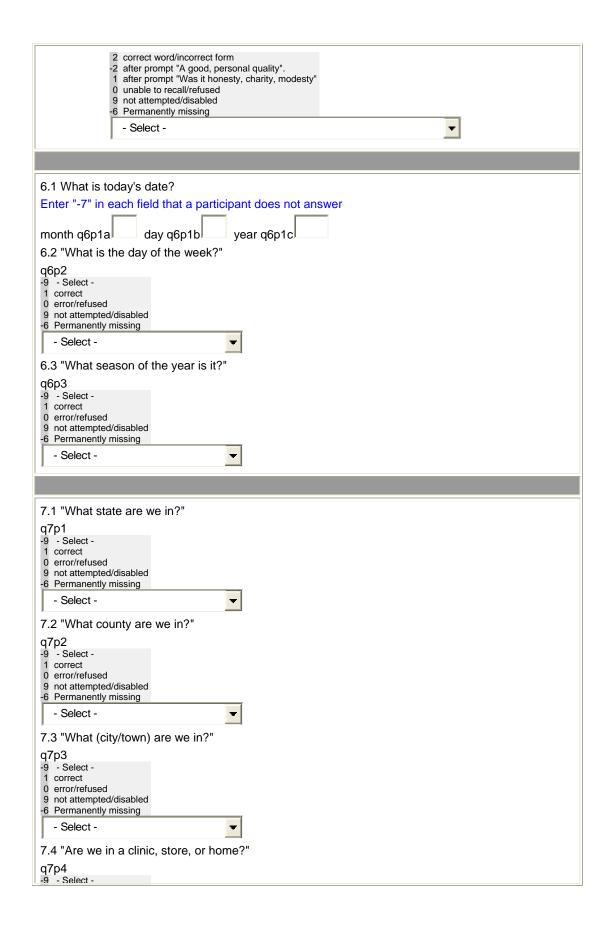


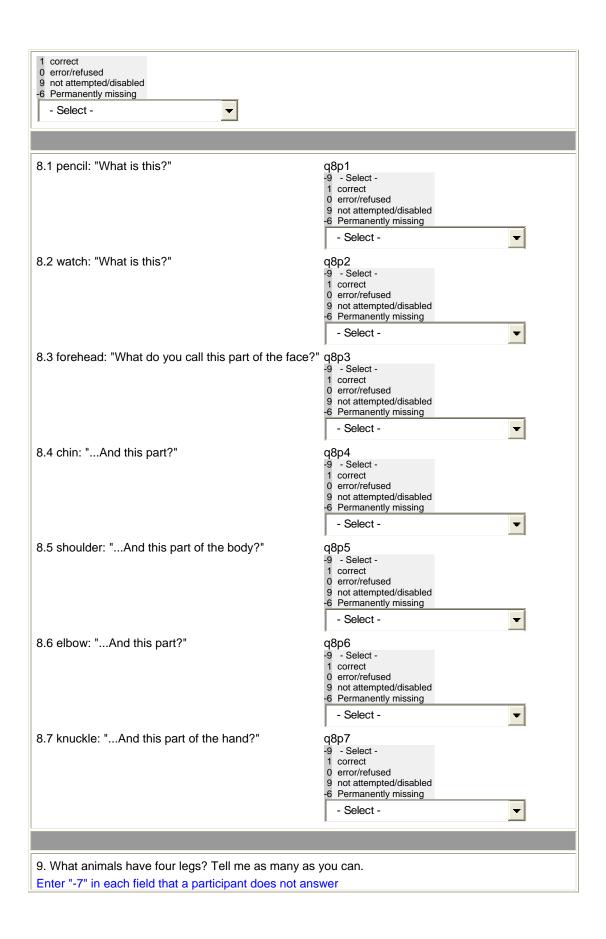
Modified Mini Mental State Exam

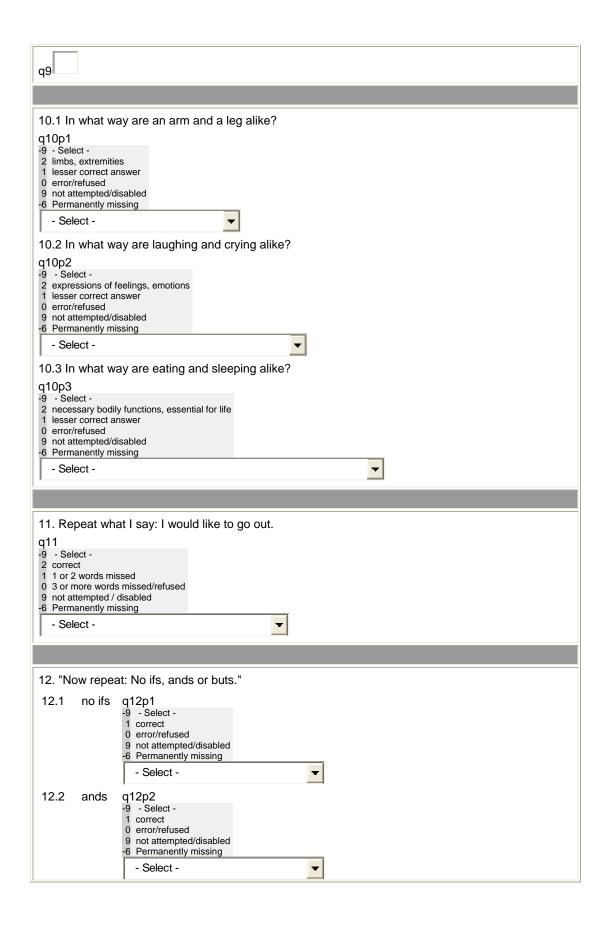
CRF 2.2

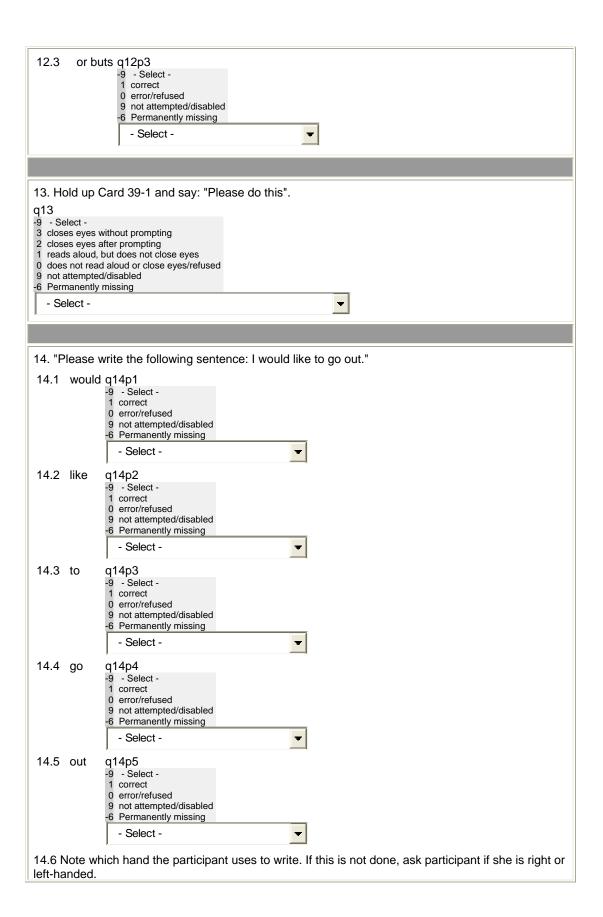


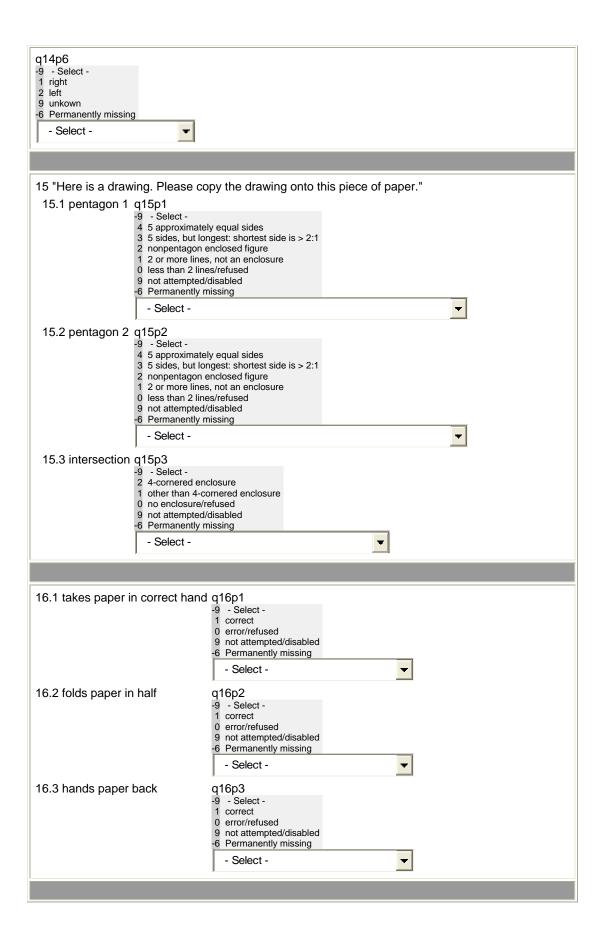
d. Number of presentations necessary for the participant to repeat the sequence (1-7) q2d				
3. I would like you to count from 1 to 5 3.1 q3p1 9 - Select - 1 able to count forward 2 unable to count forward 6 Permanently missing - Select - 3.2 Now I would like you to count backwards from 5 to 1 Enter "-7" in each field that a participant does not answer q3p2a q3p2b q3p2c q3p2c q3p2d Record responses in the order given				
4.1 q4p1 -9 - Select - 1 able to spell 2 unable to spell 6 Permanently missing - Select - 4.2 Now spell world backwards. Enter "-7" in each field that a participant does not answer q4p2a q4p2b q4p2c q4p2d q4p2e Record responses in the order given q4check value="1" Participant gave more than 5 letters				
5. What three words did I ask you to remember earlier?				
5.1 shirt q5p1 -9 - Select - 3 spontaneous recall 2 correct word/incorrect form -2 after prompt "Something to wear." 1 after prompt "Was it shirt, shoes, or socks?" 0 unable to recall/refused 9 not attempted/disabled -6 Permanently missing - Select - 3 spontaneous recall 2 correct word/incorrect form -2 after prompt "A color". 1 after prompt "Was it blue, black, or brown?" 0 unable to recall/refused				
9 not attempted/disabled -6 Permanently missing - Select - 5.3 honesty q5p3 9 - Select - 3 spontaneous recall				

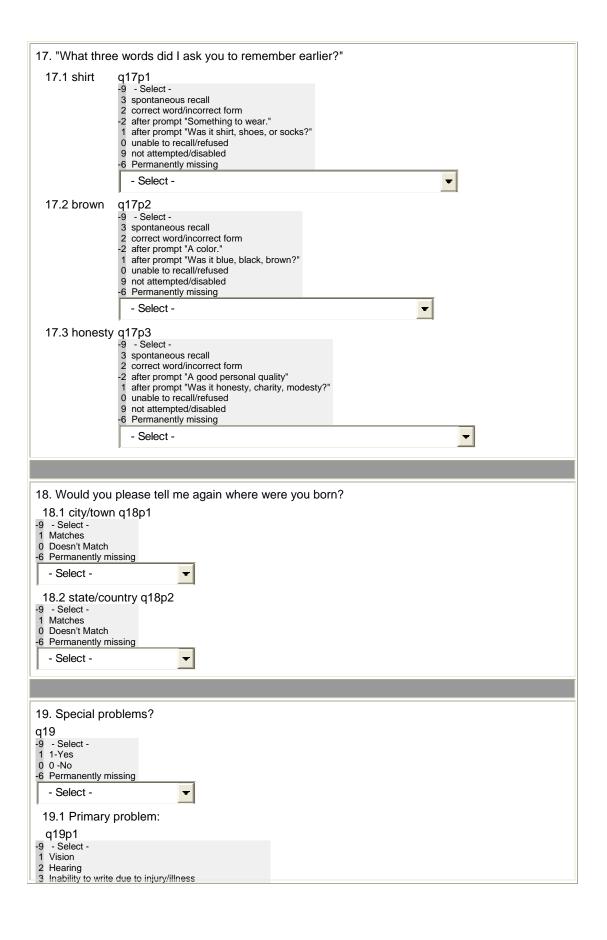


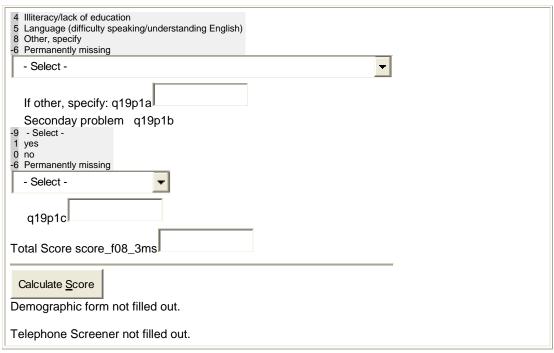


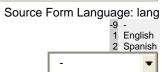












		Particip (affix ID la		Interviewer Date of V		it Code Year
			Modified Mini-	-Mental State E	Exam (3MSE)	
			a few questions tha		ation and memory. Son e than once."	ne are a little bit
1. "When were you born?" Record responses.						
		/	///			
					Υ	
		_	born?" Record Res	-		
1.	.1	place of birth: city/town	answer given	can't do/refus	sed not att/disabled	ı
			_ 1	0	9	
1.	.2	state/country	_ 1	0	9	
2.	•		y three words for yo rown,' 'honesty.'"	ou to remember. R	epeat them after I have	said all three
					st trial. The participant mams up to six times until th	
		first trial only:	answer given	can't do/refus	ed not att/disabled	
		a. shirt	1	0	9	
		b. brown	1	0	9	
		c. honesty	1	0	9	_,
		d. number of pre	sentations necessary	for the participant to	o repeat the sequence (1-	·/):
3.		•	o count from 1 to 5.	,		
3.	.1		ount forward			
		2 unable to	count forward "	'Say "1-2-3-4-5"		
3	.2	"Now I would like	you to count backv	vards from 5 to 1."		
		Record responses	in the order given:			
4.		"Spell 'world'."				
		1 able to s	· (
		2 unable to	spell "It's spelle	ed W-O-R-L-D"		
4.	.1	"Now spell 'world	d' backwards."			
		Record letters in the	ne order given:			

Page 1 of 8 02/05/2010

		ipant ID label here)		Acrostic
E	"\A/lb a4 4lb waaa			
5.	The words may locategory cue, pro		r. If the participant clisted. If the particip	cannot give the correct answer after a ant still cannot give the correct answer from
5.	1 shirt	3 spontaneous recall		
	;	2 correct word/incorr	ect form	
	;	2 after "Something	to wear."	
		1 after "Was it shirt,	shoes or socks?"	
	(unable to recall/ref	used (provide the co	rrect answer)
	,	9 not attempted/disa	bled	
5.	2 brown	3 spontaneous recall		
	;	2 correct word/incorr	ect form	
	;	2 after "A color."		
		1 after "Was it blue,	black, brown?"	
	(unable to recall/ref	used (provide the co	rrect answer)
	,	9 not attempted/disa	bled	
5.	3 honesty	3 spontaneous recall		
		2 correct word/incorr	ect form	
	;	2 after "A good, per	sonal quality."	
		1 after "Was it hone	sty, charity, modes	ty?"
		unable to recall/ref	used (provide the co	rrect answer)
		9 not attempted/disa	bled	
6.	1 "What is today'	s date?" Probe for	the month, day or ye	ear if not volunteered.
	/	//		
	M M	D D Y	YY	Υ
6.		y of the week?"		E ("X") 'C
	1 correct 0 error/refu		ord answer in error.	Enter "X" if no response.
		npted/disabled	day of week	_
6.	3 "What season o	of the year is it?"		
	1 correct		ord answer in error.	Enter "X" if no response.
	0 error/refu9 not atten	used npted/disabled	Season	_
		•		

Page 2 of 8 02/05/2010

		Participant ID (affix ID label here)		Acrostic
7.1	"Wha	it state are we in?"		
	1 0	correct error/refused	Record answer in error.	Enter "X" if no response.
	9	not attempted/disabled	State	
7.2	"Wha in?"	t county (parish) are we		
	1 0	correct error/refused	Record answer in error.	Enter "X" if no response.
	9	not attempted/disabled	County	
7.3	"Wha	it (city/town) are we in?"		
	1 0	correct error/refused	Record answer in error.	Enter "X" if no response.
	9	not attempted/disabled	City/town	

7.4 "Are we in a clinic, store, or home?"

If the correct answer is not among the three alternatives, (e.g., hospital or nursing home), substitute it for the middle alternative (store). If the participant states that none is correct, ask them to make the best choice of the three options.

- 1 correct
- 0 error/refused
- 9 not attempted/disabled
- **8.** Point to the object or a part of your own body and ask the participant to name it. Score 0 if the participant cannot name it within 2 seconds or gives an incorrect name. Do not wait for the participant to mentally search for the name.

		correct	error/refused	not att/disabled
8.1	pencil: "What is this?"	1	0	9
8.2	watch: "What is this?"	1	0	9
8.3	forehead: "What do you call this part of the face?	1	0	9
8.4	chin: "And this part?"	1	0	9
8.5	shoulder: "And this part of the body?"	1	0	9
8.6	elbow: "And this part?"	1	0	9
8.7	knuckle: "And this part of the hand?"	1	0	9

Page 3 of 8 02/05/2010

	(8	Participant ID affix ID label here)	Acrostic	
9.	Discontin seconds, animals animals.	"What animals have four legs? Tell me as many as you can." Discontinue after 30 seconds. Count all correct responses. If the participant gives no response in 10 seconds, and there are at least 10 seconds of remaining time, gently remind (once only) "What (other) animals have four legs?" The first time an incorrect answer is provided, say "I want four-legged animals." Do not correct for subsequent errors. Score (total correct responses):		
		additional correct answers on a		
10	0.1 "In what	way are an arm and a leg ali	ke?"	
	the answ	If the participant fails to give an answer that is worth 2 points, mark the appropriate score of 1 or 0. If the answer is not worth 2 points, coach the participant by saying "An arm and a leg are both limbs or extremities." Do not coach for questions 10.2 and 10.3.		
	2	limbs, extremities		
	1	, <u> </u>	dy parts, both bend, have joints)	
	0 9	error (e.g., states differences, on attempted/disabled	gives unrelated answer)/refused	
1(way are laughing and crying	alike?"	
-	2	expressions of feelings, emotion		
	1	lesser correct answer (e.g., so		
	0 9	error (e.g., states differences, q not attempted/disabled	gives unrelated answer)/refused	
1(way are eating and sleeping	alike?"	
	2	necessary bodily functions, ess		
	1	1 lesser correct answer (e.g., bodily functions, relaxing, "good for you")		
	0 9	error (e.g., states differences, q not attempted/disabled	gives unrelated answer)/refused	
1 ⁻		what I say: I would like to go	out."	
	•		but with normal tempo of a spoken sentence.	

not attempted/disabled
Page 4 of 8
02/05/2010

2

1

0 9 Correct

1 or 2 words missed

3 or more words missed/refused

	Acrostic Acrostic
Participant ID (affix ID label here)	

12. "Now repeat: No ifs, ands or buts."

Pronounce the Individual words clearly, but with normal tempo of a spoken sentence. Give no credit if the participant misses the "s".

		correct	error/refused	not att/disabled
12.1	no ifs	1	0	9
12.2	ands	1	0	9
12.3	or buts	1	0	9

13. Hold up Card 41-1 and say: "Please do this."

If the participant does not close his/her eyes within 5 seconds, prompt by pointing to the sentence and saying, "Read and do what this says." If the participant has already read the sentence aloud spontaneously, simply say, "Do what this says."

Allow 5 seconds for the response. Mark 1 if the participant reads the sentence aloud, either spontaneously or after your request, but does not close his/her eyes. As soon as the participant closes his/her eyes, say "Open."

- 3 Closes eyes without prompting
- 2 Closes eyes after prompting
- 1 Reads aloud, but does not close eyes
- **0** Does not read aloud or close eyes/refused
- 9 Not attempted/disabled

14. "Please write the following sentence: I would like to go out."

Hand the participant a piece of blank paper and a pencil with eraser. If necessary, repeat the sentence word by word as the participant writes. Allow a maximum of 1 minute after the first reading of the sentence for the scored response.

Either printing or cursive writing is allowed. Assign 1 point for each correct word, but no credit for "I". For each word, mark 0 if there are spelling errors or incorrect mixed capitalizations (all letters printed in uppercase is permissible). Do not penalize self-corrected errors.

14.1	would	correct 1	error/retused 0	not att/disabled 9
14.2	like	1	0	9
14.3	to	1	0	9
14.4	go	1	0	9
14.5	out	1	0	9

14.6 Note which hand the participant uses to write. If this is not done, ask participant if he/she is right or left-handed. (For use in Question 16):

1 right 2 left 9 unknown

Page 5 of 8 02/05/2010

	Acrostic Acrostic
Participant ID (affix ID label here)	

15. "Here is a drawing. Please copy the drawing onto this piece of paper."

Hand the participant a piece of paper and Card 41-2. For right-handed participants, present the sample on their left side. For left-handed participants, present the sample on their right side. Allow one minute for copying. In scoring, do not penalize for self-corrected errors, tremors, minor gaps, or overshoots.

15.1 pentagon 1

- 4 5 approximately equal sides
- **3** 5 sides, but longest: shortest side is > 2:1
- 2 nonpentagon enclosed figure
- 1 2 or more lines, not an enclosure
- 0 less than 2 lines/refused
- 9 not attempted/disabled

15.2 pentagon 2

- 4 5 approximately equal sides
- **3** 5 sides, but longest: shortest side is > 2:1
- 2 nonpentagon enclosed figure
- 1 2 or more lines, not an enclosure
- 0 less than 2 lines/refused
- 9 not attempted/disabled

15.3 intersection

- **2** 4-cornered enclosure
- 1 other than 4-cornered enclosure
- **0** no enclosure/refused
- 9 not attempted/disabled

Page 6 of 8 02/05/2010

	Acrostic Acrostic
Participant ID (affix ID label here)	

16. Refer back to Question 14.6 to determine the participant's dominant hand. Hold up a piece of white paper in plain view of the participant but out of his/her reach, and say:

"Take this paper with your left (right for left-handed person) hand, fold it in half, and hand it back to me."

After saying the whole command, hold the paper within reach of the participant. Do not repeat any part of the command. Do not give visual cues for his/her to take or return the paper. He/She may hand it back with either hand.

		correct	error/refused	not att/disabled
16.1	takes paper in correct hand	1	0	9
16.2	folds paper in half	1	0	9
16.3	hands paper back	1	0	9

17. "What three words did I ask you to remember earlier?"

The words may be repeated in any order. Administer even if the score = 0 on question 5. If the participant cannot give the correct answer after a category cue, provide the three choices listed. If the participant still cannot give the correct answer from the three choices, mark "0" and provide the correct answer.

- 17.1 shirt 3 spontaneous recall 2 correct word/incorrect form 2 after "Something to wear." 1 after "Was it shirt, shoes or socks?" 0 unable to recall/refused (provide the correct answer) 9 not attempted/disabled **17.2** brown 3 spontaneous recall 2 correct word/incorrect form 2 after "A color." 1 after "Was it blue, black, brown?" 0 unable to recall/refused (provide the correct answer) 9 not attempted/disabled
- **17.3** honesty **3** spontaneous recall
 - 2 correct word/incorrect form
 - 2 after "A good, personal quality."
 - 1 after "Was it honesty, charity, modesty?"
 - **0** unable to recall/refused (provide the correct answer)
 - 9 not attempted/disabled

Page 7 of 8 02/05/2010

		Participa (affix ID lab				Acrostic		
18.	8. "Would you please tell me again where were you born?" Record Responses.							
40	•	of birth:	Matches Q1.1 8	1.2 Doe	esn't Match/refused	not att/ disabled		
18.	city/tow	n 	1		0	9		
18.	2 state/co	ountry	4		0	9		
19.	Special	problems?	1		U	9		
	1	yes —						
	0	no	\					
19.	19.1 Primary problem:							
	1	Vision						
	2	Hearing						
	3	Inability to write due to injury/illness						
	4	Illiteracy/lack of education						
	5	Language (difficulty speaking/ understanding English)						
	8	Other, specify:						
	Secondary problem:							
	1	Yes, spe	ecify:					
	0	no						

Page 8 of 8 02/05/2010

Total 3MSE Score