

Homework Assignment 4

HWA4.1 For questions **HWA4.1.1** to **HWA4.1.5**, analyze the data given in [data_HWA4_1.sav](#).

Create a table as below and answer the questions.

	Options			
	A	B (Key)	C	D
All examinees				
Top 25%				
Bottom 25%				

HWA4.1.1 The p -value of the item is ____.

- 1) .20
- 2) .25
- 3) .30
- 4) .35

HWA4.1.2 Based on the top and bottom 25% of the examinees, the discrimination d is ____.

- 1) .08
- 2) .12
- 3) .35
- 4) .46

HWA4.1.3 The percentage of examinees choosing Option A is ____%.

- 1) 10
- 2) 20
- 3) 25
- 4) 30

HWA4.1.4 Given a cutoff of $p = .5$, this item is considered a/n ____ item

- 1) easy
- 2) moderate
- 3) difficult

HWA4.1.5 Given a cutoff of $d = .4$, this item is considered to have a ____ discrimination power.

- 1) high
- 2) moderate
- 3) low

Write your answer as a five-digit number.

HWA4.2 For the following questions, analyze the data given in [MCitem_I20_N500.sav](#), which consist of 500 examinees' responses to 20 multiple-choice items.

HWA4.2.1 Create the low and high groups using the total scores closest to the lowest 25% and highest 25%, respectively. The **maximum** score for the low group is 8, whereas the **minimum** score for the high group is ____.

- 1) 12
- 2) 13
- 3) 14
- 4) 15

HWA4.2.2 Based on the grouping above, the discrimination index of Item 1 is ____.

- 1) .560
- 2) .645
- 3) .345
- 4) .630

For **HWA4.2.3- HWA4.2.5**, choose from the following options:

- 1) .761
- 2) .762
- 3) .763
- 4) .764
- 5) .765

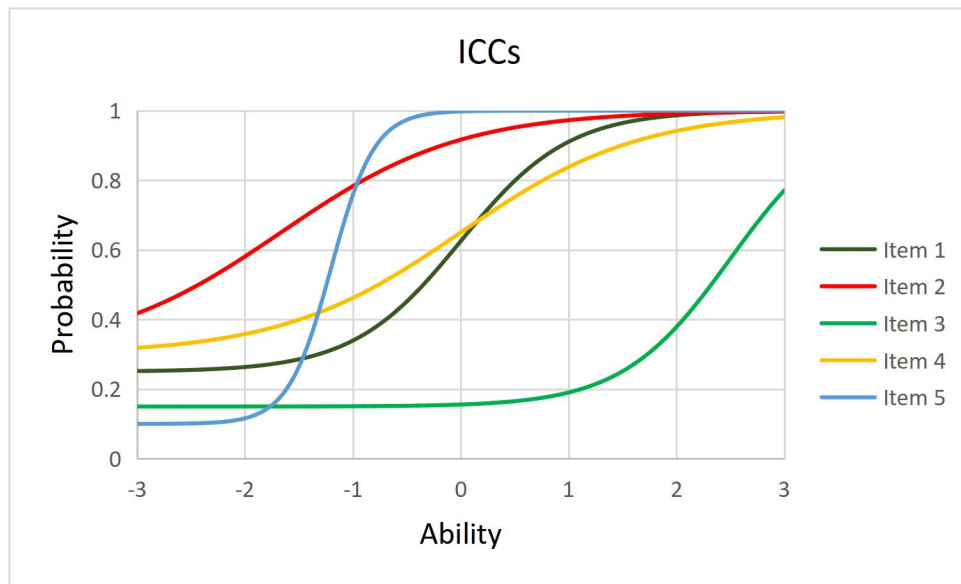
HWA4.2.3 The Cronbach's alpha of the whole test is ____.

HWA4.2.4 The Cronbach's alpha if Item 8 is deleted is ____.

HWA4.2.5 If we iteratively delete the worst item, the resulting 16-item test has a Cronbach's alpha of ____.

Write your answer as a five-digit number.

HWA4.3. The follows are the item characteristics curves (ICCs) for five items.



For **HWA4.3.1- HWA4.3.3**, choose from the options below.

- 1) having high discrimination, difficult, and difficult to guess
- 2) having good discrimination, easy, and difficult to guess
- 3) having poor discrimination, of average difficulty, and easy to guess
- 4) having poor discrimination, easy, and easy to guess
- 5) having good discrimination, of average difficulty, and moderately hard to guess

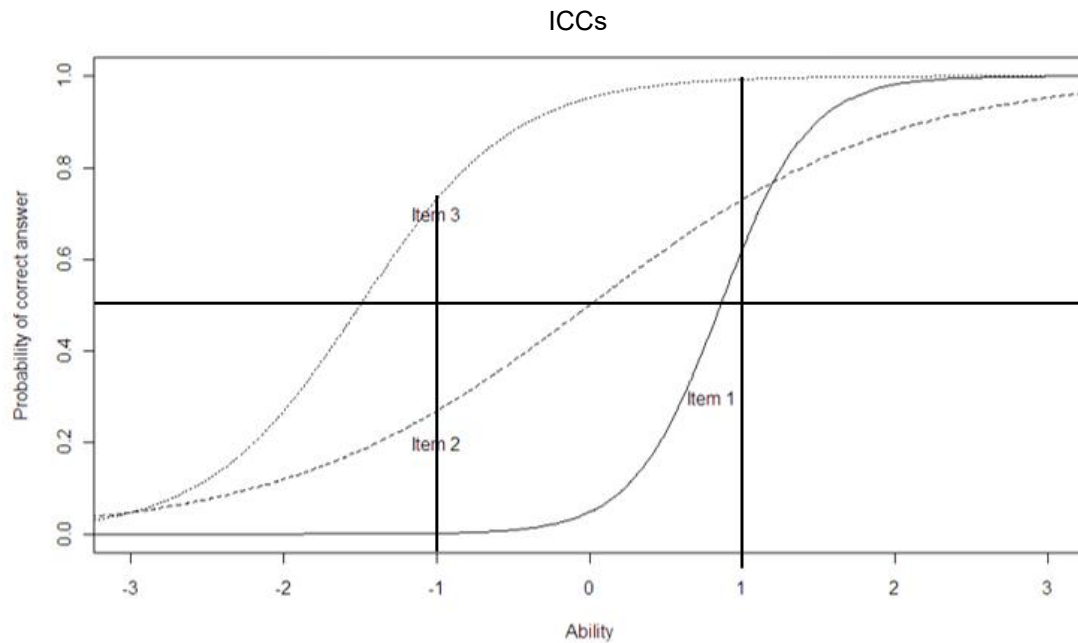
HWA4.3.1 Item 1 can be described as ____.

HWA4.3.2 Item 3 can be described as ____.

HWA4.3.3 Item 4 can be described as ____.

Write your answer as a three-digit number.

HWA4.4 The follows are the ICCs corresponding to three items.



HWA4.4.1 For a person whose ability level is -1, what is the approximate probability for the student to answer **Item 2** correctly?

- 1) .40
- 2) .12
- 3) .27
- 4) .50

HWA4.4.2 For a person whose ability level is 1, what is the approximate probability for the student to answer **Item 1** **INCORRECTLY**?

- 1) .35
- 2) .45
- 3) .55
- 4) .65

HWA4.4.3 The difficulty of **Item 2** is ____.

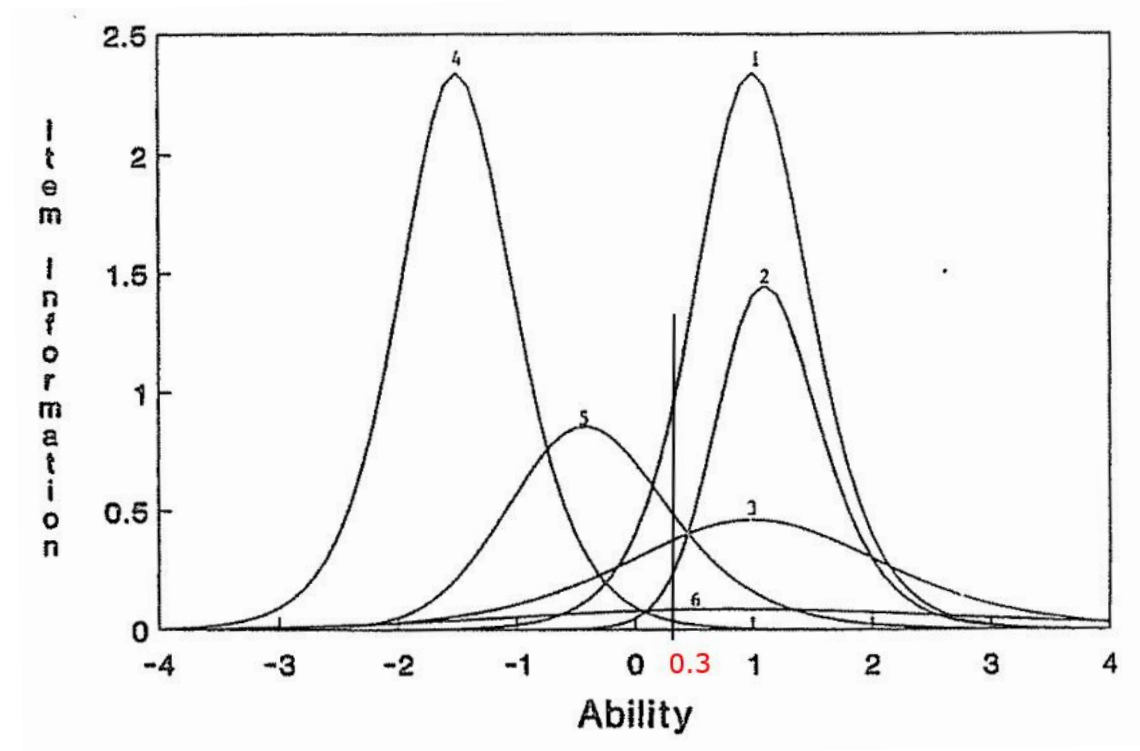
- 1) -2
- 2) -1
- 3) 0
- 4) 1

HWA4.4.4 Item ____ is the most discriminating.

- 1) 1
- 2) 2
- 3) 3

Write your answer as a four-digit number.

HWA4.5. The following graph shows the information of 6 items across different ability levels.



For HWA4.5.1- HWA4.5.3, choose from the options below.

- 1) 1
- 2) 2
- 3) 3
- 4) 4
- 5) 5
- 6) 6

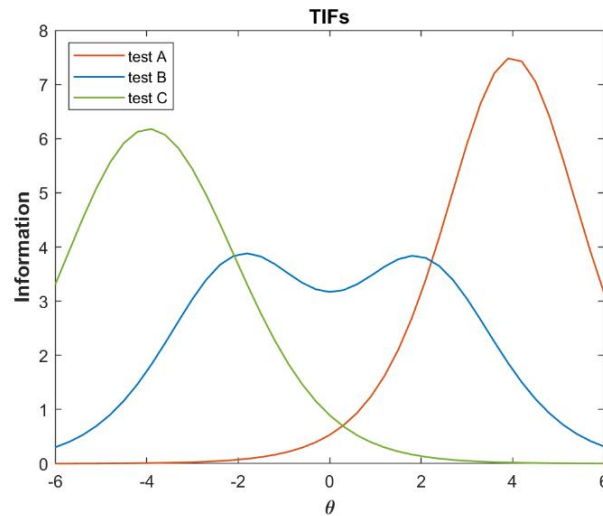
HWA4.5.1 Item ____ provides the most information for examinees whose ability level is 1.0.

HWA4.5.2 Item ____ is the best item for examinees whose ability level is 0.

HWA4.5.3 Item ____ provides the least information for examinees whose ability level is .3.

Write your answer as a three-digit number.

HWA4.6 The following is the test information functions (TIF) for two tests.



HWA4.6.1 If the test is to be used for examinees whose abilities are between -2 and 2, Test ____ is most informative, whereas Test ____ is least informative.

- 1) A
- 2) B
- 3) C

HWA4.6.2. Test ____ should be used to award highly competitive scholarships, whereas Test ____ for identify students strongly needing remediation?

- 1) A
- 2) B
- 3) C

Write your answer as a four-digit number.