

ITEM ANALYSIS

Q1. Type of Level

$$M_u = \frac{\text{Total marks of upper students}}{\text{Total ~~marks~~ ^{no.} of upper students}}$$

$$= \frac{8}{9} = 0.88$$

$$M_L = \frac{\text{Total marks of lower students}}{\text{Total ~~marks~~ ^{no.} of lower students}}$$

$$= \frac{7}{9} = 0.77$$

$$D_i = \frac{M_u + M_L \times 100}{N} = \frac{0.88 + 0.77}{18} \times 100$$

$$= 9.16$$

$$D_p = \frac{M_u - M_L}{N/2} = \frac{0.88 - 0.77}{18/2} \times 100 = 1.22$$

Q2. $M_u = \frac{5}{9} = 0.55$

$$M_L = \frac{3}{9} = 0.33$$

$$D_i = \frac{0.55 + 0.33}{18} \times 100 = 4.88$$

$$D_p = \frac{0.55 - 0.33}{9} \times 100 = 2.44$$

Q3. Type of level

$$M_u = \frac{8}{9} = 0.88$$

$$M_L = \frac{4}{9} = 0.44$$

$$D_i = \frac{0.88 + 0.44}{18} \times 100 = 7.33$$

$$D_p = \frac{0.88 - 0.44}{9} \times 100 = 4.88$$

Q4. $M_u = \frac{8}{9} = 0.88$

$$M_L = \frac{4}{9} = 0.44$$

$$D_i = \frac{0.88 + 0.44}{18} \times 100 = 7.33$$

$$D_p = \frac{0.88 - 0.44}{9} \times 100 = 4.88$$

Q5. $M_u = \frac{6}{9} = 0.66$

$$M_L = \frac{2}{9} = 0.22$$

$$D_i = \frac{M_u + M_L}{N} \times 100$$

$$= \frac{0.66 + 0.22}{18} \times 100$$

$$= 4.88$$

$$\begin{aligned} D_p &= \frac{M_u - M_L}{N/2} \times 100 \\ &= \frac{0.66 - 0.22}{9} \times 100 \\ &= 4.88 \end{aligned}$$

Q8. $M_u = \frac{9}{9} = 1$

$$M_L = \frac{4}{9} = 0.44$$

$$\begin{aligned} D_i &= \frac{1 + 0.44}{18} \times 100 \\ &= 8 \end{aligned}$$

$$D_p = \frac{0.66 - 0.22}{9} \frac{1 + 0.44}{8} = 6.22$$

Pragya College of Education

ITEM ANALYSIS

Item analysis is a statistical technique which is ~~fulfilled~~ used for selecting and rejecting the items of a test on the basis of their difficulty value and discrimination power. It is concerned with two characteristics of an item i.e. its difficulty value and discrimination power.

NEED FOR ITEM ANALYSIS

- Main purpose of the test are -
- Classification of students and ^{candidates} characteristics.
- Selection of the candidates for the job.
- Graduation of academic purpose to assign grade or division to the students.
- Establishing individual difference research.
- Research for the verification of the hypothesis.

FUNCTIONS

The main function of the item analysis is to obtain index of the item which indicate the basis characteristic. They are

ITEM DIFFICULTY VALUE ($D_i/D.I$) is the proportion of subjects answering such items correctly.

DISCRIMINATIVE POWER ($D.P/D.p$) of item, this characteristic is of two types

- a) Item Reliability - It is taken as the point between an item & the total score, multiplied by the item standard deviation. It basically refers to the consistency of the scores obtained how consistent they are for each individual and from one set of items to another.
- b) Item Validity - It is the extent to which an individual item measures what is its purpose to measure or referring to meaningfulness, correctness, appropriateness and usefulness of specific decisions a teacher makes based on the test.

Item analysis serves the purpose —

- To improve and modify a test for immediate use or a parallel group of subject

- To provide statistical check up for the characteristics of the test item for the judgement of the test designer.
- To test best items for a test with regard to its purpose.

DIFFICULTY VALUE -

If an item test is answered correctly by every examination, it means the item is very easy & difficulty value is 100%. If an item is not answered by any of the examiner, it means the item is most difficult & item value is zero and is rejected.

The difficulty value of an item is defined as the proportion or % of the examinees who have answered the item correctly. — J.P. Guilford.

DISCRIMINATIVE POWER -

The discriminative power of an item is used to check the item reliability & validity, it can be explained with the help of simple illustration of extreme ends.

If an item of test is answered correctly or is known by the entire examinee it means that the item is answered by superior as well as inferior examinees of the same group the

discriminative power of such item is zero and such items are rejected.

INTERPRETATION ON THE BASIS OF ITEM ANALYSIS

Q1. μ is 0.88 and ML is 0.77

Its difficulty index is 9.16 and its discrimination power is 1.22 on the basis of D_i ; it is not a good question and so should be rejected.

Q2. μ is 0.55 and ML is 0.33.

The difficulty index is 4.88 and its discrimination power is 2.44 on the basis of D_i ; it is a poor question and should not be included.

Q3. μ is 0.88 and ML is 0.44

Its difficulty index is 7.33 and its discrimination power is 4.88 on the basis of D_i ; it is not a good question and not to be included.

Q4. μ is 0.88 and ML is 0.44. Its difficulty

index is 7.33 and its discrimination power is 4.88 on the basis of D_i ; it is not a good question and so should be rejected.

- Q5. M_u is 0.66 and M_L is 0.22.
Its difficulty index is 4.88 and discrimination power is 4.88 on the basis of D_i , it is not a very good question and so should be rejected.
- Q6. M_u is 0.77 and M_L is 0.55
Its difficulty index is 7.33 and its discrimination power is 2.44 on the basis of D_i , it is not a good question and should be rejected.
- Q7. M_u is 0.77 and M_L is 0.33
Its difficulty index is 6.11 and its discrimination power is 4.88 on the basis of D_i , and it is not a very good question and should be rejected.
- Q8. M_u is 1 and M_L is 0.44
Its difficulty index is 8 and its discrimination power is 6.22 on the basis of D_i it is an average question and so should be included in the paper.