



Chhatrapati Shahu Ji Maharaj
University, Kanpur

Answer Script Details
Barcode 6888183

Roll No. 23072000247
Total Mark 40/75.00

Exam BACHELOR OF COMMERCE_DEC-2023
Subject C010102T - BUSINESS STATISTICS

Question wise Mark Summary

Q.No Mark Q.No Mark Q.No Mark Q.No Mark

1A 3/5

1B 3/5

1C 3/5

1D 3/5

1E 2/5

1F 1/5

1G 2/5

1H 2/5

1I 3/5

2 NA/15

3 NA/15

4 9/15

5 NA/15

6 NA/15

7 NA/15

8 NA/15

9 9/15

Chhatrapati Shahu Ji Maharaj University Kanpur, Uttar Pradesh

PART-II

MARKS OBTAINED

Q.	1	2	3	4	5	6	7	8	9	10
(a)										
(b)										
(c)										
(d)										
(e)										
(f)										
(g)										
(h)										
(i)										
(j)										
Total										
Total Marks in Figures										Max. Marks
Total Marks in Words										



C 0 1 0 1 0 2 T
Paper Code

Signature of Evaluator

Date of Exam: 31/01/2024 Shift: 01:00-03:00 Room No: 2
 Paper Code: C010102T Subject: B.Stats Year/Sem: 1st
 Name of Candidate: Aknati Dubey
 Roll No: 23072000247

Aknati
Signature of Candidate

COE Facsimile

Rishi
31-1-24
Signature of Invigilator

Course: B.com
 Session: 2023-24 Year/Semester: 1st sem
 Subject Name: Business Statistics
 Medium: English Hindi
 Paper Code: C 0 1 0 1 0 2 T
 Exam Date: 3 1 0 1 2 0 2 4
 Name of Candidate: AKRATI DUBEY
 Father's Name: GJRISH DUBEY

संस्थान का कोड
College Code

E W 0 2

A	A	<input checked="" type="radio"/>	0	0
<input checked="" type="radio"/>	B	1	1	1
F	D	2	<input checked="" type="radio"/>	2
H	J	3	3	3
K	K	4	4	4
L	L	5	5	5
R	M	6	6	6
S	N	7	7	7
U	T	8	8	8
U	9	9	9	9

परीक्षा केंद्र का कोड
Exam Centre Code

E W 0 2

A	A	<input checked="" type="radio"/>	0	0
<input checked="" type="radio"/>	B	1	1	1
F	D	2	<input checked="" type="radio"/>	2
H	J	3	3	3
K	K	4	4	4
L	L	5	5	5
R	M	6	6	6
S	N	7	7	7
U	T	8	8	8
U	9	9	9	9

परीक्षा का प्रकार
Type of Exam

Regular Ex-Student
 Private Back Paper Exam

ANSWER BOOKLET NO.
6888183

C 0 1 0 1 0 2 T
Paper Code



संस्थान का कोड
Enrolment Number: C S J M A 2 3 0 0 0 1 3 1 4 7 7

परीक्षार्थी का कोड
Candidate's Roll Number: 23072000247

परीक्षा केंद्र का कोड
Paper Code: C 0 1 0 1 0 2 T

2 3 0 7 2 0 0 0 2 4 7

<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

C 0 1 0 1 0 2 T

A	<input checked="" type="radio"/>	0	<input checked="" type="radio"/>	0	<input checked="" type="radio"/>	0	<input type="radio"/>	0	<input type="radio"/>	N
B	1	<input checked="" type="radio"/>	1	<input checked="" type="radio"/>	1	1	1	1	1	P
<input checked="" type="radio"/>	2	2	2	2	2	2	<input checked="" type="radio"/>	2	2	R
E	3	3	3	3	3	3	3	3	3	
F	4	4	4	4	4	4	4	4	4	
G	5	5	5	5	5	5	5	5	5	
Z	6	6	6	6	6	6	6	6	6	
K	7	7	7	7	7	7	7	7	7	
W	8	8	8	8	8	8	8	8	8	
9	9	9	9	9	9	9	9	9	9	

Aknati
Signature of Candidate

Rishi
31-1-24
Signature of Invigilator

वरिष्ठ केन्द्राध्यक्ष
जनता कलेज कानपुर (इटावा)

Aknati
COE Facsimile

COE Facsimile

नोट- 1. परीक्षार्थी को निर्दिष्ट किया जाता है कि आवरण वाले को पृष्ठ भाग पर अंकित सभी निर्देशों को सावधानीपूर्वक पढ़ें।
 2. आवरण में भरो जाने वाली प्रविष्टियाँ कभी त्रुटि से मुक्त नहीं होंगी। 3. गोपनीय कोड वाले या पीले बॉक्सिंग से भरा नहीं है।

INSTRUCTION TO THE CANDIDATE FOR FILLING PART-I

1. Read the instructions carefully given on the answer script and admit card.
2. Write Date of Exam, Shift, Paper Code & Name of Subject Correctly.
3. Write Name & Roll No. Correctly.
4. Write Semester & Branch Correctly.

INSTRUCTION TO THE CANDIDATE FOR FILLING PART-III

Use blue or black ball point pen for writing alphabets & numerals in boxes.

2. Carefully study the example before you start marking.
3. As shown in the example below, blacken the circles completely.



4. Make no Stray marks on this sheet.

5. DO NOT WRITE OR MARK ON THE BAR CODE.

IN ORDER TO AVOID UFM (UNFAIR MEANS) :

1. The Roll No. and Answer Book no. found elsewhere or any other symbol found in the answer book will be treated as unfair means.
2. Any tempering of Bar Code and Booklet no shall be treated as Unfair Means.
3. Do Not bring the materials like slip of paper/mobile/digital diaries/ study material/ revision notes in examination hall. Possession of the mobile/ digital diaries/electronic/digital/ watch and any other electronic gadget except memory less scientific calculator shall be considered as UFM case.
4. Do not keep or paste currency note in answer script it shall be consider as UFM.

अनुचित साधन से बचने हेतु :

1. उत्तर पुस्तिका के निर्दिष्ट स्थान को छेड़कर अनुक्रमांक एवं उत्तरपुस्तिका का क्रमांक कहीं और न लिखें तथा कोई भी चिन्ह न बनाएं क्योंकि यह अनुचित साधन प्रयोग की परिधि में आता है।
2. उत्तर पुस्तिका के बारकोड अथवा उत्तर पुस्तिका संख्या पर छेद पड़ने पर अनुचित साधन प्रयोग माना जावेगा।
3. परीक्षा कक्ष में फोन वस्तुएं लाए न जाएं, जैसे लिखे हुए कागज के टुकड़ों, मोबाइल, डिजिटल डायरी, डिजिटल वॉच, कापी, पुराना या सफ़ी वस्तुएं जो अनुचित साधन के अन्तर्गत आती हैं। केवल संबंधित प्रश्नपत्र में ही पेन/पेंसिल लेख साइट/डिजिटल कैलकुलेटर ले जाने की अनुमति होगी।
4. उत्तर पुस्तिकाओं में रूपरेखा न रखें व ही उत्तर पुस्तिका में विचरवायें। ऐसा करना अनुचित साधन प्रयोग की परिधि में आता है।

उत्तरपुस्तिकाओं की संख्या

1. प्रश्न पत्र एवं उत्तर पुस्तिका पर विषय एवं निर्देशों को ध्यान से पढ़ें।
2. प्रश्न पत्र के दूसरी तरफ मुद्रण न हों।
3. उत्तर पुस्तिका के पृष्ठों पर दोनों तरफ लिखें।
4. प्रश्न पत्र पर अपने अनुक्रमांक के अधिलेखन मुद्रण न लिखें।
5. प्रश्न पत्र कोड एवं प्रश्न पत्र ID साफ़जानी पूर्णक लिखें।
6. अपनी स्थिति स्पष्ट लिखें।
7. उत्तर पुस्तिका के पृष्ठों की संख्या देखें। अगर उत्तर पुस्तिका में पृष्ठ (1-24) से कम है या फटे हुए है, तो परीक्षा शुरू होने के पूर्व दूसरी उत्तर पुस्तिका ले लें।
8. प्रश्नपत्र को देख, यदि प्रश्नपत्र के विषय कोड, विषय का नाम तथा प्रश्न में कोई त्रुटि है तो उसको परीक्षा होने के 30 मिनट के अन्दर बस निदेशक को साफ़जान सूचित करें, उसके बाद विश्वविद्यालय द्वारा कोई भी चर्चा नहीं की जावेगी।
9. प्रश्नों के उत्तर लिखने के लिये पेंसिल का प्रयोग न करें।
10. वी कोपी या अधिलेखन बाफ़ नहीं दिया जावेगा।

INSTRUCTION TO THE CANDIDATE

1. Read the instructions carefully given on the Question Paper, Admit Card & Answer Script.
2. Do not write anything on back side of the cover page.
3. Write on both sides of pages of answer book.
4. Do not write anything on question paper except Roll Number.
5. Write Paper Code & Question Paper Id carefully.
6. CHECK the number of pages (1-24) or any other kind of damage in your answer script, if found than change the answer script immediately before the commencement of examination.
7. CHECK the Question Paper for any kind of discrepancy e.g. Subject Code, Subject Name, and Question of the Question Paper during first THIRTY MINUTES of the commencement of the exam, so that it can be corrected in TIME. After that no corrections shall be entertained by the university.
8. Do not use pencil for answering the question.
9. Write status correctly e.g. those appearing in carry over papers should fill in status as Carry Over. Those appearing as Ex- Students should fill in status as ex.
10. No supplementary answer book & graph paper will be provided.

INSTRUCTION TO THE CANDIDATE FOR FILLING PART-IV

1. Use blue or black ball point pen for writing alphabets & numerals in Boxes.
2. Use blue or black ball point pen for filling the circles.

	1	8	1	5	4	3	2	1	6	9
0	0	0	0	0	0	0	0	0	0	0
1	●	1	●	1	1	1	1	●	1	1
2	2	2	2	2	2	2	●	2	2	2
3	3	3	3	3	3	●	3	3	3	3
4	4	4	4	4	●	4	4	4	4	4
5	5	5	5	●	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6	●	6
7	7	7	7	7	7	7	7	7	7	7
8	8	●	8	8	8	8	8	8	8	8
9	9	9	9	9	9	9	9	9	9	●

Note- If your Roll No. is of 10 digits. Please leave first three columns.



Paper Code

C 0 1 0 1 0 2 7



1

Question-1-

Answer- Statistics refers to the science that deals with the methods of collecting, classifying, representing, analysing and ~~interstate~~ interpretation of collected data to throw some light on any sphere of enquiry.

Profession P.C. Mahalanobis considered as ✓ father of Indian statistics.

P.C. Mahalanobis contributed alot in the development of Indian statistics or Indian Statistical System.

Before independence, Indian statistics department hasn't developed much but after the independence, The Indian statistics department has shown a tremendous growth. In Indian statistics, the first census was conducted in 1908.

There are several important →



Paper Code

--	--	--	--	--	--	--	--	--	--



2

statistical organisation which are established in India for the development of statistics.

for example - National sample survey was established.
later, this organisation, recognised as National Sample Survey Organisation.

Do Not Write anything in this Portion



Paper Code

--	--	--	--	--	--	--	--



3

Question-2.

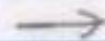
Answer- Correlation refers to the causal relationship of two variables from different series. If there are two variables, A and B. Whenever A reduces or changes B also changes to some extent. Hence, we can say that A and B are interrelated to some extent.

Therefore, they are correlated or have correlation among them.

The formula of correlation :-

The two main personalities had done a lot of research in this field are Karl Pearson and Spearman.

They have created different formulae for measuring the correlation among two variables.





Paper Code


--	--	--	--	--	--	--	--	--	--



4

Karl Pearson's formula of correlation

$$r_k = \frac{\sum dx dy \cdot N - (\sum dx \cdot \sum dy)}{\sqrt{[\sum dx^2 \cdot N - (\sum dx)^2][\sum dy^2 \cdot N - (\sum dy)^2]}}$$

Spearman's Rank  correlation

$$r_s = 1 - \frac{6 \sum D^2}{n(n^2 - 1)}$$

Do Not Write anything in this Portion



Paper Code

--	--	--	--	--	--	--	--



5

Question - 3-

Answer - Partial association is an important aspect in the field of statistics.

Partial association refers to the association which is not complete but is partial.

It helps in analysing the data.

It also helps in making the data easier for our understanding.

Partial association and Illusory Associations are a way more different from each other and have significant importance in the field of statistics.

On the other hand if we talk about illusory Association, it refers to the association which is illusory in nature and is not in actual or in real world.

Illusory association also plays a significant role in the

→



Paper Code

--	--	--	--	--	--	--	--



6

the field of statistics.

Illusory association have a vital role in statistics.

It make us easy to understand the illusory aspects in the statistics.

Illusory Association is very helpful in Business ✓ in planning the future plans for the economy of a country.



Paper Code

--	--	--	--	--	--	--	--



7

Question - 4

Answer - Error refers to the mistakes which occur while completing a task or any written work.

If we relate error with statistics then there are two types of errors -

- ① Probable error.
- ② Standard error.

Probable error refers to the errors which takes place when we unknowingly changes the value while calculating the correlation. Basically, Probable error is an error which comes in existence due mistakenly change in the value of variables while calculating the correlation of two variable in the data series to find the correlation.





Paper Code

--	--	--	--	--	--	--	--



8

Formulae for probable error.

We can remove the probable error from the situation with the help of some formulae.

$$P = 1 - \frac{1}{n}$$





Paper Code

--	--	--	--	--	--	--	--



9

Question-5-

Answer - Regression and correlation are interdependent terms but they are way different from each other.

Regression Correlation refers to the causal relation of two variables from different ^{and} we can understand the correlation from an example.

A	B
100	300
200	200
300	100

We can see that there are two variables A and B, whenever the value of variable A increases the value of variable B decreases. So, whenever there is a change in variable A, variable B also changes to some extent, this is termed as correlation.

Hence, we can say the A and B have correlation between them. →



Paper Code

--	--	--	--	--	--	--	--



10

Regression is related to correlation.

We can understand the regression from the example -

Rain	Temperature
10 cm	45°
20 cm	40°
30 cm	35°
40 cm	30°

Here we can see that when the rain happens in the area the temperature decreases.

Rain increases, the temperature drops.

Hence, when one variable increases and other decreases due to its increment.

This relation or phenomenon, is known as regression.



--	--	--	--	--	--	--	--



Question-6:

Answer. Variation refers to the spreadness of variables around the central value of the data series. It is known as variations or variability.

The variation is calculated with the help of standard deviation and arithmetic mean of the data series.

$$\text{Standard deviation} = \sqrt{\frac{\sum D^2}{N}}$$

$$\text{Arithmetic mean} = \frac{\sum X}{N}$$

Variation



--	--	--	--	--	--	--	--



Question-6-

Answer - Variation refers to the spreadness of the value of variables around the central value of the data series is known as variation or dispersion or variability.

Various ratios of variation are -

- ① Range - Range is calculated by deducting the lowest value from the highest value in the series.

$$\text{Range} = H - h$$

- ② Percentile range = Percentile range is calculated by deducting the P_{10} from P_{90} .

$$P.R = P_{90} - P_{10}$$

- ③ Inter-quartile range - Inter-quartile range is calculated by deducting Q_1 from Q_3 .

$$I.Q.R = Q_3 - Q_1$$



--	--	--	--	--	--	--	--



- ④ Mean deviation - mean deviation is the arithmetic mean of sum of all the deviations from the central value.

$$\text{mean deviation} = \frac{\sum fd_x}{n}$$

- ⑤ Quantile deviation - It is calculated as -

$$Q.D = \frac{Q_3 - Q_1}{2}$$

- ⑥ Standard deviation - standard deviation is the geometric mean of mean deviation. It is calculated as -

$$S = \sqrt{\frac{\sum fd_x^2}{N} - \frac{(\sum fd_x)^2}{N}}$$




Paper Code

--	--	--	--	--	--	--	--



14

Question-7-

Answer. Statistics refers to the science that deals with the methods of collecting, classifying, interpreting, analysing of collected data to throw  light on any sph. of inquiry.

There are various laws comes under Statistical field.

The Law of statistical regularity refers that there is the need of statistical data regularly in every aspect i.e. economic decisions, businesses etc.

Hence, the Law of statistical regularity means that there should be regular statistical data should be provided without any gap of time for the efficient functioning of the institution in the country.



--	--	--	--	--	--	--	--



Question-D-

Answer. There are various laws in the statistics.

One of them is law of inertia of large numbers.

Law of inertia of large numbers refers that whenever there is large number in any data series, those large numbers makes a lot of impact on the values of central tendency and other measures of statistics.

When there are large numbers in the data, most of the time the measures of central tendency majorly lies near those numbers.

Hence, those large numbers attracts the value of central tendency towards them just like inertia works.

This is called law of inertia of large numbers.



Paper Code

--	--	--	--	--	--	--	--



16

Question-9.

Answer. Tabulation is a technique of representing the data in a form design of rows of columns according to their sub-heads and heads.

Advantages and Importance of Tabulation are

- ① Data looks attractive and clear - The tabulation makes the data representation look attractive and clear.
- ② Easily understandable - The representation of data in the form of row and columns makes the data easily understandable by the people.
- ③ Easily analysed - With the help of the table the data can be easily analysed and



Paper Code

--	--	--	--	--	--	--	--



17

there would be no difficulty in analysing the data using the table.

(4) Easily Interpretable by the audience - Whenever the data is represented using the table, it is easy to interpret it and analyse the result.

(5) Highlights the ~~hidden~~ [✓] values - with the help of the table, the hidden value can be identified and result can be prepared easily.



Paper Code

--	--	--	--	--	--	--	--

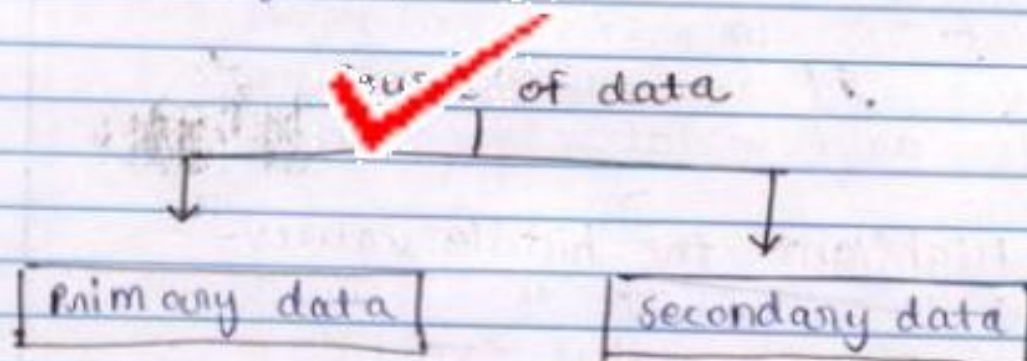


18

SECTION B

Question-4. What are Primary
secondary data?

Answer- The source of data
is classified under two
categories -



Primary data -

Primary data refers to the data
which is collected for the first time
by the investigator for a
specific purpose or enquiry.
Primary data is original data.

Example - Suppose we need to
a survey on the life style of
the workers.

For this purpose, either the



Paper Code

--	--	--	--	--	--	--	--



19

investigator himself or he appoints the correspondance to approach the workers and gather the information about their life style. This type of information is known as primary Data.

Secondary data -

Secondary data is a type of data which is already collected and being used for some purpose.

It is less original data as compared to primary data.

Secondary data is again classified in published data or unpublished data.

Let's understand secondary data with example.

Example - Suppose if we have to do a survey on the death cause due to accidents.

Then instead of gathering information personally, we go to the organisations who have collected this data already.

This type of data is known as secondary data. →



--	--	--	--	--	--	--	--



Precautions taken while using secondary data are -

① Reliability of data - Before using the secondary data we have to consider that whether the data is reliable or not because we don't know the methods from which it is collected.

② Suitability - We have to check the suitability of data. That whether the data is fulfilling the purpose of enquiry or not. For example - If we are doing enquiry on death rate and data is related to the death by diseases then it will not suit the purpose of enquiry.

③ Complete data - We have to consider that the data is complete or enough for the enquiry. Ex - If we are doing enquiry on crop production of India then the data of total crop production in Haryana is not enough.



Paper Code

--	--	--	--	--	--	--	--



21

SECTION C

Question-6. Distinguish clearly - - - demerits.

Answer-

Difference between Primary and Secondary data.

BASIS	PRIMARY DATA	SECONDARY DATA.
Definition	Primary data refers to the data which is collected for the first time for some purpose.	Secondary data refers to the data which is already collected and used for a purpose.
Originality	Primary data is original as it is collected by investigator himself.	It is less original as compared to primary data.
Cost	More costly	Less costly.
Reliability	More reliable.	Less reliability.
Suitability	More suitable as it is collected for the same purpose.	Less suitable as it is collected for different purpose.
Workers required.	More workforce is required.	Less workforce is required.



--	--	--	--	--	--	--	--



Various methods of collecting primary data.

- ① Personal investigation method.
In this method the investigator himself collects the data from the informant for the enquiry.

Merits -

- There is originality in the data.
- free from biasness.
- Increases reliability of data.

Demerit:

- This method is not good for large area.
- costly to execute.

- ② Indirect oral investigation method -
In this type of method is used when the informant is not ready to give information so the investigator have to approach their close friend or relative who known about the information.



--	--	--	--	--	--	--	--



merits-

- less costly.
- Helps when informant is not ready.
- less time consuming.

Demerits-

- less reliable.
- less originality.

③ Investigation through correspondance.

In this method the investigator appoints the correspondance for gathering the information.

Merits-

- ① suitable for the large area.
- ② Saves the time of the investigator.

Demerits-

- ① Costly as the investigator have to pay the correspondance.

④ Mailed questionnaire method-

In this type of method the questionnaire is prepared and sent to the informant.

After filling the answers the



Paper Code

--	--	--	--	--	--	--	--



24

The Informants send it back.

Merit

- ⊙ Cost saving
- ⊙ Time saving

Demerits -

- ⊙ Cannot gather information from illiterate people.

5) Scheduled questionnaire method.

In this method the investigator himself reaches to the informant with the questionnaire and fill the answers in his own language which are told by informant.

Merit.

- ⊙ Illiterate people can give information.

Demerit.

- ⊙ Not suitable for large area.