Federal University of Technology Minna, School of Science and Technology Education Department of Industrial and Technology Education Second Semester Examination 2019/2020 Session

COURSE: - Research Methods and Data Processing in Technology Education

COURSE CODE: ITE 326; 3 Units DURATION: 2 hours, 45 minutes

INSTRUCTION: Answer only three questions in section A and any two questions in Section B.

SECTION A

- 1a Explain three characteristics of a research.
- b State various steps involved in the research process and explain four.
- c State four importance of hypothesis in educational research.
- 2a Differentiate between two-tailed and one-tailed test in a research.
- b State five factors that influence reliability of a test and explain two.
- c Explain three threats to internal and external validity of experimental design.
- 3a Explain three types of probability and non-probability sampling.
- b What is validity and reliability of research?
- c Explain four reasons of reviewing literature.
- 4a Explain three sources of error in measurement.
- b Differentiate between survey and experimental design.
- c Explain five points that may be observed by a researcher in selecting a research problem.

SECTION B

The test scores recorded by 300 level students of Industrial and Technology Education Department of Federal University of Technology Minna are as follows:

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Scores	54-57	58-61	62-65	66-69	70-73	74-77	78-81	82-85
Frequency	5	7	10	12	6	5	4	1

Calculate the:

- i. Mean
- ii. Median
- iii. Mode

In a COVID-19 campaign carried out at Federal University of Technology Minna, Astra Zeneca vaccine was administered to 500 students of Industrial and Technology Education Department out of a total population of 2000. The number of COVID-19 cases are shown below:

Treatment	COVID-19	No COVID-19
Astra Zeneca vaccine	20	480
No Astra Zeneca vaccine	100	1400

i. State the null hypothesis

ii. State the alternate hypothesis

iii. State your decision rule

iv. Compute the chi-square statistics at 0.05 level of significance

Compute the degree of freedom

vi. State your decision vii. Tabulate your result

viii. Conclude your result

Mal. Aliyu Mustapha carried out a study to investigate the level of awareness of using face mask among Health Practitioners and Non-Health Practitioners in Minna, Niger State. The results obtained are shown in the table below:

Response of Health Practitioners

Response of Non-Health Practitioners

Responses	X	F	Responses	X	F
Very Much Aware	4	76	Very Much Aware	4	67
Much Aware	3	66	Much Aware	3	26
Not Much Aware	2	26	Not Much Aware	2	14
Not Aware at All	1	12	Not Aware at All	1	0

Using the data from the table above:

i. State the null hypothesis

ii. State the alternate hypothesis

iii. State your decision rule

iv. Compute the t-test statistics at 0.05 level of significance

v. · Compute the degree of freedom

vi. State your decision

vii. Tabulate your result

viii. Conclude your result