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

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

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

6 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
v. Compute the degree of freedom
vi. State your decision
vii. Tabulate your result
viii. Conclude your result

7 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

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

Response of Non- Health Practitioners

Responses	X	F
Very Much Aware	4	67
Much Aware	3	26
Not Much Aware	2	14
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