

Federal University of Technology Minna,  
School of Science and Technology Education  
**Department of Industrial and Technology Education**  
Second Semester Examination 2017/2018 Session

**COURSE:** - Research Methods and Data Processing in Technology Education

**COURSE CODE:** ITE 326

**CREDIT UNITS:** 3

**DURATION:** 2 Hours 45 minutes

**INSTRUCTION:** Answer Question **one** and any **two** Questions in Section **A** and Question **six** and any Question in Section **B**

**SECTION A**

- 1a What is internal and external validity in experimental research? Explain two extraneous variables that frequently present threats to internal validity of a research design **(6 marks)**
- b Briefly explain various steps involved in the research process **(10 marks)**.
- c What is hypothesis? State three importance of a hypothesis in educational research **(5 marks)**
- d What is probability sampling? Briefly explain two examples of probability sampling **(4 marks)**
  
- 2a Justify why research is systematic, replicable and measurable **(6 marks)**
- b Why a test instrument must be valid and reliable in research? **(4 marks)**
  
- 3a Briefly explain two major purposes of assumptions in research **(4 marks)**
- b Explain three purposes of reviewing literature in research work **(6 marks)**
  
- 4a What is survey research design? State four characteristics of the survey method of research **(6 marks)**
- b Why is rating scales important in survey method of research **(4 marks)**
  
- 5a What is a questionnaire? State four characteristics of a good questionnaire **(6 marks)**
- b Explain possible sources of error in measurement **(4 marks)**

**SECTION B**

- 6a What is Standard deviation? State the important of standard deviation in research **(3 marks)**
- b The following scores were obtained from ITE 116 examination for Quantity survey department and IT department. Calculate the standard deviation of each departments and what does the standard deviations te us **(4 marks)**

<b>QS</b>	54	50	46	45	42	37	35	30	29	27
<b>ITE</b>	56	54	53	51	40	34	29	29	25	24

- 7 The Table below shows the choice of department among 100 Level students (Males & Females) in some selected department in FUT Minna. Verify the hypothesis that the programme choice is independent of sex using Chi Square Statistic. Test at 0.05 level of significance **(8 marks)**

<b>SEX</b>	<b>Elect Eng</b>	<b>Mech Eng</b>	<b>Building</b>	<b>Bio</b>	<b>Phy</b>	<b>Animal Prod</b>	<b>ITE</b>	<b>CPT</b>	<b>Micro Bi</b>
<b>Male</b>	110	95	76	23	70	45	135	67	49
<b>Female</b>	65	19	21	52	59	32	28	48	58