



**NATIONAL OPEN UNIVERSITY OF NIGERIA**  
**UNIVERSITY VILLAGE, NNAMDI AZIKIWE EXPRESS WAY, JABI, ABUJA**  
**FACULTY OF HEALTH SCIENCES**  
**DEPARTMENT OF PUBLIC HEALTH**  
**2024\_2 EXAMINATION**

**PROGRAMME: MSc. PUBLIC HEALTH**  
**COURSE CODE: PHS813**  
**COURSE TITLE –BIostatistics and Applications**  
**CREDIT UNITS: 3 CREDITS**  
**TIME ALLOWED: 3 HOURS**  
**ATTEMPT ALL QUESTIONS**  
**SCORE = 70 MARKS**

1. At the end of the public health program, postgraduate students are expected to take one of the 3 specialties available: Health care promotion, Epidemiology and Health Education. The management of the school intends to verify the general belief expressed by the public that there is no association between one's gender and the choice of Public health specialty. A sample of 250 graduate nurses were administered with questionnaires and the responses were obtained as given below;

	Health Care Promotion	Epidemiology	Health Education	Total
MALE	35	45		
FEMALE			45	
Total	65		85	

- i. State the appropriate hypotheses for the test. (6 marks)
  - ii. Complete the contingency table. (6 marks)
  - iii. Carry out the test at 5% level of significance (8 marks)
  - iv. State clearly your decision and conclusion (7 marks)
- 2a. Describe the term Random Variables and explain the differences between the two (2) Random Variables. (10 marks)
- b. How many ways can 2 letters be arranged in 8 positions in a row? (4 marks)
- 3i. What is the p-value approach to hypothesis testing? (4 marks)
  - ii. Explain the concept of p-value and its purpose in hypothesis testing.(4 marks)

- iii. Highlight how the p-value approach differs from the traditional approach. (4 marks)
- 4. Assume in a random sample of 220 patients in a hospital, 70 of them were found to have nosocomial infections. Estimate the;
  - i. Proportion  $P$  of patients in the hospital that would have nosocomial infections. (12 marks)
  - ii. Its standard error. (5 marks)