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University Examinations 2023/2024

FIRST YEAR, FIRST SEMESTER EXAMINATION FOR THE DEGREE OF MASTERS IN
EPIDEMIOLOGY

HPE 7112: EPIDEMIOLOGY 1

DATE: APRIL 2024   **TIME: 2 HOURS**

INSTRUCTIONS:
1. **SECTION A:** Answer all question
2. **SECTION B:** Answer any three Questions

QUESTION ONE: (30 MARKS)

a) Describe and discuss four types of bias encountered in epidemiology studies.   (8 Marks)

b) Using examples, discuss the modes of transmission for an infectious disease.   (6 marks)

c) Discuss the major classification and type of study design commonly applied in epidemiology

investigations.   (8 marks)

d) Define and describe the following diagnostic quantities for test.   (8 marks)

i. Sensitivity

ii. Specificity

iii. Positive predictive value

iv. Gold standard in a diagnostics techniques evaluation

SECTION (30 marks)

QUESTION TWO

During the second week of February, individuals from a small community attended a social event and consumed or ate a meal prepared for the occasion. Within 3 days, 39 of the participants become ill with a condition diagnosed as salmonellosis

    i.   Calculate the attack rate of the infection

    ii.   In relation to Koch postulates, discus infection/diseases causality that should be met before a causality relationship is established between a diseases causing organism or diseases agent and a particular disease   (10 marks)

QUESTION THREE

Discuss epidemiology measure of diseases occurrence or frequency and how they relate   (10 marks)

QUESTION FOUR

Using the data, a table below of an outbreak of Covid-19 among inmates at Shimo la Tewa prison in 2020, 28 of 157 inmates residing in the East wing of the dormitory development Covid-19 compared to 4 of 137 inmates residing in the west wing of the dormitory. Compute.

    i.   Absolute risk for the infection   (3 marks)

    ii.   Risk ratio or relative risk for infection.   (4 marks)

    iii.   Interpret the results in (i) and (ii).   (3 marks)

	Positive with Tuberculosis	Negative for Tuberculosis	TOTAL
East Wing Dormitory	28	129	157
West Wing of Dormitory	4	133	137
	32	262	294

QUESTION FIVE

In as study examining the relationship between oral contraceptives and bacteriuria you follow women who do and do not use oral contraceptive over three years' period, and find that 70 of the 500 women

use oral contraceptives acquired bacteriuria, while 150 of 3000 women did not use oral contraceptive acquired bacteriuria.   (10marks)

    i.   Identify the study design that was used

    ii.   Identify and calculate the appropriate measure of association for this study design

    iii.   Interpret the results