UNIVERSITY OF SWAZILAND

FACULTY OF HEALTH SCIENCES

DEPARTMENT OF COMMUNITY HEALTH NURSING SCIENCE

SUPPLEMENTARY EXAMINATION: JULY 2018

COURSE TITLE: COMMUNITY HEALTH NURSING IV (EPIDEMIOLOGY)

COURSE CODE: NUR521

TIME ALLOCATED: 2 HOURS

MARKS ALLOCATED: 75

INSTRUCTIONS:

1. ANSWER ALL THREE QUESTIONS

2. USE THE PROVIDED ANSWER BOOKLET FOR ALL YOUR ANSWERS

3. START ALL QUESTIONS ON A NEW PAGE

4. USE BULLETS FOR EACH POINT IN YOUR ANSWERS (DO NOT INVENT YOUR OWN NUMBERING)

5. CHECK THAT YOUR QUESTION PAPER HAS 9 PRINTED PAGES

6. DO NOT OPEN THE QUESTION PAPER UNTIL PERMISSION HAS BEEN GRANTED BY THE CHIEF INVIGILATOR

QUESTION 1: Multiple Choice Questions
For each of the following questions, write clearly the letter that corresponds with the most appropriate answer e.g. 1.26 D. There is only one correct answer for every question.

1.1 In epidemiological terms, the total number of cases of a disease in a given population during a particular period of time is known as _____ .
   A. Incidence
   B. Pandemic
   C. Prevalence
   D. Epidemic

1.2 The external validity of an experiment means that:
   A. Results have been obtained from cross cultural studies.
   B. Experiments were performed in the open air.
   C. Results are generalizable to other populations.
   D. Results are replicable

1.3 Which of the following is true about incidence?
   A. Is an estimate of the risk of developing the disease
   B. Will increase even if the prevalence equals the number of deaths in a population
   C. Incidence includes both new and old cases in the denominator
   D. Its denominator includes the population that is not at risk of developing the disease

1.4 In drug treatment studies, it may be necessary to use deception. This may involve:
   A. Participant not knowing they are taking part in the study.
   B. Participants unknowingly receiving a placebo.
   C. Participants not being paid.
   D. Asking participants to deceive other participants about the effectiveness of their treatment.

1.5 Pandemic means that a disease_____
   A. Occurs clearly in excess of normal expectancy in a particular community
   B. Is habitually present in human populations
   C. Affects a large number of countries simultaneously
   D. Is a national outbreak of a disease

1.6 In a study of effects of alcohol on driving ability, the control group should be given
   A. a high dosage of alcohol.
   B. twice the dosage given to the experimental group.
   C. a driving test before and after drinking alcohol.
   D. no alcohol at all.

1.7 Which of the following is NOT a strength of experimental studies?
   A. Control of variables.
   B. Establishment of causal links between variables.
   C. Replicability
   D. Narrow definition of concepts.

1.8 Subjects are said to be assigned randomly when:
   A. they are assigned to experimental and control groups from a sample which is representative of the larger population.
   B. they each have an equal chance of being assigned to either the experimental or control group.
   C. they are assigned to experimental and control groups so that the groups differ on some critical variable before the experiment begins.
   D. neither the experimenter nor the subject knows whether the subject is in the experimental or control group.

1.9 An epidemiologist conducts an experiment on the effects of a drug to control hallucinations. He declares the results to be "statistically significant," which means that
   A. even though appropriate statistics were used, no differences could be detected between experimental and control groups.
   B. the results have important implications for theory or practice.
   C. differences between experimental and control groups of this size occur by chance only 5 times out of 100 (or less).
   D. differences between experimental and control groups were so large they could never occur by chance alone.

1.10 An advantage of the experimental research in epidemiology is
   A. the identification of a cause- and-effect relationship.
   B. similar to the correlational method in that causality is determined.
   C. that the surroundings are always similar to real life experiences.
   D. that it is an informal way to investigate risky behaviours in a population.

1.11 At an initial examination among a population, bipolar disorders were found in 5 of 1 000 men aged 30 to 35 years and in 10 of 1 000 women aged 30 to 35 years. The conclusion that women have a two times greater risk of developing bipolar disorders than do men in this age group is:
A. correct
B. incorrect, because a ratio has been used to compare male and female rates
C. incorrect, because no data for a comparison or control group are given
D. incorrect, because of failure to distinguish between incidence and prevalence

Question 1.12 is based on the information in the table below:
A survey was conducted among the non-hospitalized adult population of the United States during 1988 through 1991. The results from this survey are shown below.

Age Group	Persons with Schizophrenia (%)
18–29 years	4
30–39 years	10
40–49 years	22
50–59 years	43
60–69 years	54
70 and older	64

1.12 The researchers stated that there was an age-related increase in the risk of schizophrenia in this population. You conclude that the researchers' interpretation:
A. is correct
B. is incorrect because it was not based on rates
C. is incorrect because incidence rates do not describe risk
D. is incorrect because prevalence is used

1.13 Epidemiologists are interested in learning about:
A. The causes of diseases and how to cure them
B. The frequency and geographic distribution of disease
C. The causal relationship between diseases
D. All of the above

1.14 What questions does analytic epidemiology seek to answer?
   A. Who, what, and where
   B. Who, what, why, and where
   C. How and why
   D. Who, what, why, where, when, and how

1.15 Which one of the following is known as the founder of epidemiology?
   A. Edward Jenner
   B. John Snow
   C. Ignáz Semmelweis
   D. None of the above

1.16 The chief function of the control group in an experiment is that it:
   A. allows mathematical relationships to be established.
   B. provides a point of reference against which the behaviour of the experimental group can be compared.
   C. balances the experiment to eliminate all extraneous variables.
   D. is not really necessary.

1.17 Which of the following correctly defines a carrier?
   A. An individual who harbours the mirco-organism, can infect others, and will eventually get sick from the disease caused by the micro-organsism
   B. An individual who harbours the mirco-organism, cannot infect others, and will not get sick from the disease caused by the micro-organsism
   C. An individual who harbours the mirco-organism, can infect others, but will never get sick from the disease caused by the micro-organsism
   D. An individual who harbours the disease, can infect others, but will never get sick from it

1.18 A vector such as a fly is an example of:
   A. Direct transmission
   B. Common vehicle exposure
   C. Vertical transmission
   D. Indirect transmission

1.19 If neither the experimenter nor the participant knows which experimental condition the participant has been assigned to, this is known as _____ .
   A. Double-blind
   B. Single-blind
   C. Standardization
   D. Experimental conditions

1.20 A randomized controlled trial comparing the efficacy of two psychiatric drugs did not a difference between the two ($p = 0.10$). Assume that in reality, the two drugs differ. This is an example of:
   A. Systematic error on the part of the researchers
   B. Type I error
   C. Correct decision
   D. Type II error

1.21 In epidemiology, the main purpose of assessing the sensitivity of screening and diagnostic tests is:
   A. To determine how good the test is in detecting people with the disease in the population
   B. To discard those tests that yield invalid and unreliable results
   C. To determine how good the test is in detecting people without the disease in the population
   D. Both A and C

Questions 1.22 is based on the information given in the table below:

| | COMMUNITY X | | COMMUNITY Y | |
Age	No. of Deaths	No. of Deaths from suicides	No. of People	No. of Deaths from suicides
Young	8,000	690	5,000	48
Old	11,000	115	3,000	60

1.22 What is the proportionate mortality from suicides for community X?

    A. 8.6%

    B. 1.1%

    C. 20%

    D. 4.2%

1.23 An advertisement in the *Journal of Clinical Psychology* stated that "2,000 subjects with bipolar disorder were treated with our new medicine. Within 4 days, 94% were asymptomatic." The advertisement claims that the medicine was effective. Based on the evidence given above, the claim:

    A. is correct

    B. may be incorrect because the conclusion is not based on a rate

    C. may be incorrect because no control or comparison group was involved

    D. may be incorrect because no test of statistical significance was used

1.24 The purpose of a randomization in a clinical trial to:

    A. Achieve incomparability between treated and untreated subjects

    B. Avoid observer and subject bias

    C. Avoid sampling bias

    D. Eliminate confounding

1.25 When calculating the percent agreement between two observers in a screening program for epileptic seizures among a group of mental health patients, a psychologist reported that the level of agreement was 0.39. This kappa statistic represents what level of agreement?

    A. Excellent

    B. Intermediate to good

    C. Poor

    D. None of the above

[Total: 25 marks]

QUESTION 2

2.1 There are two approaches for disease prevention that are used epidemiology. Name those approaches and state how they are different from each other. [8]

2.2 State four (4) disadvantages of prospective cohort studies. [4]

2.3 Explain the why it is important to calculate the measures of mortality in a population? [4]

2.4 Hospital records are one of the most important sources of data in epidemiologic studies. Unfortunately, epidemiologists often encounter problems when using hospital records as their data sources. Explain four (4) of such problems with hospital data. [4]

2.5 Explain ten (10) possible sources of errors in interview surveys . [10]

[Total: 30 marks]

QUESTION 3

Study the 2010 data for country X below and answer the questions that follow on the next page:

Mid-year population	950 000
HIV sero-conversions among infants (<1 year)	1 500
Mid-year population aged 56+ years	10 000
Population of HIV positive adults and children (1 year +)	75 000
Deaths for children due to AIDS	2 000
Deaths among adults due to AIDS	5 000
Life expectancy at birth	55 years
Population of HIV positive adults and children (1year+) in Dec. 2009	50 000
Deaths for adolescents aged 15 years due to suicides	2 000
Deaths among 40 years old males due to car injuries	5 000
Maternal deaths	1 000
Deaths for the elderly (56+ years) due to heart disease	500
Total population	1 500 000

Calculate the:

3.1 Prevalence of HIV for country X in 2010   [3]

3.2 HIV incidence rate for country X in 2010   [3]

3.3 Mortality rate from all causes for county X in 2010   [3]

3.4 Mortality rate from heart disease among the elderly (56+ years)   [3]

3.5 Case fatality from AIDS in country X in 2010   [2]

3.6 Proportionate mortality from AIDS in country X in 2010   [3]

3.7 Total YPLL due to suicides and car injuries in country X in 2010   [3]

[Total: 20 marks]