

**UNIVERSITY OF SWAZILAND**

**FACULTY OF HEALTH SCIENCES**

**(SECOND SEMESTER)**

**FINAL EXAMINATION PAPER**

**MAY 2011**

**BACHELOR OF NURSING SCIENCE DEGREE**

**COURSE CODE: NUR 521**

**COURSE TITLE: COMMUNITY HEALTH NURSING IV**

**TIME ALLOWED: 2 HOURS**

**MARKS ALLOCATED: 75**

**INSTRUCTIONS:**

- 1) THIS PAPER CONTAINS FOUR (4) QUESTIONS
- 2) SECTION ONE- (MULTIPLE CHOICE QUESTIONS) IS COMPULSORY.
- 3) ANSWER ANY TWO QUESTIONS FROM SECTION B.
- 4) ANSWER EACH QUESTION ON A SEPARATE SHEET OF PAPER.
- 5) EACH QUESTION HAS 25 MARKS

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## SECTION ONE: MULTIPLE CHOICE QUESTIONS

1. Epidemiology may be defined as:.....[1]
  - a. The study of man and his environment
  - b. The study of the distribution and dynamics of disease in human populations
  - c. The study of people to identify those who are most susceptible to disease
  - d. Method used to improve man's knowledge of his own disease problems and how to treat them
  
2. The epidemiological method of studying disease and events is:.....[1]
  - a. The employment of all available pertinent methods and tools toward ascertaining the distribution and dynamics of disease and synthesis of the findings
  - b. A method of arriving at a single clearly defined influence
  - c. Looking at the population and drawing conclusions about how age is related to various diseases
  - d. Not dependent upon clinical examinations and these are useful to hospital personnel only.
  
3. Experimental method employs:.....[1]
  - a. Proof of hypothesis through strict observational procedures
  - b. Procedures that show how observational skills alone may show a cause and effect relationship
  - c. A judgement made as to whether the cases differ from those of the population out of which they were drawn
  - d. Two populations which are similar except for the factor under study.
  
4. A principle adhered to in epidemiological study that is equally essential in surveys and experiment is that the:.....[1]
  - a. Method of finding people who are under study is well defined in epidemiological study manuals.
  - b. People who are being studied will determine how the study is to be carried out
  - c. Definition of "a case" must be adopted and adhered to
  - d. Pilot study always precedes the initial study in any given proposal for investigation

5. Basic components characterizing the infectious diseases are:.....[1]
- The susceptibility of the community, its previous experience with the disease and the willingness to take preventive measures
  - Pathogen-host-mechanism
  - Exposure, susceptibility, immunity
  - The exit of the parasitic species from the reservoir, its survival capacities of the parasite and route of invasion of a new host
6. The three basic characteristics of an infectious disease are the pathogen, the host and the mechanisms of transmissions, therefore, man's continued health depends on :.....[1]
- How well the professional health worker is able to define the interrelatedness of these three components when an outbreak occurs
  - How many pathogens are present, how favourable the environment is to their survival and the susceptibility of the proposed host.
  - The host's resistance to an upset in the equilibrium which allows the excessive influence upon the host of the other two components.
  - The climate that permits the sexual developmental stage of the pathogen within the mosquito and may carry the infectious agent to a new host
7. In the infectious disease process an important factor in control is knowing the:.....[1]
- Number in the population who are susceptible to the specific disease to be controlled
  - The tropical characteristics of the disease agent
  - Periods of incubation so the organisms may be recovered in large numbers for laboratory study and experimentation
  - Etiological agent specific to the disease under consideration or the natural history of that disease
8. In the epidemiology of infectious disease communicability and infectivity are terms that apply to the:.....[1]
- Period that elapses from time of the onset of the first known case to the time the last person recovers
  - Phenomenon of the invasion of the body by a pathogenic agent and the ultimate recovery from the effects of that invasion
  - Period that schools adhere to in the control of communicable diseases where a child is considered susceptible if he does not have a history of natural or acquired immunity
  - Period that the host is infectious by extraction, secretion, excretion or shedding- infectivity may precede the onset of the clinical courses of the disease

9. In the epidemiology of infectious disease a susceptible person is one who:.....[1]
- Is presumed to have no resistance against a particular pathogenic agent and is liable to contract a disease if exposed to such an agent
  - Functions in the health service and is exposed to more pathogenic organisms and is at a higher risk of becoming infected
  - Because of his weakened condition, if convalescing from another illness, is more likely to become ill when exposed to a new pathogenic agent
  - Has no resistance to disease
10. In the epidemiology of infectious disease resistance is:.....[1]
- the genetic ability to resist disease
  - Inherent non-susceptibility to disease
  - Same as immunity
  - The total of body mechanisms which interpose barriers to the progress of invasion of infectious agent
11. In the vital statistics of infectious disease the disease- specific incidence rates are expressed as the:.....[1]
- Number of a specific disease in relation to the population in which it occurred, within a prescribed time period, per 100,000 per year
  - The number of case per 1000 population per year
  - Number of cases that occur of a specific disease its endemic stage in the community
  - None of the above
12. In the epidemiology of infectious disease the secondary - attack rate is defined as the:.....[1]
- Number of cases per 100, 000 population per year
  - Number of cases among familial or institutional contacts occurring within the accepted incubation period directly following exposure to a primary case
  - Number of cases in one area as compared with the number of cases in a second community
  - Number of cases of a specified disease that occur in a prescribed time period in relation to a second number of cases of a second specified disease

13. In the vital statistics of infectious disease morbidity is defined as:.....[1]

- a. Number of people who are ill in a population
- b. Number of people who died of the disease in relation to the number of people having the disease
- c. Number of sick persons or cases of disease in relation to the population in which they occur
- d. Number of people ill of an infectious disease divided by the number of people in the population who are ill for all disease.

14. In the epidemiology of infectious disease an epidemic is:.....[1]

- a. An outbreak of illness of some nature in a community or region that is clearly in excess of normal expectancy and derived from a common source.
- b. The reporting of disease, over a year's time to determine the number of any one specific disease that exists in any one region in that year.
- c. The simplest measurement of disease in a community since it is easily recognized by the large number of cases that exist.
- d. Never a serious problem today because of the success of widespread immunization programmes

15. The immune person may be that person who:.....[1]

- a. Is harbouring and giving subsistence to an infectious agent
- b. Possesses specific protective antibodies as a result of previous infection or immunization
- c. Has had a reaction to small pox vaccination
- d. Is protected from illness because he has been isolated from known cases during epidemics.

16. An infectious agent is defined as:.....[1]

- a. A micro-organism capable of producing infection and under favourable conditions having the capacity to produce infectious disease.
- b. An organism which when man or animal comes across with it, will result in that man or animal becoming ill from that disease.
- c. The lodgement of parasites in the intestinal tract without producing any frank illness.
- d. The entrance of an organism into the system of man where it remains dormant but always a potential source of infection

17. Pathogenicity refers to the:.....[1]

- a. Ability of the micro-organism to cause the death of its host.
- b. Entry of micro-organism into a host
- c. Capacity of micro-organisms to cause disease symptoms
- d. Virulence of the organism

18. When a community reports approximately the same number of measles each year, year after year, it may be said that:.....[1]

- a. The persistent level of the disease that is this is the number of new susceptibles entering the community each year.
- b. The failure of the community to take appropriate measures to control the outbreaks
- c. The endemic level of occurrence of disease in that community
- d. A community that has more naturally resistant citizens than naturally susceptible ones

19. When comparing the various rates it is important that the:.....[1]

- a. Time period is the same, since the other factors influencing population lose their importance in light of having this single factor in common
- b. Terms are defined so that comparisons can be made between age and groups, different categories, or other areas
- c. Same population base is being used for the denominator of the equation
- d. Figures are accurate on the basis of a common method of collecting data

20. When comparing death rates between countries or between two areas for example rural and urban it is important that the:.....[1]

- a. Crude death rate is the most valuable as it indicates all deaths within one year divided by all the population in that specific area
- b. Specific age death rate is useful as it considers the differences in the age structure of the areas compared.
- c. Infant death rates are the 3 more valuable as these reflect the medical care received during the prenatal period
- d. Neonatal death rates are most important as they indicate the number of individuals lost to the population each year

21. Incident rate for all illness is defined as:.....[1]

- a. Relative rate for an illness at a given time
- b. Number of new cases that occur during a given time period divided by the number of persons exposed or at risk at that same time
- c. Number of new and old cases occurring in a given population and at a given time
- d. Number of people at high risk of becoming ill in a specific community during an epidemic of a specific disease

22. The crude prevalence rate may be defined as the:.....[1]

- a. Number of cases that occur during a given time period divided by the number of persons at risk in that same time period
- b. Number of new cases in a given area at a given time divided by a specific age grouping in that same area and time period
- c. Number of cases of a specific disease in an area divided by the number of persons reported ill in that same time period
- d. Number of new and old cases of an illness which exists at a specific time, divided by the number of persons living in the defined geographic area at that same time

23. A cohort may be defined as:.....[1]

- a. Being the same thing as a cross sectional distribution where the distribution is plotted by each age grouping
- b. That component of a population which was born in a designated calendar time period and is traced as it passes through successive time and age periods
- c. That part of a population that has survived to reach the same age as the group being observed
- d. A method of graphically presenting data in terms of rates for a specific disease in a population

24. A cohort measure of fertility is:.....[1]

- a. An expression of the year to year changes in period measurements and timing of births
- b. A precise and accurate measure of a population aggregate in contrast to a more artificially acquired rate estimate
- c. The cumulative child-bearing of a group of women as they move through the childbearing years
- d. A period measure of fertility which relates to births occurring during a limited period of time , usually one calendar year

25. One reason that Community Health Nurses are concerned with man and his environment is because:.....[1]

- a. The environment effects externally the internal environment of man and strengthens or weakens his capabilities to perform satisfactorily
- b. Not every individual is capable of adapting to his environmental stresses as some have traits which are less flexible in coping with modern civilization
- c. As a change agent the Nurse will not be able to change the responses of the parents but she should be able to change the children's adaptive traits through health education
- d. None of the above

**TOTAL MARKS.....[25]**



## SECTION TWO: ESSAY QUESTIONS

### QUESTION 1

- A) Identify approaches to primary prevention of infectious agents and illustrate how each can be accomplished.....[20].
- B) Briefly discuss how case-finding as a form of secondary prevention of an infectious disease also contributes to primary prevention.....[5].

**TOTAL MARKS.....[25]**

### QUESTION 2

- A. A new screening test for disease X is being evaluated. The test was administered to 480 persons, 60 of whom are known to have the disease. This new test was found to be positive in 50 of the 60 people with the disease, as well as in 15 people who do not have the disease.

Calculate the following values

- i sensitivity of the test.....[2]  
ii specificity of the test.....[2]  
iii the percentage of false positives.....[2]  
iv the percentage of false negatives.....[2]  
v the predictive value of a positive test.....[2]  
vi the predictive value of a negative test.....[2]

- B i) Identify three general categories of surveillance programs and briefly describe each of these surveillance systems.....[6]
- ii) Community health nurses use the process of surveillance. Identify ways which these practitioners use in surveillance.....[3]
- iii) Briefly describe the characteristics of a successful surveillance system.....[4]

**TOTAL MARKS.....[25]**

**QUESTION 3**

A. Identify the uses of health statistics in community/ public health.....[10]

B. Retrospective and prospective study designs each have particular advantages and disadvantage. Contrast these two kinds of studies with respect to the following factors:

.....[15]

- a. Cost
- b. Time required for completion of the study
- c. Size of study population
- d. Usefulness for studying rare diseases
- e. Problems in design
- f. Problems in obtaining required information
- g. Problems of bias
- h. Nature of results

**TOTAL MARKS.....[25]**

**QUESTION 4**

**A** Following are imaginary population and vital statistics for Community X region for 1997.

Total mid year population	80,000
Population 45 years of age and over	20,000
Number of infants born alive	2000
Fetal deaths	32
Maternal deaths	1
Total deaths	648
Death under 1 year of age	42
Deaths of persons 45 years and over	300
From heart disease	98
From stroke	60
From all other causes	94

From the above data calculate the following indicators of health for Community X applying the usual constant (e.g 1000 or 10,000).

- a. Crude birth rate.....[2]
- b. Crude death rate.....[2]
- c. Infant mortality rate.....[2]
- d. Fetal mortality rate.....[2]
- e. Maternal mortality rate.....[2]
- f. Age specific death rate for persons 45 and over.....[2]
- g. Age- cause- specific death rate for those 45 and over for
  - i. heart disease .....[2]
  - ii. cancer.....[2]
- h. From all other causes.....[2]

**B** Table 1 shows results from a study of the risk of falls in a 1000 bed acute care hospital during a 1 year period and age specific incidence rates of falls on all hospital services. Study the table and answer the following questions.

- 1. When falls were examined by service, which service department had the highest number of falls?.....[2]
- 2. What conclusions can be drawn from data regarding age specific rate of falls per 10000 patient days.....[5]

Table 1 Age specific rates for falls per 10,000 person days

<b>SERVICE</b>					
Neuro/Psych department			Other clinical departments		
Age group	Falls	Rate	Age group	Falls	Rate
10-19	10	25	10-19	16	21
20-29	34	37	20-29	35	13
30-39	17	19	30-39	38	12
40-49	35	46	40-49	51	19
50-59	46	52	50-59	80	21
60-69	58	64	60-69	144	29
70-79	80	109	70-79	144	42
80+	21	150	80+	51	50

**TOTAL MARKS.....[25]**