MASENO UNIVERSITY

UNIVERSITY EXAMINATIONS 2015/2016

FIRST YEAR FIRST SEMESTER EXAMINATIONS FOR THE DEGREE OF MASTER OF SCIENCE IN COMMUNITY NUTRITION AND DEVELOPMENT

CITY CAMPUS

PCN 816: NUTRITION EPIDEMIOLOGY

Date: 4th May, 2016 Time: 9.00 - 12.00 noon

INSTRUCTIONS:
This paper consists of **THREE(3)** sections. Answer ALL the questions in SECTION A and SECTION B on the question paper as instructed. These two sections carry of a total of 20 MARKS. Answer any **TWO(2)** questions in SECTION C in the answer booklets provided. This section carries a total of 40 MARKS.

ANSWER SHEET FOR MCQ QUESTIONS

Answer all the questions in this section in the answer sheet provided below

REG. NO _____

COURSE CODE AND TITLE _____

SECTION _____

	a	b	c	d	e
1.					
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					

SECTION A (10 MARKS)

ANSWER ALL QUESTIONS IN THIS SECTION

Choose the correct answer(s) that apply to each of the following questions. Answers should be indicated on the answer grid provided (10 marks)

MCQ1. A case-control study is characterized by all of the following except:

a. It is relatively inexpensive compared with most other epidemiologic study designs

b. Patients with the disease (cases) are compared with persons without the disease (controls)

c. Incidence rates may be computed directly
d. Assessment of past exposure may be biased
e. Definition of cases may be difficult

MCQ2. Factor A, B or C can each individually cause a certain disease without the other two factors, but only when followed by exposure to factor X. Exposure to factor X alone is not followed by disease, but the disease never occurs in the absence of exposure to factor X.

Which of the following statements correctly reflects the information above?

a. Factors A, B and C are component causes and factor X is a necessary and sufficient cause
b. Factor B is a component cause and factor X is a necessary, but not sufficient, cause
c. Factor A is a component cause and factor X is a sufficient, but not necessary, cause
d. Factor X is neither necessary nor sufficient
e. None of the above

MCQ3. Which of the following is NOT a host factor on the basis of the epidemiologic triad?

a. Socio-economic status
b. Race
c. Eating habits
d. Lifestyle
e. None of the above

MCQ4. Which of the following statements is TRUE of cross sectional studies

a. They are useful for generating hypotheses
b. They are a descriptive study design
c. Causation can be inferred from such studies
d. a and b
e. Exposure and outcome cannot be measured in such studies

MCQ5. A study is conducted to measure the occurrence of a disease/condition in a population. The sample used falls notably below the calculated sample size required. Which of the following correctly reflects what is likely to occur:

a. The prevalence of the disease observed will be a good estimation of the true prevalence of the disease in the population

b. The prevalence of the disease observed will be an underestimate of the true prevalence of the disease in the population
c. The prevalence of the disease observed will be an overestimate of the true prevalence of the disease in the population
d. The prevalence of the disease observed could either be an underestimate or an overestimate of the true prevalence of the disease in the population
e. The prevalence of the disease observed could either be an underestimate, overestimate or a good estimate of the true prevalence of the disease in the population

MCQ6. A faulty height measure that has shrunk by 2cm is used to measure the height of boys and girls of the same age in a study that aims to assess whether there is an association between sex and height. Which of the following statements is a correct reflection of the measures obtained?

a. All individuals' height measured using this stadiometer will be 2cm shorter than their true height
b. All individuals' height measured using this stadiometer will be 2 cm taller than their true height
c. If the stadiometer is used for all participants it will not affect the measure of difference observed between the groups (boys and girls) if any difference exists
d. a and c
e. b and c

MCQ7. Age standardization is used to address which of the following;

a. Bias
b. Confounding
c. Randomization
d. Masking
e. a and b

MCQ8. Which of the following methods is suitable for measuring dietary exposures in a correlational study

a. 24 hour dietary recall
b. Food frequency questionnaire
c. Food balance sheets
d. Diet history
e. Any of the above

MCQ9. Which of the following is a measure of the rate at which a disease or health condition is occurring in a population?

a. Prevalence
b. Case fatality rate
c. Incidence
d. Proportion measures
e. b and c

MCQ10. A relative risk of 0.4 is generated in a study. If this value is significant, which of the following statements best reflects these results:

a. Exposure increases risk of the outcome
b. Exposure reduces risk of the outcome
c. Exposure has no effect on the outcome
d. It is not possible to interpret the result because no information is given on exposure or outcome
e. None of the above

SECTION B (20 MARKS)

Answer the questions in this section in the spaces provided

SAQ11. State **TWO (2)** types of additional information necessary for comparisons between two population groups to be made using count data **(1 Mark)**

SAQ12. Use **ONE (1)** example to illustrate your understanding of the concept of "person-time" **(2 Marks)**

SAQ13. Give **ONE (1)** comparison and **ONE (1)** contrast of the application of the p-value and 95% CI in assessing the role of chance in research **(2 Marks)**

SAQ14. Explain the premise that "disease and ill health are not randomly distributed in a population" **(3 Marks)**

SAQ15. In a cohort study it is necessary to perform statistical analyses to assess whether groups are different at baseline with regard to variables other than the exposure, whereas statistical analyses should not be applied to assess baseline differences in a randomized study. Explain. **(3 Marks)**

SECTION C (40 MARKS)

Answer any TWO questions in this section in the answer booklet provided. Each question carries TWENTY (20) MARKS.

Trends in the nutritional status of children under 5 years, in Kenya over 4 demographic health surveys is presented in the figure below. Use this information to address **question 16**.

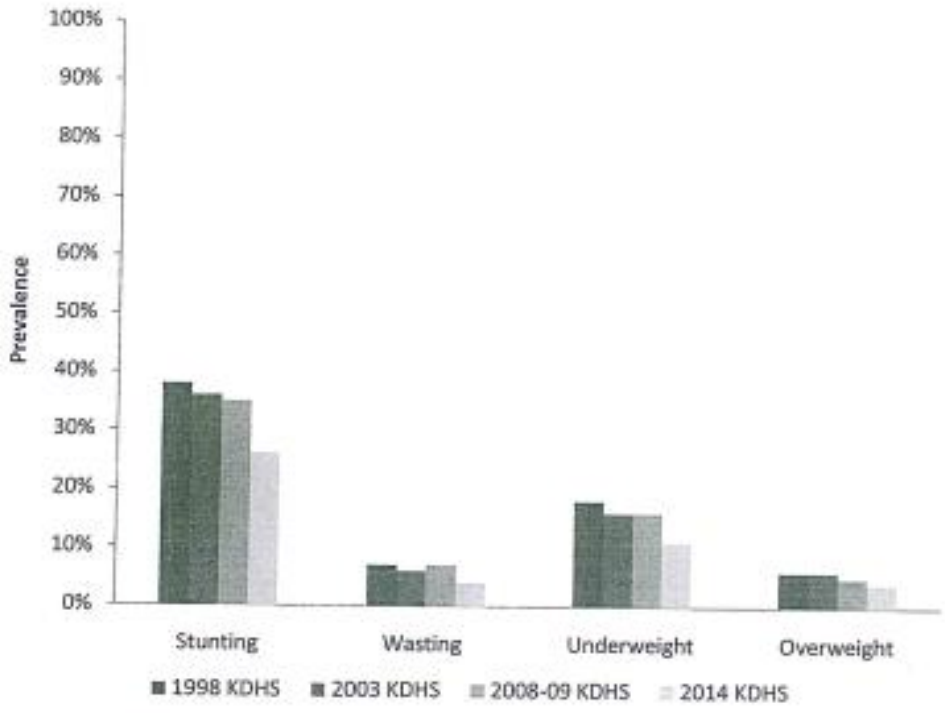

Figure 1: Trends in nutritional status of children under 5 years

LAQ16.

a. Discuss the trends you observe in the 4 forms of nutritional status and identify key concerns for the Kenya Ministry of Health.**(4 Marks)**

b. Explain how **ONE(1)** goal of epidemiology may be addressed using information drawn from this data. **(3 Marks)**

c. Identify a research question from the data above and describe a study you would conduct to address this question**(8 Marks)**

d. With reference to the concept of the natural history of disease suggest a relevant prevention measure that may apply to the results reflected in the data above.**(5 Marks)**

(20 Marks)

LAQ17. Analyse the role of the 3 components of epidemiology in enabling you as a nutritionist to address the 2nd priority area in the Nutrition Plan of Action: To improve the nutrition status of children under 5 years. **(20 Marks)**

LAQ18. Pneumonia is the most important cause of morbidity and mortality in children aged under 5 years worldwide. Studies have suggested an association between nutritional rickets and pneumonia, both of which are common in Ethiopia. Five hundred children younger than 5 years admitted to the Ethio-Swedish Children's Hospital during a 5-year period with diagnosis of pneumonia were matched for admission and age with children who had no evidence of pneumonia. Nutritional, demographic, clinical and radiographic data for rickets and pneumonia were collected. Rickets was present in 210 of 500 children with pneumonia compared with 20 out of 500 children without pneumonia. After adjusting for confounding factors (family size, birth order, crowding, and months of exclusive breastfeeding). The adjusted results of rickets incidence among children with pneumonia relative to children without pneumonia were: (13.37 [95% CI 8.08-24.22]

a. Describe the study design, indicating:

i. Broad category

ii. Specific study design and an appropriate illustration indicating the exposure(s) and outcome(s).**(4 Marks)**

b. Calculate the unadjusted risk of rickets in children with and without pneumonia **(4 Marks)**

c. Explain the adjusted results. **(2 Marks)**

d. Compare and contrast the information provided by the CI and p in the adjusted results. **(4 Marks)**

e. Discuss the implications of the study findings. **(6 Marks)**

(20 Marks)