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UNIVERSITY OF RUHUNA
FACULTY OF MEDICINE

THIRD EXAMINATION FOR MEDICAL DEGREES PART II, 22ND DECEMBER 2008
COMMUNITY MEDICINE PAPER I

Answer **ALL FIVE** questions — ***Time***: 09.00 - 12.00 noon

Answer each part in a ***SEPARAE*** book — ***Duration*** : *Three Hours*

PART A

1.

1.1 1.1.1 Explain the three delays in a maternal death. *(15 marks)*

1.1.2 Explain the steps that can be taken to prevent the 3rd delay in a maternal death. *(35 marks)*

1.2 Discuss the importance of School Medical Inspections(SMI) in the maintenance of the health of the school children. *(50 marks)*

PART B

2. *2.1* Unsafe water consumption is found to be a problem in your community attachment area. You are planning to conduct a health education programme to improve their awareness on water sanitation.

Describe briefly the contents of a health talk on "**Household water purification**" for the people in your community attachment area, emphasizing the different methods and their advantages/ disadvantages. *(50 marks)*

2.2 You are appointed as a medical officer of a factory complex situated in an industrial zone. Describe briefly the types of health problems you are likely to encounter among the workers. *(50 marks)*

PART C

3. *3.1* A total of 1, 670,000 deaths (all causes in the whole population) were reported in country A in North Africa in year 2003. The mid year population of this country in 2003 was estimated to be 240,000,000. The HIV related deaths and mid year populations by age group of the same country are given bellow.

Table 1: HIV related deaths and estimated population by age group in country A in 2003.

Age group years	HIV related deaths	Mid year population
0 – 4	336	30,600,000
5 – 14	87	22,400,000
15 - 24	400	30,400,000
25 - 34	7454	58,400,000
35 - 44	5360	55,000,000
45 - 54	1516	19,200,000
> 55	504	24,000,000

3.1.1 Define crude death rate and calculate the crude death rate (from all cause) in country A in year 2003. *(10 marks)*

3.1.2 Calculate age specific (HIV related and disease specific) death rates in country A in year 2003 according to the above table. *(25 marks)*

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3.1.3 Identify in which age group that the age specific death rates are higher with HIV and what could be the possible reasons? *(15 marks)*

3.2 3.2.1 What are the factors that increase the risk of iron deficiency in pregnancy? *(25 marks)*

3.2.2 Describe the curves in the growth chart of the Child Health Development Record (CHDR) used in Sri Lanka. *(25 marks)*

PART D

4 ***4.1*** Explain the criteria that make a disease suitable for screening.? Briefly describe the different types of screening methods available. *(40marks)*

4.2 A total of 15,500 women aged 40-64 yrs were screened using mammography to detect breast cancer. All positive cases were subjected to fine needle aspiration (FNA) for confirmation. All negative cases were followed up for five years for the development of breast cancer. Out of 1115 biopsies (FNA) taken 132 were confirmed of having breast cancer. In addition, another 35 breast cancer cases were detected from the follow up cases who were negative during screening.

Calculate the following;

4.2.1 False positive rate. *(10 marks)*

4.2.2 False negative rate. *(10 marks)*

4.2.3 Sensitivity and specificity of the screening test. *(20 marks)*

4.2.4 Positive and negative predictive values of the test. *(20 marks)*

PART E

5. ***5.1*** Write short notes on,

5.1.1 Normal distribution *(15 marks)*

5.1.2 Simple random sampling *(15 marks)*

5.1.3 Multi-stage sampling *(15 marks)*

5.1.4 Correlation coefficient(r) *(15 marks)*

5.2 A study was conducted to determine weather there is any association between obesity in children and monthly family income. A random sample of 500 children were selected from grades 1-5 in Galle district. Monthly family income was obtained using a dichotomous variable "monthly income" which has two categories "low" and moderate or higher". Of the total 200 who were obese, 140 were from "moderate or higher" income category. Among non-obese children 200 were from "low" income category.

5.2.1 State null and alternative hypothesis. *(10 marks)*

5.2.2 Test the hypothesis at 5% significance level and state your conclusions. *(30 marks)*

Critical values of chi square

df	0.05	0.01
1	8.84	6.64
2	5.99	9.21
3	7.82	11.34
4	9.49	13.28