

**POSTGRADUATE INSTITUTE OF MEDICINE**  
**UNIVERSITY OF COLOMBO**

**MSc (COMMUNITY MEDICINE/COMMUNITY DENTISTRY) EXAMINATION**

**NOVEMBER 2012**

Date : 19<sup>th</sup> November 2012

Time ; 1.00p.m.- 4.00p.m.

**PAPER I**

**Answer all five (05) questions.**

**Each question to be answered in a separate book.**

1. *8* *5/24*
- 1.1. Discuss the statement, 'Sri Lanka has one of the fastest ageing populations in South East Asia'. (20 marks)
- 1.2. List two (02) instruments used to assess the functional ability of elders. (10 marks)
- 1.3. Discuss the need for multi-sectoral involvement for the health and well-being of elders. (40 marks)
- 1.4. Describe briefly the services provided in the Sri Lanka by other sectors for health and wellbeing of elders. (30 marks)
- 2.
- 2.1. An investigator wished to study the relationship between the occurrence of bladder cancer and the consumption of frozen yoghurt. He selected 550 cases of bladder cancer from the cancer hospital, and 450 age and sex matched controls from patients attending the urology clinic for reasons other than bladder cancer. A history of consuming frozen yoghurt was given by 350 cancer cases and 150 control subjects.
- 2.1.1 Display the data in a 2x2 table (15 marks)
- 2.1.2. Calculate the risk estimate associated with the consumption of frozen yoghurt (20 marks)
- 2.1.3. Discuss the issues related to selection of controls (15 marks)
- 2.2. Since smoking has also been shown to be associated with bladder cancer, the researcher also classified cases and controls as either smokers or non-smokers. The results of the classification are shown in Table 1.

**Table 1**  
**Distribution of data by smoking status**

	Smoker		Non-smokers	
	Cases	Controls	Cases	Controls
Yoghurt consumers	150	50	200	100
Yoghurt non-consumers	100	200	100	100
<b>Total</b>	<b>250</b>	<b>250</b>	<b>300</b>	<b>200</b>

2.4. Calculate the risk estimate of bladder cancer associated with the consumption of frozen yoghurt according to the smoking status. (30 marks)

2.5. Interpret the results. (20 marks)

3.

3.1. Define 'p'value (10 marks)

3.2. An anaesthetist in-charge of a Intensive Care Unit (ICU) observed that the death rate for the months of May and April were 21% and 11% respectively. He thought that the rate for May was unusually higher than for the previous months. He found that there were 83 and 70 ICU admissions for the months of May and April respectively.

3.2.1. Test whether the difference in death rates was due to chance? (20 marks)

3.2.2. Discuss the possible reasons for the difference observed. (20 marks)

3.3. A group of five adolescent girls with low haemoglobin (Hb) levels were treated with iron tablets for a period of 06 (six) months. The Hb levels before and after treatments are given in Figure 1.

Figure 1: Pre and post data treatment data of Hb

<u>Pre treatment</u> <u>Hb level (g/dl)</u>	<u>Post treatment</u> <u>Hb level (g/dl)</u>
10.5	12.0
11.3	11.5
10.2	12.1
11.0	10.5
9.5	11.2

3.3.1 Test the effectiveness of iron treatment and draw conclusions. (30 marks)

3.3.2 Discuss other factors that should be taken into consideration in drawing the conclusions that treatment is effective. (20 marks)

4. A researcher wishes to assess the prevalence and risk factors for depression in adults between 25-50 years in a community.

4.1. Discuss the study design/s you would use. (20 marks)

4.2. List the information you require to calculate the sample size for a prevalence estimate. (20 marks)

4.3. List the ethical issues in this study. (10 marks)

4.4. Identify the issues in selection of cases of depression in this study. (20 marks)

4.5. Discuss the role of the National School Health Programme in improving adolescent mental health (30 marks)

5. You are the Medical Officer of Health in an area. You have been requested by the Regional Director of Health to organize occupational health services for the non formal health workers (for example: own-account agricultural workers, small bakery employees, welders in small welding shops, small cycle repair shop).

5.1. Explain the information you require to plan this service (20 marks)

5.2. Discuss a plan of action to provide this service (30 marks)

5.3. Discuss issues in implementation (30 marks)

5.4. Explain your plan to ensure sustainability of such a programme (20 marks)

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**PAPER II**

**Answer all five (05) questions.**

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1.

1.1. On being appointed as a factory medical officer you need to identify the health problems and hazards in the work environment.

1.1.1. Describe the sources of information and method of data collection.  
(25 marks)

1.1.2. Discuss the advantages and limitations of the above information/data.  
(25 marks)

1.2. A researcher is interested in comparing the prevalence of musculoskeletal disorder among nursing officers with that of computer data entry operators. In order to determine whether the observed prevalence in these two groups are statistically significantly different, he is considering carrying out significance testing.

1.2.1. Name the statistical test/s to be used in this situation.(10 marks)

1.2.2. Discuss the merits of using confidence intervals of two prevalence estimates to determine the significance of the difference.  
(40 marks)

2.

2.1. List the 'transitions' which have made an impact on the health of a community.  
(15 marks)

2.2. Discuss the health impacts of one of the transitions you have mentioned in 2.1  
(35 marks)

2.3. Discuss the implications for provision of health care for health impacts you have discussed in 2.2.  
(50 marks)

3. 'Acknowledging that even the executive staff of the Health Ministry were not safe from sex maniacs, Hon. Minister of Health said, among ministries the Health Ministry and its affiliated organizations were the most notorious places for sexual offences and harassment'- Sunday Island 11<sup>th</sup> November 2012.

3.1. Define sexual harassment at the work place. (20 marks)

3.2. Draw a conceptual framework for factors associated with sexual harassment. (40 marks)

3.3. Discuss how sexual harassment can be prevented at the work place. (40 marks)

4.

4.1. A study was conducted to assess the association between body mass index (BMI) of the mother and birth weight (BW) of the newborn. The study revealed a Pearson's correlation coefficient of 0.2 (p value <0.001).

4.1.1. Describe briefly what measures you would take to minimize bias when assessing BW. (20 marks)

4.1.2. Interpret the Pearson's correlation coefficient. (15 marks)

4.2. The investigators of the study categorized the sample into three groups according to BMI values. The results are given in Table 1.

**Table 1** ANOVA for birth weights by BMI groups

	Sum of Squares	Degrees of freedom	Mean Square	F value	P value
Between Groups	2619549	--b--	--d--	--f--	0.002
Within Groups	--a--	--c--	--e--		
Total	82899428	381			

4.2.1. Calculate the values of a, b, c, d, e and f shown in Table 1. (30 marks)

4.2.2. Interpret 'p = 0.002'. (10 marks)

4.2.3. Name a non-parametric counterpart for ANOVA. (05 marks)

4.2.4. Draw conclusions from the results of this study. (20 marks)

5.

5.1. Define 'child abuse'. (20 marks)

5.2. State the factors associated with child abuse. (30 marks)

5.3. As a Medical Officer of Health, discuss what you would do to prevent child abuse in your area ? . (50 marks)

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**PAPER III**

**Community Medicine candidates should answer all five questions in Parts A and B.**

**Community Dentistry candidates should answer all five question in Parts A and C.**

**Answer each part in a separate book.**

**PART A**

1.

In a Medical Officer of Health (MOH) area "X", routine data through Reproductive Health Management Information System (RH-MIS) revealed that contraceptive prevalence for modern methods is low and the unmet need of family planning is high.

A researcher wishes to conduct a study to confirm the low contraceptive prevalence and to identify the factors associated.

- 1.1 State how you verify the accuracy of the routine data. (20 marks)
- 1.2. Draw a conceptual framework for the factors associated with low contraceptive prevalence. (25 marks)
- 1.3. Formulate the research objectives. (15 marks)
- 1.4. Describe briefly the methodology to achieve the stated objectives. (40 marks)

2. Comment on the following statements.
  - 2.1. 'Well Woman Clinics play a major role in promoting health of women in late and post reproductive periods'. (40 marks)
  - 2.2. 'Poor complementary feeding practices are a major contributory factor for malnutrition among under five children in Sri Lanka'. (30 marks)
  - 2.3. 'Public expenditure on school health services is a worthwhile investment for the future'. (30 marks)
3. Write notes on the following:
  - 3.1. Role of Public Health Nursing Sister (PHNS) in management of Maternal and Child Health (MCH) services in a MOH area. (40 marks)
  - 3.2. Importance of conducting peri-natal death audits. (30 marks)
  - 3.3. Role of school dental services in promoting oral health. (30 marks)

### **PART B**

4.
  - 4.1. Define a 'Pre-term birth'. (10 marks)
  - 4.2. Discuss the causes of pre-term births.. (30 marks)
  - 4.3. Describe briefly the population-based interventions to prevent pre-term births in Sri Lanka. (60 marks)
5. Sri Lanka is prone to experience disasters and emergencies (natural and man-made) from time to time.
  - 5.1. Describe briefly the common reproductive and child health problems that could occur in these situations. (35 marks)
  - 5.2. As the health manager of the area, prepare an action plan to manage the above health problems in such a situation. (65 marks)

## PART C

- 6.
- 6.1. Discuss the advantages and disadvantages of the population strategy and the risk strategy for prevention of oral disease. (50 marks)
- 6.2. Describe the preventive and health promotion approaches appropriate for prevention of dental caries in Sri Lankan children. (50 marks)
7. The Ministry of Health has taken steps to appoint dental surgeons to MOH areas..
- 7.1. Explain the role of these dental surgeons within the existing dental services. (40 marks)
- 7.2. As a Regional Dental Surgeon (RDS) discuss your plan to evaluate the services provided by these dental surgeons. (60 marks)

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**PAPER IV**

**Community Medicine candidates should answer all five questions in Parts A and B.**

**Community Dentistry candidates should answer all five question in Parts A and C.**

**Answer each part in a separate book.**

**PART A**

1. Write notes on
  - 1.1. Global strategies on Polio Eradication Initiative (25 marks)
  - 1.2. Importance of Vaccine Preventable Disease surveillance (25 marks)
  - 1.3. Public Health Emergency of International Concern (PHEIC) under International Health Regulation (IHR) -2005 (25 marks)
  - 1.4. Record keeping in an occupational health service (25 marks)

2.
  - 2.1. Discuss briefly the factors that should be considered before introducing a new vaccine into the Expanded Programme of Immunization (EPI).  
(50 marks)
  - 2.2. Briefly describe the measures taken to ensure vaccine safety in a field immunization clinic.  
(50 marks)
3.
  - 3.1. Discuss critically the importance of herd immunity in relation to rubella vaccination in a given community with a view to preventing outbreaks.  
(50 marks)
  - 3.2. Discuss the possible reasons of relatively low vaccination coverage for adult Diphtheria and Tetanus vaccine (aTd) among school children when compared to other childhood vaccination coverage.  
(50 marks)

### PART B

4. An increase in the number of suspected cases of viral hepatitis has been reported in a given Medical Officer of Health (MOH) area.  
As the MOH,
  - 4.1. list the possible sources of information that will indicate an increase in the suspected cases of viral hepatitis.  
(20 marks)
  - 4.2. describe how you establish the existence of a viral hepatitis outbreak.  
(40 marks)
  - 4.3. explain the preventive measures you will take to control the viral hepatitis outbreak at community level.  
(40 marks)
5. 'Road traffic injury prevention needs multi-sectoral involvement'  
Discuss the above statement.  
(100 marks)

## PART C

6. You are working as a Regional Dental Surgeon in a rural district in Sri Lanka. The Regional Director of Health Services in the area has requested you to develop a programme to screen the population for oral cancer/pre cancer.
- 6.1. List the basic information that you need to develop the programme.  
(30 marks)
- 6.2. Briefly describe the steps involved in conducting this programme.  
(70 marks)
7. Discuss the following statements
- 7.1. 'Organized oral health education programmes have been relatively unsuccessful in preventing oral diseases'  
(50 marks)
- 7.2. 'Dental caries and periodontal diseases are dental public health problems'  
(50 marks)