

UNIVERSITY OF SWAZILAND

FACULTY OF HEALTH SCIENCES

MAIN EXAMINATION PAPER – MAY, 2014

TITLE OF PAPER	:	COMMUNICABLE DISEASES CONTROL
COURSE CODE	:	HSC 311
TIME	:	2 HOURS
MARKS	:	80
INSTRUCTIONS	:	ANSWER QUESTION 1 AND ANY THREE OTHER QUESTIONS
	:	EACH QUESTION CARRIES 20 MARKS
	:	NO FORM OF PAPER SHOULD BE BROUGHT INTO NOR TAKEN OUT OF THE EXAMINATION ROOM
	:	BEGIN THE ANSWER TO EACH QUESTION ON A SEPARATE SHEET OF PAPER
	:	CALCULATORS MAY BE USED BUT THEY MUST BE THE SILENT TYPE
	:	ALL CALCULATIONS/WORK-OUT DETAILS SHOULD BE SUBMITTED WITH YOUR ANSWER SHEET

This question paper consists of 7 printed pages including this one

QUESTION 1 MULTIPLE CHOICE

Indicate your response to the items in this question by writing the letter corresponding to your chosen answer.

- i. During treatment of dehydration Oral Rehydration Solution is administered to the patient. Which of the following component items of an ORS is important for improvement of weakness and abnormalities of the heart?
 - A. Sodium chloride
 - B. Potassium chloride
 - C. Glucose
 - D. Trisodium citrate
 - E. Sodium bicarbonate

- ii. A cholera epidemic is reported in KwaZulu-Natal in South Africa. The *Vibrio cholerae* sero-group most likely responsible for the epidemic is:
 - A. O1
 - B. O139
 - C. Non-O1 and non-O139
 - D. Either the O1 or the O139
 - E. None of the above

- iii. Which one of the statements below about *Shigella dysenteriae* infection is NOT true?
 - A. Symptoms range from mild diarrhoea to severe dysentery
 - B. Children 6 months to 10 years are at risk
 - C. It is transmitted seasonally in the tropics
 - D. Bacteria colonise the large intestines and cause mucosal lesions in them
 - E. *Shigella* release toxins that are responsible for the symptoms associated with infection

- iv. Which one of the following is a commonly causes highly communicable dermatophyte infection of the hair?
 - A. *Tinea capitis*
 - B. *Tinea corporis*
 - C. *Tinea pedis*
 - D. *Tinea cruris*
 - E. *Tinea unguium*

- v. Which one of the following is NOT a fungal infection?
 - A. ringworm
 - B. chromoblastomycosis
 - C. paracoccidioidomycosis
 - D. candidiasis
 - E. pertussis

- vi. Once *Treponema pallidum* penetrates the capillaries following transmission, where does the organism migrate to in order to incubate?
- A. any tissue
 - B. the lymph nodes
 - C. the liver
 - D. the kidneys
 - E. the meninges
- vii. Explain why treatment of tuberculosis (TB) takes a long time, about 6 months?
- A. The bacterium has developed resistance against all the available drugs
 - B. The bacterium is very slow to die and very slow to grow
 - C. The drugs used to treat TB are poisonous and therefore they have to be used in their most diluted forms
 - D. The drugs used to treat TB get diluted and become less effective in the blood
 - E. The tuberculosis causative agent grows inside cells and it takes time for the drugs to reach a concentration capable of getting inside the cells
- viii. Which one of the following symptoms is not associated with *Shigella dysenteriae* infection?
- A. Rose-coloured spots on chest and abdomen
 - B. Hypoproteinaemia
 - C. Chills and fever
 - D. Yellow coating or drying of the tongue
 - E. Reduction in urine production
- ix. What condition DOES NOT favour the transmission of cholera?
- A. warmth
 - B. alkaline environments
 - C. salty environments
 - D. acidic environments
 - E. rainy weather
- x. Which of the following childhood diseases is immunizable through administration of oral drops?
- A. tuberculosis
 - B. measles
 - C. poliomyelitis
 - D. hepatitis B
 - E. Both measles and poliomyelitis

QUESTION 2

Tuberculosis has now become the leading cause of mortality and morbidity in some countries including Swaziland.

- a. What is the causative agent of tuberculosis? (2)
- b. Explain why the incidence of tuberculosis has increased in the last twenty years or so in Swaziland? (3)
- c. The Swaziland National TB Control Programme does not use the tuberculin test to determine infection among suspected patients. Explain why the tuberculin test is not used in Swaziland. (2)
- d. One of the reasons tuberculosis remains a major control problem in Swaziland is the development of resistance by the bacterium. List three factors that contribute to development of resistance to TB drugs. (3)
- e. Explain the meaning of the following in regard to tuberculosis in Swaziland:
 - i. XDR-TB (2)
 - ii. DOTS (2)
- f. Design a programme showing how an Environmental Health Officer in a peri-urban community with high tuberculosis incidence may function hand-in-hand with other healthcare staff in the local health facility to reduce the incidence of the disease. (6)

[20 marks]

QUESTION 3

Influenza viral infections are often confused with the common cold.

- a. List FOUR differences between influenza and the common cold. (4)
- b. Influenza virus infections are named A, B or C. Which one of these commonly cause epidemics. (1)
- c. List three methods by which the influenza virus may be directly transmitted to susceptible human hosts from an infected human host. (3)
- d. Explain how the influenza virus may be indirectly transmitted from infected to susceptible human hosts. (2)
- e. Suppose a case of swine flu (H₁N₁) is identified and confirmed in your area of jurisdiction as a healthcare worker. Discuss strategies you are likely to put in place to prevent further incidence and death due to the disease. (10)

[20 marks]

QUESTION 4

Diarrhoeal diseases are responsible for the death of millions of people in developing countries each year.

- a. Explain why the prevalence of diarrhoeal diseases tends to be higher in developing countries compared to many developed nations. (4)
- b. Explain why emergency measures should be put in place when there is a confirmed case of cholera in your community. (3)
- c. Discuss essential emergency measures that you are likely to use to prevent death of a single case of severe cholera identified in your community. (4)
- d. Other than cholera, diarrhoeal diseases may occur following food poisoning.
 - i. Explain briefly the symptoms that are likely to lead to healthcare staff suspecting food poisoning. (3)
 - ii. List THREE possible causative agents of food poisoning. (3)
 - iii. List THREE possible measures you may put in place to prevent food poisoning at a hotel where you are employed as a food hygienist. (3)

[20 marks]

QUESTION 5

A major strategy for the control of childhood illness is through routine immunisations.

- a. Name ONE immunization administered to children at birth. (1)
- b. Other childhood vaccines include MMR and DPT. Name the FOUR diseases prevented through these two vaccines. (4)
- c. Poliomyelitis often cause paralysis in 0.1-1.0% of infected children.
 - i. Explain how poliomyelitis is transmitted to unvaccinated children resulting in paralysis. (2)
 - ii. Explain what causes paralysis in children infected with poliomyelitis. (3)
 - iii. List THREE countries that currently have polio in Africa. (3)
- d. Enterohaemorrhagic *Escherichia coli* (EHEC) causes diseases commonly in children less than 5 years old.
 - i. Name the serotype of EHEC commonly involved in epidemics. (1)
 - ii. Explain briefly the pathogenesis and symptoms associated with EHEC infections in children. (2)
 - iii. Describe TWO methods by which children acquire infection with EHEC. (2)
 - iv. Describe TWO community interventions that are likely to result in reduced incidence of EHEC if appropriately instituted. (2)

[20 marks]

QUESTION 6

- a. Describe the symptoms commonly associated with the following stages of infection with syphilis.
- i. Primary syphilis (2)
 - ii. Secondary syphilis (3)
 - iii. Tertiary syphilis (3)
 - iv. Congenital syphilis (3)
- b. Human Papilloma Virus (HPV) infections commonly lead to cervical cancer in young infected and untreated women.
- i. How do young women acquire infection with HPV? (2)
 - ii. How can a young woman prevent development of cervical cancer from HPV infection? (2)
- c. Untreated chlamydia infections often result in complications associated with pregnancy and newborn babies.
- i. How are chlamydial infections associated with pregnancy? (3)
 - ii. Describe briefly the symptoms associated with neonatal chlamydia infection. (2)

[20 marks]