PROGRAMME	:	NATIONAL DIPLOMA ENVIRONMENTAL HEALTH
SUBJECT	:	**ENVIRONMENTAL POLLUTION II WASTE, WATER AND SANITATION**
CODE	:	**ENP 21-1**
DATE	:	**5 DECEMBER 2016 FINAL EXAMINATION**
DURATION	:	3 (THREE) HOURS
WEIGHT	:	50: 50
TOTAL MARKS	:	150

EXAMINER	:	MS R VAN WYK & PROF TG BARNARD	
MODERATOR	:	MS C MOKOATLE	4075
NUMBER OF PAGES	:	4 PAGES	

INSTRUCTIONS TO STUDENTS:

1   Answers all the questions, answer all questions in the appropriate format and number accordingly.

2.   Read your questions carefully. You will be penalized if your answers are not properly structured.

3.   You can start with any question, but do not divide sub-questions of the same question.

4.   Please write neatly.

SECTION A: WASTE MANAGMENT

QUESTION 1

1.1 Based on the SA Constitution discuss waste management as a human rights issue.   (10)

1.2 Discuss the Scope of Practice for EHPs in terms of Solid Waste Management.   (10)

1.3 Define litter and list three licensed facilities where litter can be disposed off.   (5)

1.4 List and explain the various levels of cleanliness.   (5)

1.5 Discuss the ten (10) principles of waste management in the Integrated Waste Management Plan (IWMP) and describe the role of the EHP in each.   (20)

(50 MARKS)

SECTION B: SANITATION

Between one and two million households live in informal settlements in South Africa. High settlement densities, insecurity of tenure and complex community dynamics make planning and implementing standard infrastructure solutions difficult, if not impossible.

QUESTION 2

2.1 Briefly describe the policy position for Sanitation service to informal settlements.   (10)

2.2 Discuss the policy framework for Emergency Sanitation.   (10)

2.3 Sanitation Improvement options are currently limited to a few accepted technologies based on settlement type and areas, briefly explain the Minister's statement "It's not all about flushing".   (10)

(30 MARKS)
_____

SECTION C: WATER

QUESTION 3

3.1   Using a flow diagram illustrate the typical steps involved in the treatment of dam or river water.

(8)

3.2   One of the steps for the treatment of water involves the use of the chemical Aluminium sulphate. Name two alternative chemicals that can be used for this step.

(2)

3.3   Sand filtration is a simple process in which the water is allowed to filter through a layer of sand in a specifically constructed container. Name and discuss the two types of sand filtration that we can apply to the treatment of water.

[6]

3.4   The National Water Act recognizes that water belongs to the whole nation for the benefit of all people. Name and discuss the 3 key principles within the Act (No.36 of 1998).

(4)

(20 MARKS)

QUESTION 4

4.1   Name and describe the four types of processes generally applied in the point-of-use applications of water treatment.

(8)

4.2   The list of processes mentioned in the previous question can be broadly classified into two categories. The first is used to produce microbiologically safe and clear water and the second is for the advanced treatment of water to further improve the quality of the water.

4.2.1   Name two examples of processes that can be used to treat water under emergency conditions.

(2)

4.2.2   Name two examples of processes used for the advanced treatment of water at the household level.

(2)

4.3   How would you describe a package water treatment plant?

(3)

(15 MARKS)

SECTION D: WASTEWATER

QUESTION 5

5.1 Using a flow diagram illustrate the typical process followed for the treatment of wastewater.

(7)

5.2 Briefly describe the function of each of the steps illustrated in Question 3.

(7)

5.3 How would you define wastewater?

(1)

(15 MARKS)

SECTION E: HYGIENE

QUESTION 6

6.1 Differentiate between waterborne and water washed diseases including example of the type of infection it would cause.

(10)

6.2 Illustrate how water and sanitation related diseases get transmitted.

(5)

6.3   Name the types of diarrhea we commonly find.

(4)

6.4   True or false: Toys can contribute to the spread of disease in homes.

(1)

(20 MARKS)

Total Marks = 150