**NATIONAL OPEN UNIVERSITY OF NIGERIA**
**14-16 AHMADU BELLO WAY, VICTORIA ISLAND LAGOS**
**SEPTEMBER/OCTOBER 2015 EXAMINATION**
**SCHOOL OF SCIENCE AND TECHNOLOGY**

**COURSE CODE:** **CHM 314**

**COURSE TITLE:** **Environmental Chemistry**

**TIME:** **2 Hours**
**INSTRUCTION:** **Answer any Four Questions**

## QUESTION ONE

a) **Discuss the importance of waste water treatment prior to discharge into a receiving body of water.**

**($13^1/_2$ marks)**

b) **Write briefly on effects of solid waste in the environment.** **(4 marks)**

## QUESTION TWO

**State and describe the types of conventional waste water treatment**

**$17^1/2$ marks.**

## QUESTION THREE

**a.) Explain briefly the following solid waste disposal methods**

i) **Composting** **6 marks**
ii) **Incineration** **6 marks**

**b.) Calculate the total acidity of a water sample if 100 ml of the water sample was added 2 drops of phenolphthalein indicator and titrated with 2.3 ml of 0.02 M of NaOH.**

**5 $^1/_2$ marks**

## QUESTION FOUR

**Write briefly on the sources, significance and application of the following physical parameters relevant to water analysis**

i. **Turbidity**

**$17^{1/}_{2}$ marks.**

## QUESTION FIVE

**a.) 10 ml of a river sample was transferred to a 300ml BOD bottle and diluted to 300 ml with organic free, oxygen saturated water. The initial dissolved oxygen was determined and found to be 9.1 mg/L. The BOD bottled was tightly stoppered and placed in the incubator at $20^0$ C for five days after which the dissolved oxygen was again determined and found to be 4.4 mg/L. Calculate the BOD of this wastewater. If the WHO permissible limit of BOD in a sample of river water is 5 mg/L, what information can be derived from the BOD calculated.**
**13 marks**

**b.) State the application of BOD data**
**$4^1$/2 marks**

## QUESTION SIX

**Discuss the sources and effects of the following pollutants in the environment.**

**i.$SO_2$**
**ii.NO and $NO_2$**

**$17^1$/2 marks**