

**CHUKA**



**UNIVERSITY**

**UNIVERSITY EXAMINATIONS**

**THIRD YEAR EXAMINATION FOR THE AWARD OF DEGREE OF BACHELOR OF SCIENCE IN ENVIRONMENTAL SCIENCE**

**ENSC 443: WATER AND SANITATION**

**STREAMS: BSC ENSC Y4S1**

**TIME: 2 HOURS**

**DAY/DATE: MONDAY 22/03/2021**

**8.30 A.M. – 10.30 A.M.**

**INSTRUCTIONS:**

- Answer ALL in SECTION A and any other TWO in SECTION B.
- Do not write anything on the question paper.

**SECTION A: 30 MARKS**

- Q1. Describe the characteristics of water resource crisis in Kenya. (6 marks)
- Q2. Briefly describe the following
- (a) Biological Oxygen Demand (2 marks)
- (b) Chemical Oxygen Demand (2 marks)
- (c) Fluorosis (2 marks)
- Q3. Using an illustration, describe the inflows and outflows in a hydrological cycle. (6 marks)
- Q4. Using the following data for Tungu River provided below, calculate the River discharge. (6 marks)

Watershed area $km^2$	Surface Runoff $M^3$	Subsurface flow $M^3$	Ground Water flow $M^3$
50	1200	497	700

- Q5. Describe the six principles of ecological sanitation. (6 marks)

**SECTION B (40 MARKS)**

- Q6. Discuss the role of different institutions in the management of water resources under the Water Act 2016 in Kenya. (20 marks)
- Q7. Assuming you are the Water Resource Manager, address the audience on the major causes of water pollution and the associated mitigation measures. (20 marks)
- Q8. Using an illustration discuss the water treatment system for a community water supply. (20 marks)
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