



JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

SCHOOL OF ENGINEERING AND TECHNOLOGY

**UNIVERSITY EXAMINATIONS FOR THE DIPLOMA IN BUILDING AND CIVIL
ENGINEERING**

3RD YEAR 1ST SEMESTER 2018/2019 ACADEMIC YEAR

CENTRE: MAIN CAMPUS

COURSE CODE: TBC 2315

COURSE TITLE: WATER SUPPLY TECHNOLOGY I

EXAM VENUE: STREAM: DIP BLD & CIVEN

DATE: ../12/2018 EXAM SESSION:

DURATION: 2 HOURS

Instructions

- 1. Answer question 1 (Compulsory) and ANY other two questions**
- 2. Candidates are advised not to write on question paper**
- 3. Candidates must hand in their answer booklets to the invigilator while in the examination room**

QUESTION ONE

- a) State THREE objectives water supply is supposed to meet.
(6 Marks)
- b) State any THREE advantages of surface water source compared to groundwater source.
(6 Marks)
- c) Explain the effect of the following chemical pollutants in water.
i. Carbonates and bicarbonates of calcium and magnesium
ii. Carbonates and bicarbonates of sodium
iii. Nitrates
iv. Fluorides
(6 Marks)
- d) Explain the importance of the following treatment in a water supply system
i. Sedimentation
ii. Filtration
(6 Marks)
- e) Explain any FOUR location criteria of water supply intake
(6Marks)

QUESTION TWO

- a) State any FOUR factors which affect water use.
(6 Marks)
- b) The population figures during four decades i.e. 1980, 1990, 2000 and 2010 are 20,000, 24500, 29500 and 35,200 respectively. Predict its population and water demand in the year 2020 using Arithmetic progression method. Assume constant water consumption of 75 l/c/d.
(9 Marks)

QUESTION THREE

- (a) State functions of the following appurtenances in the distribution system
i. Sluice valve
ii. Air valve
iii. Hydrants
iv. Non-return valve
(6 Marks)
- (b) With the aid of a neat flow diagram describe a treatment process required for a river water.
(9 Marks)

QUESTION FOUR

- (a) State any THREE selection criteria of pumps for a water supply system
(6 Marks)
- (b) Explain the following phenomena as encountered in water pumps.
i. Cavitation
ii. Priming
iii. Water hammer
(9 Marks)