



JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

SCHOOL OF ENGINEERING AND TECHNOLOGY

**UNIVERSITY EXAMINATION FOR THE DEGREE IN SCIENCE IN
CONSTRUCTION MANAGEMENT**

2ND YEAR 2ND SEMESTER 2022/2023 ACADEMIC YEAR

CENTRE: MAIN CAMPUS

COURSE CODE: TCB 1208

COURSE TITLE: BUILDING SERVICES I

EXAM VENUE: STREAM: BSc. CONSTRUCTION MGT

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) Explain the importance of plumbing inspection as an activity for maintenance of water supply systems in building premises.
(4 Marks)
- b) What do you understand by the term hardness in water and its effect on plumbing works.
(4 Marks)
- c) Explain the main objective of the following tests as applied in sewer/drain construction
- i. Water test
 - ii. Reflection test
 - iii. Ball test
- (6 Marks)
- d) In reference to design consideration of water supply systems in building premises, state any ONE requirement and good practice against the following:
- i. Water pressure
 - ii. Water flow rate
 - iii. Mains connection
 - iv. Pipe material and specifications
- (12 Marks)
- e) With the aid of a neat sketch, describe Hydro-pneumatic system of distribution of water in multi-storey buildings which cannot be ordinarily be supplied by pressure from the water authority supply service line.
(4 Marks)

QUESTION TWO

- a) Explain any TWO options for installing water based fire suppression system in a building premise.
(6 Marks)
- b) Discuss the advantages and disadvantages of direct and indirect cold water supply system in buildings.
(8 Marks)
- c) Discuss any THREE defects/troubles in hot water systems commonly encountered in building premises.
(6 Marks)

QUESTION THREE

- a) Briefly discuss suitability of the following sources of water for domestic purposes in respect to wholesomeness, palatability and general fitness for drinking before recommending them as a water source for a building.
- i. Underground water e.g. springs and wells
 - ii. Surface water e.g. lakes and rivers
 - iii. Rainwater e.g. roof water
- (6 Marks)

- b) Elevated reservoirs are essential in a water distribution system. State any FOUR functions of such reservoirs.

(8 Marks)

- c) With the aid of a neat sketch, illustrate how you would make a connection from 100mm diameter PVC municipal service pipe to a client premise using PPR pipe material ending in a client's water meter.

Note: Sketch pipe connection and their sizes, sequence and name the fittings and valves in the arrangement.

(6 Marks)

QUESTION FOUR

- a) State any THREE conditions waste water drainage system should meet

(3 Marks)

- b) State FIVE conditions under which it becomes necessary to construct a manhole along a sewer line.

(5 Marks)

- c) With the aid of suitable sketches distinguish the following methods of draining waste water from buildings.

- i. The two pipe system
- ii. The one pipe system
- iii. The single stack system

(12 Marks)

QUESTION FIVE

- a) From environmental health point of view, state the importance of having proper solid waste management in a building premise.

(6 Marks)

- b) Explain the 4Rs solid waste management strategy and suggest any ONE appropriate activity corresponding to each R in 4Rs approach to solid waste management which you can recommend in JOOUST main campus. Support your suggestions with accurate evidence.

(6 Marks)

- c) Discuss the merits and demerits of the following solid waste disposal methods

- i. Composting
- ii. Open dumps
- iii. Incineration

(12 Marks)

