



MACHAKOS UNIVERSITY

University Examinations for 2020/2021

SCHOOL OF ENGINEERING AND TECHNOLOGY
DEPARTMENT OF MECHANICAL ENGINEERING
SECOND YEAR FIRST SEMESTER EXAMINATION FOR
DIPLOMA IN MECHANICAL ENGINEERING (PLANT-TVET OPTION)
BUILDING SERVICES & MACHINE INSTALLATION

DATE: 6/9/2021

TIME: 8:30 – 10:30 AM

INSTRUCTIONS:

This paper consists of five questions, attempt ALL .

1. (a) i) Explain the need for water treatment. (2 marks)
ii) Describe briefly types of water impurities commonly found in feed water. (8 marks)
- (b) Using neat plant diagrams illustrate the process of water treatment. (6 marks)
- (c) Illustrate Three water distribution methods commonly used. (6 marks)
2. (a) Briefly describe using sketches Four water distribution networks. (10 marks)
- (b) Discuss Five types of water pipes commonly used in water distribution systems. (10 marks)
3. (a) i. Differentiate between direct and indirect cold water supply system. (4 marks)
ii . Illustrate various types of valves and taps used in cold water supply unit. (8 marks)
- (b) Discuss by-laws governing cold water supply. (8 marks)

- 4 . (a) Briefly explain Four types of hot water supply systems. (8 marks)
- (b) Illustrate the following hot water system layout;
- i. Centralized (6 marks)
- ii. Zoned
- (c) Describe insulation materials commonly used in hot water systems. (6 marks)
5. (a) Describe the main features of hydraulic lift and its principle of operation. (10 marks)
- (b) Discuss Three lift control mechanisms commonly applied. (6 marks)
- (c) Explain the safety precautions to be observed while operating lifts. (4 marks)