



ZIMBABWE

**MINISTRY OF HIGHER AND TERTIARY EDUCATION,
INNOVATION, SCIENCE AND TECHNOLOGY
DEVELOPMENT**

**HIGHER EDUCATION EXAMINATIONS COUNCIL
(HEXCO)**

NATIONAL CERTIFICATE

IN

WATER RESOURCES AND IRRIGATION ENGINEERING

**MODULE: Irrigation Water Reticulation
Installation**

PAPER NO:384/22/M03

DURATION: 3 Hours

NOVEMBER/ DECEMBER 2025 EXAMINATION

REQUIREMENTS

INSTRUCTIONS TO CANDIDATE

1. All questions carry equal marks.
2. Answer any five (5) questions.
3. Start each question on a fresh page.

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QUESTION 1

With aid of diagram explain the following water distribution systems:

- a) Grid (5 marks)
- b) Radial (5 marks)
- c) Ring (5 marks)
- d) Cul De Sac / dead end layout (5 marks)

QUESTION 2

- a) Identify suitable trenching resources. (5 marks)
- b) Discuss the following methods for preventing trench collapse:
 - i) Shoring (5 marks)
 - ii) Sloping (5 marks)
 - iii) Shielding (5 marks)

QUESTION 3

- a) Discuss factors affecting trench dimensions. (8 marks)
- b) Outline procedure for backfilling (5 marks)
- c) Discuss how irrigation system are tested. (7 marks)

QUESTION 4

- a) Outline basic prime movers in irrigation systems. (10 marks)
- b) Explain the steps in establishing a water abstraction scheme. (10marks)

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QUESTION 5

- a) Discuss the main parts of a water distribution system. (15 marks)
- b) Write short notes on trench technology. (5 marks)

QUESTION 6

- a) Explain methods of measuring water level. (15 marks)
- b) Discuss the factors considered when designing / choosing water abstraction points. (5 marks)

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