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CIVIL ENGINEERING LEVEL 6

CON/OS/CET/CR/13/6

Manage Civil Engineering Projects

November/December 2025

TVET CURRICULUM DEVELOPMENT, ASSESSMENT AND CERTIFICATION COUNCIL (TVET CDACC)

WRITTEN ASSESSMENT

Time: 3 HOURS

INSTRUCTIONS TO CANDIDATE

1. This paper consists of **TWO** sections: **A** and **B**.
2. Answer **ALL** questions in section A.
3. Answer question **THIRTEEN** (13) and any other **TWO** (2) questions in section B.
4. Candidates are provided with a separate answer booklet
5. Do not write on the question paper.

This paper consists of THREE (3) printed pages

Candidates should check the question paper to ascertain that all pages are printed as indicated and that no questions are missing.

SECTION A (40 MARKS)

Answer ALL the questions in this section.

1. In building projects, proper planning starts with site analysis**.** List FOUR methods of data collection used during site analysis**.** (4 Marks)
2. Construction sites involve many hazards such as falling objects, moving equipment, dust and noise, which require proper safety measures. Define occupational safety and health (OSH) in the context of construction projects. (2 Marks)
3. In Kenya, construction projects must comply with legal requirements. Name FOUR statutory bodies that regulate building and civil engineering works. (4 Marks)
4. During construction, quality must be maintained at every stage. Explain TWO tools used for monitoring project quality. (4 Marks)
5. Cost management is critical in project execution**.** State THREE functions of a construction project budget. (3 Marks)
6. For any construction site, a good safety policy is required**.** List THREE characteristics of an effective health and safety policy. (3 Marks)
7. In civil works such as bridge construction, different parties are involved. Outline FOUR types of project stakeholders. (4 Marks)
8. Earthworks require heavy machinery for excavation and compaction**.** List THREE examples of construction equipment used in earthworks**.** (3 Marks)
9. Effective stakeholder communication is key in road upgrading projects. State THREE methods of communicating with project stakeholders. (3 Marks)
10. Construction variations often affect time and cost. Describe TWO types of project variation reports prepared during a project. (4 Marks)
11. In building construction, proper record-keeping supports decision-making. State FOUR features of a good project implementation report**.** (4 Marks)
12. In the construction of a new water supply system, the client requires proper financial planning to ensure that resources are allocated efficiently and wastage is minimized. Outline TWO importance of a project budget**.** (2 Marks)

SECTION B (60 MARKS)

Answer question THIRTEEN (13) and any other TWO (2) questions in section B.

13. In a road upgrading project, the contractor is required to ensure timely completion of all works within the agreed contract period.
    a. Explain FIVE benefits of preparing a work schedule in a project. (10 Marks)
    b. Describe FIVE factors to consider when allocating activity timelines. (10 Marks)
14. During the construction of a reinforced concrete bridge, quality assurance is a major requirement to ensure structural integrity and safety.
    a. Explain FIVE characteristics of an effective project quality plan. (10 Marks)
    b. Describe FIVE methods of ensuring quality control in construction projects. (10 Marks)
15. In a multi-storey building construction project, the client is concerned about budget overruns caused by material price fluctuations and design changes.
    a. Outline FIVE causes of cost variation in construction projects. (10 Marks)
    b. Describe FIVE measures that can be applied to control project cost variations. (10 Marks)
16. On a highway construction site, workers are exposed to heavy machinery, dust and potential security risks from theft of materials.
    a. Explain FIVE importance of conducting site safety and health inspections. (10 Marks)
    b. Outline FIVE common sources of security threats on a construction site and how they can be mitigated. (10 Marks)