



JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

SCHOOL OF ENGINEERING AND TECHNOLOGY

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

4TH YEAR 1ST SEMESTER 2023/2024 ACADEMIC YEAR

CENTRE: MAIN CAMPUS

COURSE CODE: PNB 1413

COURSE TITLE: CONSTRUCTION MANAGEMENT I

**EXAM VENUE: STREAM: BSc IN WATER RESOURCE &
ENVIRONMENTAL MANAGEMENT**

DATE: /12/2023 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 (30 MARKS)

- a. Define the following terminologies associated with the construction industry (10 Marks).
 - i. Project management
 - ii. Bye-laws
 - iii. Crushing strength test
 - iv. Consortium
 - v. Disaster
- b. Explain the significance of materials selection in construction projects (3 Marks).
- c. Briefly explain the historical perspective of the Kenyan construction industry prior to the formation of the National Construction Corporation (NCC) (6 Marks).
- d. Explain the difference between extreme project management and event chain project management approaches (6 Marks).
- e. State four types of problem-solving principles in problem identification (2 Marks).
- f. State three applications of a crawler excavator in building and civil engineering works (3 Marks).

QUESTION TWO (20 MARKS)

You have been deployed to a site where a building undergoing construction has collapsed in Kenya. As an expert in construction and disaster management, respond to the following:

- a. Outline seven possible causes of the building collapse (6 Marks).
- b. Explain the minimum standards a disaster control plan should meet to minimize the impacts of the disaster (7 Marks)
- c. State six statutory bodies that would have given planning consent or approval of the construction project before commencement (3 Marks).
- d. State four negative health/environmental impacts you would expect from the construction project prior to collapse including mitigation measures (4 Marks)

QUESTION THREE (20 MARKS)

Despite a lot of initiatives being put in place, the construction sector in Kenya has continued to face some dilemma. As an expert in construction, answer the following:

- a. Explain the key challenges that have derailed the prosperity of the construction sector in Kenya (12 Marks).
- b. Briefly state the contractor related factors that influence project success (5 Marks).
- c. Explain the triple constraints a project manager needs to control to guarantee successful project implementation (3 Marks)

QUESTION FOUR (20 MARKS)

Construction materials are key inputs of the construction process. Your client has commissioned you for a profession advice on construction materials. As an expert in construction answer the following questions:

- a. Outline broad and detailed classification of construction materials **(8 Marks)**.
- b. Explain salient features of building stone that make it a significant construction material **(10 Marks)**.
- c. Explain the stone quality parameters which the Smith's test and acid test are meant to determine **(2 Marks)**.

QUESTION FIVE (20 MARKS)

Building bye-laws are legislated to control development by guaranteeing health and safety in building structures.

- a. State the building aspects that are governed by the bye-laws **(8 Marks)**.
- b. Explain the points that should be considered to obtain maximum benefit of day lighting, natural ventilation and heat insulation **(3 Marks)**.
- c. Explain what an energy efficient building entails **(3 Marks)**.
- d. Discuss the difference between a load bearing wall and a partition wall **(6 Marks)**