JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

SCHOOL OF ENGINEERING AND TECHNOLOGY

UNIVERSITY EXAMINATIONS FOR DIPLOMA IN CIVIL ENGINEERING

2ND YEAR 1ST SEMESTER 2024/2025 ACADEMIC YEAR

CENTRE: MAIN CAMPUS

COURSE CODE: TDE 2225 **COURSE TITLE:** BUILDING DRAWINGS

EXAM VENUE: **STREAM:** DIP IN CIVIL ENGINEERING

DATE: **EXAM SESSION:**

DURATION: 2 HOURS

Instructions

1. **Answer question 1 (Compulsory) and ANY other three 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 1 (40 marks)

a) Citing various components of application, explain the purpose of the national building code 2024 in the Kenyan Building Construction Industry**.** **(6 Marks)**

b) Explain the purpose of the following types of drawings in the building industry. **(6 Marks)**

i. Architectural drawings
ii. Structural drawings
iii. Electrical drawings
iv) Mechanical drawings

c) With the use of neat sketches, describe any **FOUR** standard forms of dimensions used tin building drawings (**4 Marks)**

d) Using neat well labelled sketches, explain the use of the following plans in building drawings: **(12 Marks)**

i. Site Plan
ii. Floor Plan
iii. Foundation Plan

e) Explain the details that you would show in the sectional drawing of a residential building. **(4 Marks)**

f) Using a well labelled sketch, show the various parts of a typical timber roof truss. (**6 Marks)**

g) Explain what is meant by a Circuit in electrical wiring **(2 Marks)**

QUESTION TWO

a) Sketch the plan and a section of a 2000mm x 2000mm by 500mm thick reinforced concrete pad footing showing T16 bottom bars spaced at 200mm centre to centre and 4 T20 column starter bars. **(10 Marks)**

b) Explain the purpose of a bar bending schedule and the details captured in a typical bar bending schedule **(5 Marks)**

c) Use a well labelled sketch to show the following parts of stairs. **(5 Marks)**

i. Treads
ii. Landing
iii. Risers
iv. Stringers
v. Run

QUESTION THREE

a) Draw and detail a simple surface installation of one lamp controlled by two, two- way switches. (**10 Marks)**

b) State the functions of the following components of electrical supply and distribution system to premises. (**5 Marks)**

i. Circuit Breaker
ii. Fuses
iii. Ground Earth
iv. Surge protector
v. Distribution Board

c) Sketch the following electrical reference symbols. (**5 Marks)**

i. Two-way switch
ii. Push button
iii. Lighting point
iv. Multiple socket outlet
v. Single fluorescent lamp

QUESTION FOUR

a) Use well labelled sketches to explain the difference between Direct and Indirect cold water supply to a residential building. **(12 Marks)**

b) Sketch and explain the purpose any **FOUR** types of plumbing fittings indicated in a plumbing plan

(8 Marks)

QUESTION FIVE

a) Enumerate the standard procedure for designing and sizing the following structural members of a building (**10 Marks)**

i. Slab design
ii. Beam design

b) With the aid of neat sketches show the reinforcements details of a 4m x 4m by 0.15m thick concrete slab reinforced with T10 bars, top and bottom, at 200mm center to center. Show both the plan and a section. **(10 Marks)**

QUESTION SIX

a) Explain the purpose of a lintel in a building**.** **(2 Marks)**

b) Use neat sketches to illustrate **FOUR** types of staircase layouts. (**6 Marks)**

c) Using neat sketches, describe **FOUR** types of retaining walls. (**12 Marks)**