



**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND  
TECHNOLOGY SCHOOL OF SPATIAL PLANNING  
UNIVERSITY EXAMINATION FOR THE DEGREE OF BACHELOR OF  
ARTS IN SPATIAL PLANNING  
SEMESTER 2      2024/2025 ACADEMIC YEAR  
CENTRE: MAIN CAMPUS**

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**CODE: PPB1304: COURSE TITLE: PLANNING FOR INFRASTRUCTURE  
AND UTILITIES**

**EXAM VENUE: MAIN CAMPUS      STREAM: SPATIAL PLANNING  
AND DESIGN**

**DATE: 23/4/2025**

**EXAM SESSION: 15.00-17.00**

**TIME: 2 HOURS**

**VENUE: LAB 10**

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**Instructions:**

- 1. Answer question 1 (compulsory) and ANY other 2 questions.**
- 2. Candidates are advised not to write on the question paper.**
- 3. Candidates must hand in their answer booklets to the invigilator while in the examination room.**

Q1a) Using examples, explain the following terms

- i) Infrastructure [2 Marks]
- ii) Energy infrastructure [2 Marks]
- iii) Sanitation infrastructure [2 Marks]
- iv) Communication infrastructure [2 Marks]
- v) Transport infrastructure [2 Marks]

b) Using examples, discuss the following statements.” Slums and informal settlements are characterized by poor infrastructure facilities and services [10 Marks]

c) Explain the key components of a water supply systems using a sketch diagram [10 Marks]

Q2a) Estimate the quantity of water required in Voi Town in  $M^3$  per year given that that the town’s households consume 500,000 liters per day [8 Marks]

b) What factors are taken into consideration while planning for transport infrastructure such as roads and railway line [12 Marks]

Q3a) Using examples, discuss the factors that are taken into consideration while planning for sanitation infrastructure and services within the built environment [10 Marks]

b) Using a sketch diagram, explain the key components of a conventional sewerage system [10 Marks]

Q4a) Using examples, discuss the economic and social benefits of investing in:

- i) Modern energy infrastructure [10 Marks]
- ii) Paved roads [10 Marks]

Q5a) ‘Accurate and sufficient data is critical while planning for transport infrastructure in urban areas’. Identify the primary data that you need in order to plan for Non-Motorized Transport (NMT) infrastructure in Bondo Town [10 Marks]

- b) Explain why Public-Private-Partnership (PPP) approach is frequently used to deliver major infrastructure facilities [10 Marks]