



TECHNICAL UNIVERSITY OF MOMBASA

SCHOOL OF ENGINEERING AND TECHNOLOGY
DEPARTMENT OF ARCHITECTURE & BUILT ENVIRONMENT

UNIVERSITY EXAMINATION FOR:
BACHELOR OF ARCHITECTURAL STUDIES/BACHELOR OF
ARCHITECTURE

EAR 4402: SUSTAINABLE DESIGN
END OF SEMESTER EXAMINATION

YEAR TWO SEMESTER I

SERIES: DECEMBER 2024

TIME: 2 HOURS

DATE: Pick Date DECEMBER 2024

Instructions to Candidates

You should have the following for this examination

-Answer Booklet, examination pass and student ID

This paper consists of **FIVE** questions. Attempt question ONE (Compulsory) and any other TWO questions.

Do not write on the question paper.

QUESTION ONE (30 MARKS)-COMPULSORY

- a) Distinguish between any TWO environmental architecture systems. (6marks)
- b) Explain the risks of having green buildings. (6marks)
- c) With the aid of sketches, describe building form/shape in relation to sustainable design. (6marks)
- d) Explain the Passive design strategies for achieving energy efficiency in buildings. (12marks)

QUESTION TWO (20 MARKS)

The Class has been invited to participate in a Master Planning Competition dubbed “Sustainable Smart City”. Using sketches, explain the important strategies for planning the green neighbourhood. (20marks)

QUESTION THREE (20 MARKS)

Green Architecture achieves both Economic and Environmental welfare. Explain the different roles in achieving sustainable architecture. (20marks)

QUESTION FOUR (20 MARKS)

Energy required to sustain the internal environment conditions through the operation systems in a buildings life time. Explain the energy-water-greenhouse gas relationship and the opportunities to save energy. (20 Marks)

QUESTION FIVE (20 MARKS)

Discuss the key outcomes of the major international conferences related to climate change and sustainable design. (20 Marks)