

NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

FACULTY OF THE BUILT ENVIRONMENT

DEPARTMENT OF QUANTITY SURVEYING

DESCRIPTIVE GEOMETRY AQS1102

First semester examinations: time allowed four hours

Instructions to candidates

There are three questions in section A and two questions in section B. Answer **two** questions in section A and **all** questions in section B.

Special equipment for use in section B

- Scale rule
- Rubber and drawing pencils
- Adjustable set squares and parallel motion
- A3 bond paper

SECTION A
CHOOSE TWO QUESTIONS

Mr. Gumbo, a project manager, has identified a client and construction of a children's home. Mr. Gumbo is however, ignorant of building design, construction processes and requirements, but is a prudent man who knows that funds in the construction industry are safe guarded by the Quantity Surveyor.

He approaches you with the request that you design the children's home, and you advise him that he must approach an architect for the design on which you will advise the cost implications. Mr. Gumbo raises eyebrows because of the additional costs involved. As his project manager and consultant, explain to Mr. Gumbo Dickens:

1. a) The architect's unique function in the production of conceptual drawings and their function. Identify the drawings used by the architect in the process
[20]

2. Mr. Gumbo is impatient at the slow progress of the design and is worried at the additional cost of the commissioned services engineers. The design team is working on the outline of the systems design. Mr. Gumbo demands that the team submits the completed works to him for submission to his financiers.
 - a) Explain to him why the engineers' and the architect's conceptual and outline systems drawings may be inadequate to financiers. [20]

3. The team spends two more sleepless nights after the demand by Mr. Dickens and the architect is finally able to present his preliminary designs for approval by the client team.
 - a) List the content of the set which the team will present to Mr. Dickens. [10]
 - b) Identify the representational characteristics of the set contents and highlight the technical information content relevant to the financiers. [10]

4. The team finalises the design and produces the working drawings.
 - a) Explain the differences between detailed designs and working drawings. [6]
 - b) Summarise the uses of working drawings. [10]
 - c) Name four uses of "as built drawings". [4]

SECTION B [COMPULSORY]

5. The attached sketches are not scaled and are proposals for Mr. Dickens' caretaker cottage. You are required to redraw
- a) The floor plan superimposed on the foundation plan to scale 1:100. Note foundations are strip footings. [15]
 - b) Section of the house to a scale of 1:50. [5]
 - c) North and east Elevations, or South and west Elevations to a scale of 1:50. [10]

Note that the following will also be considered in grading –Legibility, appropriate choice of the design elements [line, dots, form, or plane] and proper writing relevant to architectural descriptive geometry

- 6.
- a) Identify the two main categories of orthographic projections and three main categories of oblique projections. [10]
 - b) Which type(s) of projection(s) is best suited for production of 1. Working drawings and 2. Presentation drawings to client. State the reasons for your classification. [10]
 - c) Discuss the benefits and limitations of oblique and orthographic projects as media of presentation to an architect. [10]