

UNIVERSITY OF SWAZILAND
FACULTY OF HEALTH SCIENCES
DEPARTMENT OF ENVIRONMENTAL HEALTH SCIENCE
MAIN EXAMINATION PAPER DEC 2016

TITLE OF PAPER : **BUILDING CONSTRUCTION
TECHNOLOGY I**

COURSE CODE : **EHS 203**

DURATION **:** **2 HOURS**

MARKS **:** **100**

INSTRUCTIONS **:** **ANSWER ANY FOUR QUESTIONS**

: EACH QUESTION CARRIES 25 MARKS

**: BEGIN EACH QUESTION ON A SEPARATE
SHEET OF PAPER**

**DO NOT OPEN THIS QUESTION PAPER UNTIL PERMISSION IS GRANTED
BY THE INVIGILATOR**

QUESTION ONE

- (a) Describe the LCA process in the construction industry [10]
- (b) Explain the role of Environmental Health Officers during the traditional building project life cycle [10]
- (c) The interface between the Built Environment and the Natural Environment is critical. Explain why analysis of this is particularly important for engineers and environmentalist when considering the environment concept [5]

QUESTION TWO

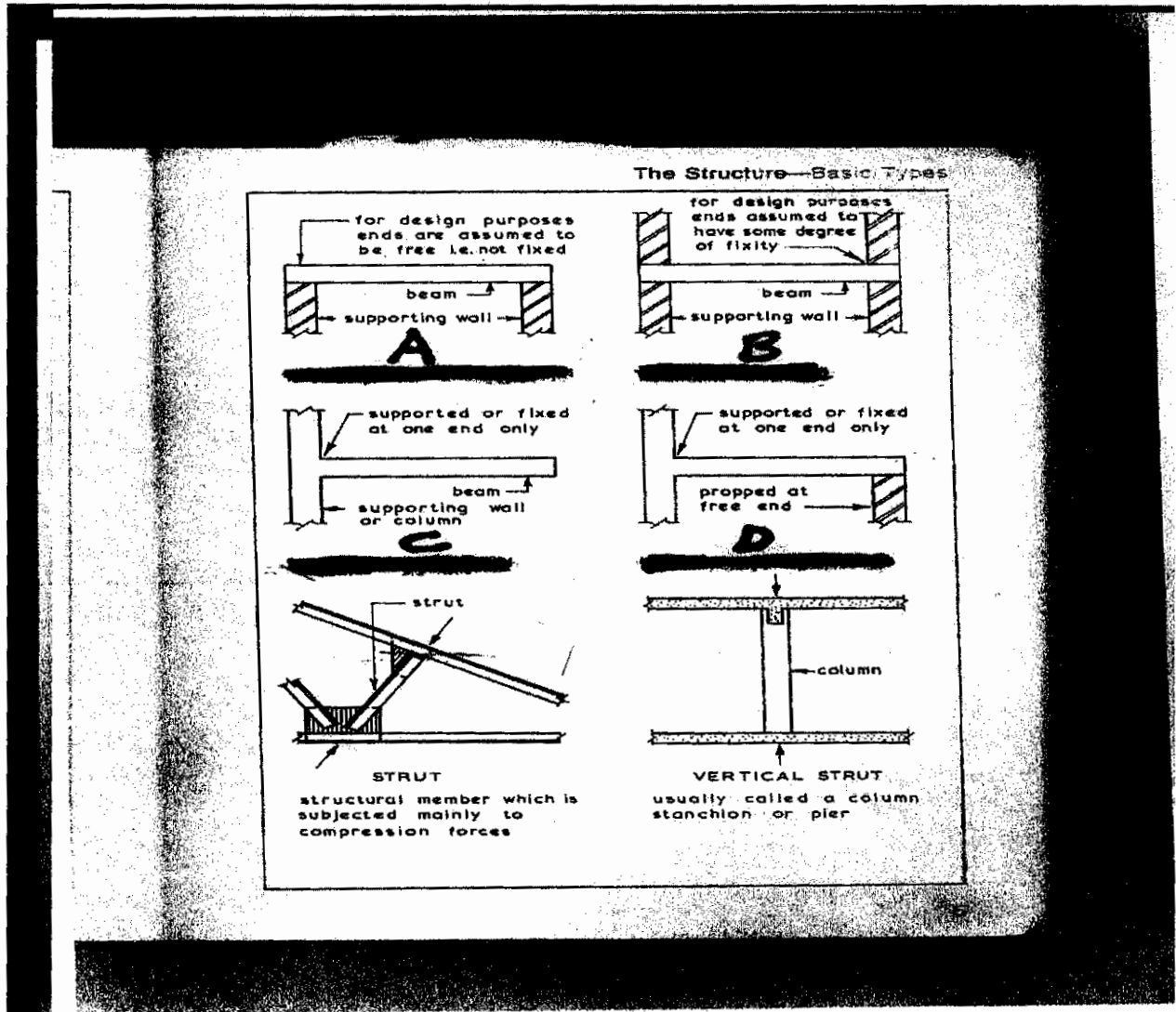
- (a) Using simple sketches describe the three types of stresses in building construction [6]
- (b) Discuss the notion of buildings as environment envelope [6]
- (c) There is often need for removal of top soil in preparation for building commencement. Give three reasons usually given for this removal [6]
- (d) What are the factors related to ground conditions that help guide selection of foundation types? [7]

QUESTION THREE

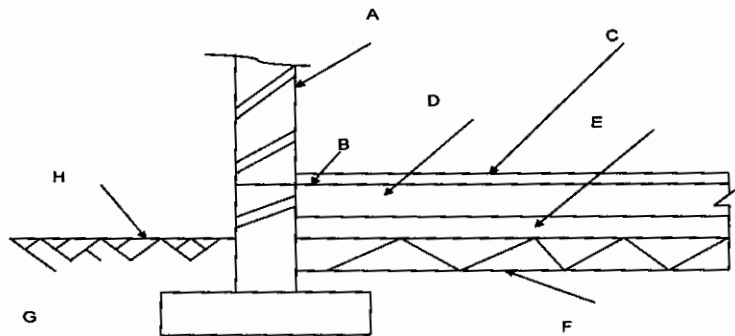
- (a) The production of concrete follows eight steps. Describe the steps in the production of concrete [16]
- (b) Describe the process of carrying out the slump test to determine the compressive strength in concrete. [9]

QUESTION FOUR

(a) On your answer script label the following basic types of beams used in construction projects (A,B,C and D) [4]



(b) Label the following diagram representing a ground floor [8]



- (c) Outline the three purposes of brick bonding [3]
- (d) Sketch out the three main types of bonds you know [10]

QUESTION FIVE

- (a) Describe the characteristics of a simple mass concrete foundation [6]
- (b) What is the implication of low soil strength on strip foundation design [3]
- (c) How would you design for point loads on foundations? [3]
- (d) Which are the seven typical security provisions that can be made at the construction site. [7]
- (e) Sketch out a simple timber pitched roof structure to show the following component parts [6]
 - I. Rafters;
 - II. ridge
 - III. Purlines;
 - IV. Eaves;
 - V. Hip rafters
 - VI. Gable end
 - VII. Gable end