

**UNIVERSITY OF SWAZILAND**  
**Faculty of Health Sciences**

**DIPLOMA IN ENVIRONMENTAL HEALTH  
SCIENCES**  
**FINAL EXAMINATION PAPER DECEMBER 2010**

**TITLE OF PAPER :** BUILDING CONSTRUCTION  
TECHNOLOGY

**COURSE CODE :** EHS 210

**DURATION :** 2 HOURS

**MARKS :** 80

**INSTRUCTIONS :** ANSWER ANY FOUR QUESTIONS

: QUESTION ONE IS COMPULSORY

: EACH QUESTION CARRIES 20 MARKS

: BEGIN EACH QUESTION ON A  
SEPARATE SHEET OF PAPER

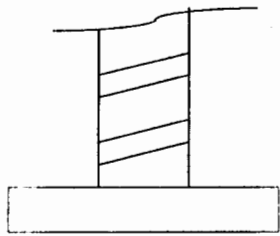
DO NOT OPEN THIS QUESTION PAPER UNTIL PERMISSION IS  
GRANTED BY THE INVIGILATOR

**QUESTION ONE:**

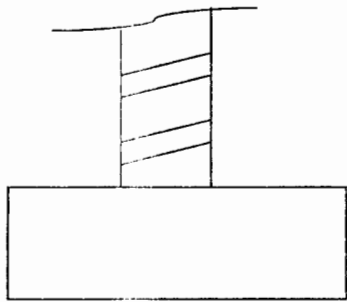
**COMPULSORY MULTIPLE CHOICE QUESTION.**

**Choose one answer for each [1 point each]**

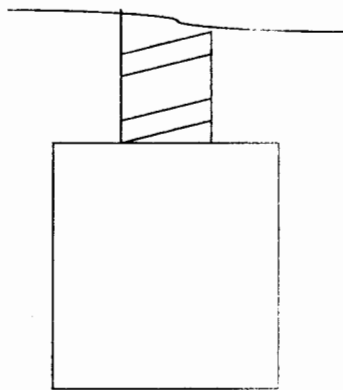
1. The following constitutes conditions that may render a soil unsuitable for foundations:
  - a. Natural low bearing capacity of soil
  - b. Low water table
  - c. Presence of layers of highly incompressible subsoil such as peat
  - d. Recently placed filling material which have been sufficiently consolidated
2. The wall thickness and foundation widths when setting out a building are marked on
  - a. the ground floor
  - b. the concrete slab
  - c. the profile board
  - d. the four stout pegs
3. Reasons for removing vegetable soil are:
  - a. to avoid growth of plants, shrubs or trees
  - b. to have a firm base to cast concrete slab
  - c. to minimize dampness under floors
  - d. to act as DPC
4. The dangers of import building materials are that:
  - a. They always carry health risks
  - b. They may be of suspect properties and performance in local conditions
  - c. They always lead to problems with moisture and moulds
  - d. They are always expensive to buy
5. The term *COURSE* in brick or block wall construction means
  - a. the number of bricks or blocks in a line of bricks or blocks.
  - b. A line of brick or blocks in the height of a wall
  - c. The pattern of laying the bricks or blocks
  - d. The number of lines of vertical and horizontal mortar joints
6. On undulating site, which type of foundation could be adopted?
  - a. Wide strip foundation
  - b. Trench fill foundation
  - c. Stepped strip foundation
  - d. Wide strip foundation
7. Which sketch illustrates a deep strip foundation



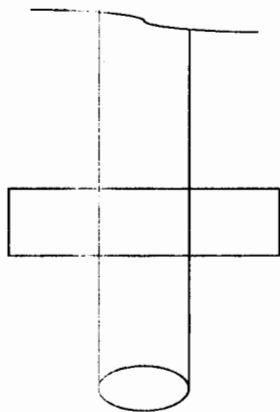
a.



b.

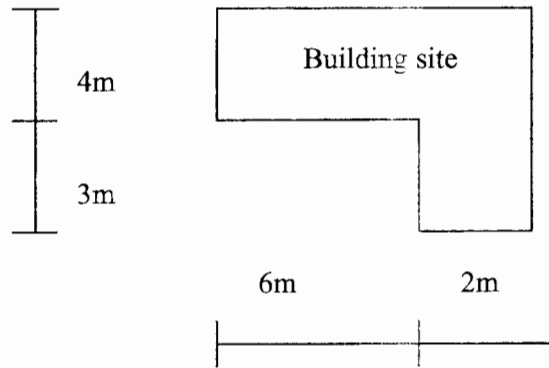


c.



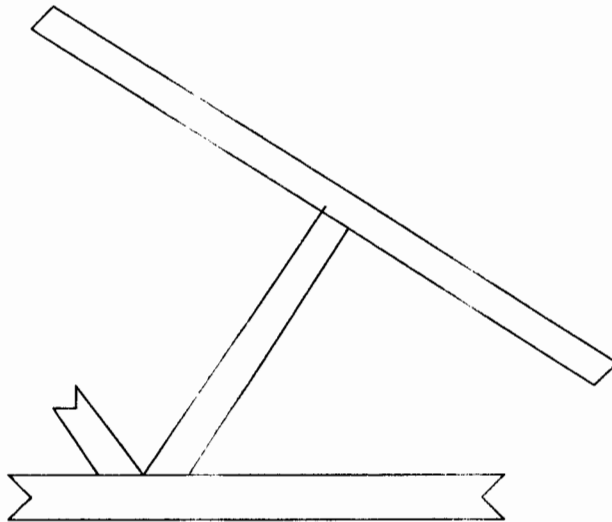
d.

8. What is the area for the soil stripping in the following building site?



- a.  $37\text{m}^2$
- b.  $56\text{m}^2$
- c.  $38\text{m}^2$
- d.  $52\text{m}^2$

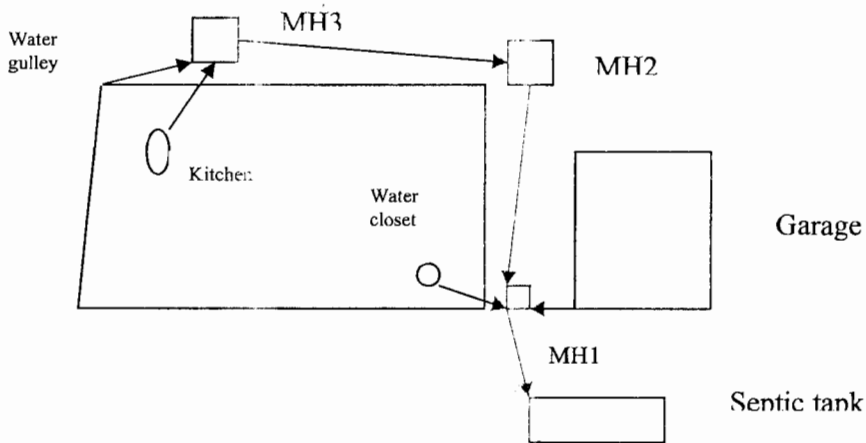
9.



The above structural member represents a

- a. cantilever beam
- b. vertical strut subjected to tensile forces
- c. strut subjected to compression forces
- d. tie subjected to tension forces

10. Which of the following must a dpm not be?
- Impermeable to water
  - Tough enough to remain undamaged when laying the concrete slab
  - Continuous with the dpc in adjoining walls
  - Permeable to water
11. The interface between the natural and built environment is
- not important
  - helps determine how to build a strut
  - is important for internal furnishing
  - symbiotic
12. Which bond is recommended for block work?
- English bond
  - Stretcher bond
  - Flemish bond
  - Quarter bond
13. The sketch below illustrates which type of a drainage system
- Partially separate system
  - Combined system
  - Separate system
  - Subsoil drainage system



14. In a drainage system what provides a means for collecting and controlling the seepage of rainwater into surrounding granular subsoil
- Inspection chamber
  - Manhole
  - Sewer

- d. Soak away
- 15. The subject Building Construction Technology is divided into
  - a. Substructure and superstructure
  - b. Modern and outdated construction methods
  - c. Timber and concrete
  - d. Theory, quantity surveying and drawings
- 16. In order to make a good contribution to the construction sector one needs
  - a. training, practical competence and experience
  - b. to be a good EHO
  - c. to be a good painter
  - d. a lot of experience only
- 17. Adaptability to changing housing needs means
  - a. getting rich
  - b. expanding the house
  - c. recycling
  - d. LCA
- 18. Environmental considerations in the building construction sector
  - a. Require complete removal of top soil and trees before putting up a building
  - b. Favour blending of natural and built environment
  - c. Is not that important as long as planning requirements are met
  - d. Cannot delay commencement of building construction activities
- 19. Fossil fuels
  - a. Are not important in the construction sector
  - b. Are the concern for the contractor
  - c. Last many decades so there is no need to worry
  - d. are finite
- 20. The basic form and type of structure help
  - a. Determine the internal façade of a building
  - b. Decide on the type of foundation
  - c. Determine the external envelope of the building
  - d. Engineers carry out site excavations

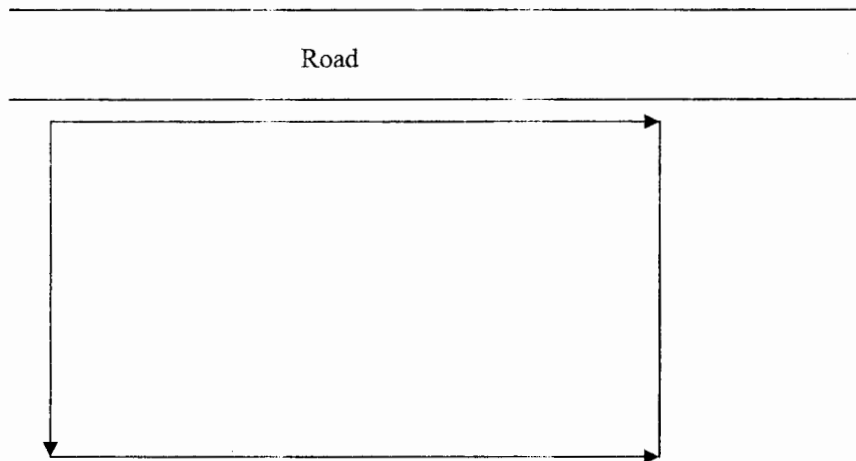
## QUESTION TWO

- a) Draw and label fully all parts and dimensions of a brick [4]
- b) What are the three main types of contracts that a client may opt for in a building construction project? Discuss advantages and disadvantages of each type. [9]
- c) Describe the role of an Environmental Health Officer in Building construction [3]
- d) Explain the significance of the tendering process in a building construction projects [4]

## QUESTION THREE

- a) Explain and trace the transition from traditional to modern building construction technology. [5]
- b) Building construction activities often result in exacerbated run off. Describe five ways to control run off [5]

c) The following represents an incomplete building site layout. Complete it in a separate sketch showing all the important features that normally should be in a building site. [10]



#### QUESTION FOUR

- a) There is a symbiotic relationship between the built and the natural environment. Explain the significance of this [7]
- b) Describe the methodology used in assessing how different building construction operations and use of different materials influence the environment [10]
- c) You are employed as a purchasing officer for the “Inyatsi Construction” Summarise your role as a purchasing officer in the company. Highlight at least three critical things you would look for when carrying out your functions. [3]

#### QUESTION FIVE

- a) Raise nine points on causes, impacts and possible remedies of dampness in a building [9]
- b) The following represent a sketch of a solid ground floor. Label the sketch and give the usual dimensions for A, G, C and E. [11]

# SOLID GROUND FLOOR

