

**3080/206**  
**BUILDING ECONOMICS**  
**Oct./Nov. 2006**  
**TIME: 3 hours**

**THE KENYA NATIONAL EXAMINATIONS COUNCIL**

**HIGHER DIPLOMA IN CONSTRUCTION**  
**(BUILDING ECONOMICS OPTION)**

**BUILDING ECONOMICS**

**3 hours**

**INSTRUCTIONS TO CANDIDATES**

*You should have the following for this examination:*

*Answer booklet*  
*Mathematical tables/Pocket calculator.*

*Answer any FIVE of the following EIGHT questions.*  
*All questions carry equal marks.*  
*Maximum marks for each part of a question are as shown.*

**This paper consists of 4 printed pages**

**Candidates should check the question paper to ensure that all the pages are printed as indicated and no questions are missing**

1. (a) Explain the significance of the Construction Industry to the national economy. (4 marks)
- (b) With reference to the Construction Industry, highlight five effects of economical down-turns arising from government restrains. (5 mark)
- (c) The life cycle of a typical construction project development can be broadly divided into four phases.  
Name and describe the process involved in each phase. (11 marks)
2. (a) Briefly explain four factors that may affect the cost of building projects during the design stage. (8 marks)
- (b) With suitable illustrations, explain how plan shape will influence the cost of the building. (7 marks)
- (c) Describe how the total height will affect the cost of the following
  - (i) foundations
  - (ii) services. (5 marks)
3. (a) Outline three objectives of cost control in building development. (6 marks)
- (b) Briefly explain the significance of the following terms as applied in cost control.
  - (i) Cost plan
  - (ii) Cost check
  - (iii) Cost in use
  - (iv) Cost analysis
  - (v) Cost study (10 marks)
- (c) State the reasons which may lead to disparities in rates for tenderers quoting for the same project. (4 marks)
4. (a) The government intends to construct one hospital in each province to address the increasing population . You are required to prepare a cost estimate for the works.  
Highlight the information you would require from the architect at the preliminary design stage. (7 marks)
- (b) With suitable examples, describe the following approximate estimating methods
  - (i) Superficial
  - (ii) Storey enclosure, (7 marks)
- (c) Explain why contractors rates differ from those prepared by quantity surveyors.  
Use the Data in Appendix 'X' for price build up. (6 marks)
5. (a) Using suitable examples, discuss three available adjustments to historical cost information. (12 marks)
- (b) Build up unit rate for "plain concrete (1:3:6 – 20 mm aggregates) in foundation trench" per cm. (8 marks)

6. Build unit Rate for;

- (a) Prepare, Knot, Stop and apply three coats of oil paint on general surfaces of wood, internally per sm. (10 marks)
- (b) 420 x 280 mm clay interlocking tiles with 70 mm end laps and 30 mm side laps on 50 x 25 mm softwood battens at 25° pitch per sm. (10 marks)

7. You are the only technical board member for your school which has received grant from the local constituency development Fund (C.D.F.) to construct a new Administration Block.

- (a) Explain the importance of the Variation Clause which you will include in the tender documents highlighting its advantages to the school. (7 marks)
- (b) If the grant from C.D.F is inadequate and yet the works have been approved and a contractor has to be appointed.
- (i) draft a preliminary bill to highlight this situation.
- (ii) outline **three** factors the contractor will take into account when pricing this particular preliminary. (7 marks)
- (c) Considering that the Contract Agreement in use for this works will be based on the agreement and conditions of contract for building works, published by the joint Building Council,

Outline

- (i) **Two** clauses which may be deleted to suit this type of contract giving one reason in each case.
- (ii) **One** clause which may be deleted giving suitable replacement. (6 marks)

8. A client is desirous to construct a maisonette using cost guidelines obtained from a construction journal for a recently completed estate project

- (a) Under **five** headings justify why this is not the best cost yardstick for the clients proposed project. (10 marks)
- (b) If the client will eventually lease the maisonette to an organisation, explain how the rent will be determined. (5 marks)
- (c) The maintenance and operation of the sewer for the estate project is run as a joint venture between the residents and the Local Authority. Outline **five** advantages of this. (5 marks)

## APPENDIX 'X'

• Skilled labour, per hour -----	Ksh. 50.00
• Unskilled labour, per hour -----	Ksh.30.00
• Cement, per 50 kg bar -----	Ksh.590.00
• Sand per m <sup>3</sup> -----	Ksh.1600.00
• Ballast, per m <sup>3</sup> -----	Ksh.1500.00
• Density of sand -----	Ksh.1440 kg/m <sup>3</sup>
• Sand paper, per piece -----	Ksh.50.00
• Knotting paint, per litre -----	Ksh.350.00
• Putty, per kg -----	Ksh.30.00
• Primer, per litre -----	Ksh.400.00
• Oil paint, per litre -----	Ksh.400.00
• Roofing tiles, per piece -----	Ksh.45.00
• 50 x 25 mm softwood, timber, per metre	Ksh.30.00

Make reasonable assumptions where necessary.