

2521/301, 2602/301
2601/301, 2603/301
INDUSTRIAL MANAGEMENT,
ESTIMATING, TENDERING AND
ENGINEERING SERVICES
CONTRACTS
June/July 2019
Time: 3 hours



THE KENYA NATIONAL EXAMINATIONS COUNCIL

DIPLOMA IN ELECTRICAL AND ELECTRONIC ENGINEERING
(POWER OPTION)
(TELECOMMUNICATION OPTION)
(INSTRUMENTATION OPTION)

MODULE III

INDUSTRIAL MANAGEMENT, ESTIMATING, TENDERING AND
ENGINEERING SERVICES CONTRACTS

3 hours

INSTRUCTIONS TO CANDIDATES

The paper consists of EIGHT questions in TWO sections, A and B.

Answer TWO questions from Section A and THREE questions from Section B in the answer booklet provided.

All questions carry equal marks.

Maximum marks for each part of a question are as indicated.

Candidates should answer the questions in English.

This paper consists of 4 printed pages.

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

SECTION A

Answer any TWO questions from this section.

1. (a) State the **three** levels of management in an organization. (3 marks)
 - (b) Explain **three** criticisms of scientific management approach as viewed by the workers. (6 marks)
 - (c) Explain the following types of business:
 - (i) partnership;
 - (ii) sole proprietorship. (4 marks)
 - (d) (i) A public company is formed by registering it with the registrar of companies. State the legal documents contained in a 'memorandum of association'.
(ii) State **four** conditions for winding up a company. (7 marks)
2. (a) (i) Explain **four** reasons for having a good office design layout.
(ii) Outline **four** factors to consider when designing an office layout. (8 marks)
 - (b) List **three** advantages of an open plan office. (3 marks)
 - (c) (i) Distinguish between commercial and retail banks.
(ii) State **three** advantages of on-line banking. (7 marks)
 - (d) Explain the primary role of the Central Bank in a country. (2 marks)
3. (a) State **two** qualities of a good manager. (2 marks)
 - (b) Explain **five** principles of management theory as explained by Henry Fayol. (10 marks)
 - (c) Explain **four** factors that are likely to affect a production system. (8 marks)

SECTION B

Answer any THREE questions from this section.

4. (a) State **three**:
- (i) factors considered when preparing an estimate;
 - (ii) documents that should accompany a detailed estimate. (6 marks)
- (b) Describe **two** methods of work measurements for electrical engineering work. (4 marks)
- (c) (i) State **three** methods of 'taking-off' materials from electrical design drawings.
(ii) Explain the need of examining a Bill of Quantities against design drawings. (6 marks)
- (d) State **four** ways in which tendering procedures can be abused. (4 marks)
5. (a) Outline the procedure for ordering materials during project implementation. (5 marks)
- (b) Explain the importance of the following documents during purchase and supply of materials:
- (i) quotations;
 - (ii) delivery note;
 - (iii) invoice. (6 marks)
- (c) (i) Explain the need for site meetings as part of successful management of projects.
(ii) Outline the procedure of convening such a meeting as in (i) above.
(iii) List **three** site meeting documentation. (9 marks)
6. (a) State **four** essentials of a valid contract. (4 marks)
- (b) Explain the following 'clauses' as used in contract law:
- (i) invitation to treat.
 - (ii) quantum meruit. (4 marks)

- (c) Distinguish between Novation and Rescission as used in the discharge of a contract. (4 marks)
- (d) (i) Explain **two** elements that constitute a 'tort'.
 (ii) State **two**:
 (I) types of torts;
 (II) advantages of the law of tort. (8 marks)
7. (a) Explain the need for a standard method of measurement in a Bill of Quantities. (2 marks)
- (b) Explain the following as used in work measurement:
 (i) wages;
 (ii) time extension;
 (iii) variation order. (6 marks)
- (c) (i) State **two** methods of allocating labour to an estimate.
 (ii) Outline **three** possible constrains in labour allocation. (5 marks)
- (d) (i) Define the term 'overheads' as used in estimation of a projection.
 (ii) Outline the procedure of determining office overhead costs. (7 marks)
8. (a) Explain **three** roles of computers in project actualization. (6 marks)
- (b) (i) State **two** advantages of bar charts over Critical Path Networks (CPN) when used in works planning and control.
 (ii) Table 1 shows the sequence of events during an electrical installation project in a building. Draw a Gantt chart to represent the sequence of activities to the completion of the project. (9 marks)

Activity	Time (weeks)
A – laying conduits	3
B – plastering	2
C – drawing in cables	4
D – terminations	6
E – testing	2

- (c) Outline the procedure of drawing a Critical Path Network (CPN). (5 marks)

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