

2207/305
INDUSTRIAL ORGANISATION
AND MANAGEMENT
Oct./Nov. 2017
Time: 3 hours



THE KENYA NATIONAL EXAMINATIONS COUNCIL
DIPLOMA IN AERONAUTICAL ENGINEERING AVIONICS
(COMMUNICATION AND NAVIGATION OPTION)

INDUSTRIAL ORGANISATION AND MANAGEMENT

3 hours

INSTRUCTIONS TO CANDIDATES

You should have the following for this examination:

Non-programmable scientific calculator;

Mathematical table;

Answer booklet.

Answer any FIVE of the EIGHT questions in the answer booklet provided.

All questions carry equal marks.

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

Candidates should answer the questions in English.

This paper consists of 5 printed pages.

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

1. (a) State **four** functions of management at supervisory level in a factory. (4 marks)
- (b) Explain **three** features of F. W. Taylor's scientific management theory to production efficiency in industrial organisations.
Personal Skills
Technical Skills
Labour Skills (6 marks)
- (c) Distinguish between working capital and fixed capital as used in financial management. (4 marks)
- (d) (i) Outline the steps involved in the budgetary control process.
- (ii) Highlight **three** reasons why budgetary control is important to an organisation.
- Accountability
- Proper planning
- Proper use of resources (6 marks)
2. (a) State **four** advantages of decentralised systems industrial organisations.
- flexibility of departments
- No delay in chain of command
- Decisions made at lower levels
- Subordinates make decisions on orders from above (4 marks)
- (b) With the aid of a labelled sketch, describe the matrix form of organisation structure.
CEO/MD
MA (6 marks)
- (c) State, with reasons, **two** disadvantages of creating too many layers of supervision in an organisation.
- Delay & slow quick decisions
- Uniform treatment of subordinates
- Leads to lack of delegation (4 marks)
- (d) Explain **three** demerits of management by objectives as practiced in management.
- reluctance on objectives
- Lack of innovation focus
- Just enough work for the objectives by managers, performance
- limited to objectives (6 marks)
3. (a) State **four** factors considered by organisations when purchasing spare parts.
- Cost of buying
- Cost of storage keeping
- Dumbidity/short life
- Cost of life (4 marks)
- (b) Describe the following types of registers in stores control:
- (i) consumable register;
- (ii) daily receipts register. (4 marks)

*Managing
Organizes
Planned
Control*

*Discipline
Unity*

Henry Fayol

- (c) Table 1 shows receipts and issues of WANGWA Ltd stores department for the month of May 2014.

Table 1

Date	Receipts	Unit cost (Ksh)	Units Issued	Bin Balance (units)	Value of stock balance (Ksh)
7/5/2014	-	50	-	b/f 2000	100,000
9/5/2014	1000	70	-	3000	170,000
15/5/2014	1500	72	1800	2700	?
23/5/2014	4000	80	2500	4200	?
25/5/2014	2300	100	2000	4500	
31/5/2014	-	-	1600	?	

From the data given in table 1, determine:

- (i) (I) The bins balance as at the closing of business on 31/5/2014.
 (II) The value of stock issued during the month using the Last-In-First-Out (LIFO) method.
 (ii) If the recommended method for charging store issues in the company is First-In-First-Out (FIFO), determine the value of stock balances on 15th and 23rd May respectively. (12 marks)

4. (a) Describe the following measurement techniques used in method study:

*Work Study
 Work Measurement
 Examination of work
 Work Method*

- (i) process charts;
 (ii) string diagrams.

(4 marks)

(b) The following data was obtained by a work study specialist while studying a maintenance technician for a day.

Maintenance time

Putting away tools	14 minutes
Cleaning the machine	5 minutes
Oiling the machine	3 minutes

Interruption time

Interruption by foreman	4 minutes
Interruption by spanner boy	3 minutes

Other time losses

Delay due to power failure	8 minutes
Personal breaks	30 minutes

Assuming an 8-hour working day, calculate:

- (i) total daily time allowance;
- (ii) total available cycle time.
- (iii) the technicians productive hour.

(6 marks)

- (c) (i) Describe the term 'productivity' as applied in the work place.
- (ii) Explain **four** ways of increasing productivity in industrial organisation.
- Capital - Equipment & Machinery - good plant layout
- labour - Maintenance

(10 marks)

5. (a) Outline **three** methods of carrying out inspection in an engineering firm. (3 marks)

- (b) (i) Outline the procedure for single sampling plan in quality control.
- (ii) State **two** examples where sampling inspection is applicable. (6 marks)

- (c) Explain the following terms used in statistical quality control:
 - (i) assignable cause variation:
 - (ii) sampling by attributes. (4 marks)

- (d) The following data relates to a product which was undergoing a quality control process

Process mean ($\bar{\bar{x}}$)	= 80.2 mm
Mean range (\bar{R})	= 0.18 mm
Sample size (n)	= 5
Hartley's constant (dn)	= 1.64

Use the data to compute the action and warning lines for the mean chart. (7 marks)

6. (a) Describe the following tests used in employee selection processes:
 - (i) aptitude test;
 - (ii) personality tests. (4 marks)

- (b) Describe **four** methods used by organisations when carrying out Training Needs Assessment (TNA). (8 marks)

- (c) Explain **four** requirements of an effective employee performance appraisal plan. (8 marks)

*7. (a) Table 2 shows the Time/Cost relationships of a project.

Table 2

Activity	Normal Time (weeks)	Crash Time (weeks)	Normal cost (K£)	Crash cost (K£)
1 - 2	5	4	600	800
1 - 3	3	1	400	600
1 - 4	8	5	900	1200
2 - 4	4	2	600	1200
3 - 4	4	3	500	700

- (i) Draw the project network and determine the critical path.
(ii) Determine the total direct cost of the project.
(iii) Crash the project such that its completion time reduces to 7 weeks.

(13 marks)

- (b) (i) State **two** factors considered when pricing a new product.
- Product quality - Satisfaction of Consumer needs
- Availability of raw materials
(ii) Explain the stages of a product lifecycle.

(7 marks)

8. (a) Outline **four** symptoms of poor plant layout.

(4 marks)

(b) Compare process layout and product layout in terms of the following criteria:

- (i) workflow;
(ii) material handling;
(iii) space utilisation.

(6 marks)

(c) State **four** characteristics of job production.

(4 marks)

(d) Highlight the activities involved in production control.
- work - men, equip, raw materials, cost price
- production to get the basic unit in ship building
- continuous
- better systems

(6 marks)

- Utilization of space
- Safety and security of employees
- Economic utilization of equipment and resources
- Proper usage of workflow

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