



THE KENYA POLYTECHNIC UNIVERSITY COLLEGE

DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

HIGHER DIPLOMA IN ELECTRICAL ENGINEERING

END OF YEAR II EXAMINATIONS

NOVEMBER 2007

INDUSTRIAL ORGANIZATION & MANAGEMENT

3 HOURS

INSTRUCTIONS TO CANDIDATES:

You should have the following for this examination:

Answer booklet

Non-programmable calculator/ New Mathematical tables

Answer any FIVE of the following EIGHT questions.

All questions carry equal marks and the maximum marks for each part of a question are as shown.

This paper consists of 4 printed pages.

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1. (a) Describe production management. (5 marks)
- (b) Explain the scope of production management in a factory set-up. (9 marks)
- (c) Outline FOUR responsibilities of the Production Manager. (6 marks)
2. (a) Explain plant layout and the implications of its concept. (7 marks)
- (b) Discuss the objectives and benefits of plant layout. (13 marks)
3. (a) Explain FOUR important characteristics in Network Analysis. (4 marks)
- (b) Consider the following table and information for a project.

Task	Immediate predecessor	Optimistic time	Pessimistic time	Most likely time
A	-	4	5	7
B	A	2	3	5
C	A	5	7	11
D	B	2	2	2
E	B	3	4	6
F	D	3	5	6
G	C	3	3	3
H	C	2	2	2
I	G, H	3	4	6
J	E, F	4	6	7

- (i) Draw the network.
- (ii) Compute mean time for each activity.
- (iii) Find critical path. (16 marks)
4. (a) Explain the terms 'maximum stock' and 'minimum stock' limits. (4 marks)
- (b) Discuss any FOUR factors taken into account in fixing the limits in (a) above. (7 marks)
- (c) A manufacturing company requires 1000 units per month. The order cost is estimated at shillings fifty per order. In addition the carrying costs are

- 10% per unit of average inventory per year. The purchase price is shillings ten per unit. Determine the economic lot size to be ordered and the minimum total cost. (9 marks)
5. (a) Discuss FOUR advantages from an efficient Quality Control System. (8 marks)
- (b) State FOUR benefits of Statistical Quality Control. (4 marks)
- (c) The table 1 gives the average daily production figure for 20 months each of 25 working days. Given that the population standard deviation of daily production is 35 units, draw the control chart for the mean.
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|------|------|------|------|------|------|------|------|------|-----|
| 210, | 205, | 210, | 212, | 211, | 209, | 219, | 204, | 212, | 209 |
| 212, | 215, | 208, | 214, | 210, | 204, | 211, | 211, | 203, | 211 |
- Comment on your results. (8 marks)
6. (a) Define work study and explain the need for work study in an enterprise. (8 marks)
- (b) Explain the following techniques of work measurements:
- (i) Time study (ii) Analytical estimating (7 marks)
- (c) An operator's job is to pack fountain pens in presentation boxes. The time allowed equals four tenths standard minute each working time per day of eight hours. If the operator packs one thousand and eighty boxes on this day, determine the operator's performance on this particular day. (5 marks)
7. (a) (i) State THREE advantages of routine maintenance.
- (ii) Explain 'Budgets and financial control' as a maintenance policy. (7 marks)
- (b) Explain the meaning and procedures of purchasing management. (13 marks)

8. (a) Explain the assumptions and limitations of break-even analysis.

(10 marks)

(b) There are two factories A and B. The management wants to merge them.

The details are as follows:

Factory	A	B
Capacity	100%	60%
Sales ('000)	300	120
Variable costs ('000)	220	90
Fixed costs ('000)	40	20

Calculate:

(i) The capacity of merged plant to be operated for the purpose of BEP.

(ii) The profitability on the working of 75% of the merged capacity.

(10 marks)