NOVEMBER 2012 EXAMINATION

DATE: 8 NOVEMBER 2012

TIME: 09H00 – 10H00 TOTAL: 50 MARKS
DURATION: 1 HOUR PASS MARK: 40%

(GW-67)

INDUSTRIAL ENGINEERING

THIS EXAMINATION PAPER CONSISTS OF 10 QUESTIONS:

ANSWER ALL THE QUESTIONS (50 MARKS)

INSTRUCTIONS:

1. Read the following instructions carefully before answering the paper, as failure to act upon them will result in a loss of marks.
2. Write your answers in your answer book, which is provided in the exam.
3. Ensure that your name and student number are clearly indicated on your answer book.
4. Write your answers in either blue or black ink in your answer book.
5. Read each question very carefully before you answer it and number your answers exactly as the questions are numbered.
6. Begin with the question for which you think you will get the best marks.
7. Note the mark allocations for each question – give enough facts to earn the marks allocated. Don't waste time by giving more information than required.
8. You are welcome to use diagrams to illustrate your answers.
9. Please write neatly – we cannot mark illegible handwriting.
10. Any student caught cheating will have his or her examination paper and notes confiscated. The College will take disciplinary measures to protect the integrity of these examinations.
11. If there is something wrong with or missing from your exam paper or your answer book, please inform your invigilator immediately. If you do not inform your invigilator about a problem, the College will not be able to rectify it afterwards, and your marks cannot be adjusted to allow for the problem.
12. This paper may be removed from the examination hall after the examination has taken place.

Examiner: F Rapai
QUESTION 1
Identify any five factors that would influence the location of a clothing factory. [5]

QUESTION 2
Identify any three methods of solving location problems. [3]

QUESTION 3
Identify any five objectives of planning the layout of a production floor. [5]

QUESTION 4
(a) Explain the term 'plant layout'. (2)
(b) Identify any three manufacturing layouts. (3) [5]

QUESTION 5
(a) Explain the term 'parts list'. (2)
(b) Identify any three items included in the parts list. (3) [5]

QUESTION 6
There are certain symbols used at various stages of the manufacturing process. Illustrate the symbols for the following stages:
(a) Operation inspection (1)
(b) Delay (1)
(c) Storage (1)
(d) Transportation (1)
(e) Inspection (1) [5]
QUESTION 7
(a) Define the term 'plant layout template'. (3)
(b) Illustrate the three types of templates used in the industry. (3 × 2 = 6) [9]

QUESTION 8
Your boss expects you as the production manager to construct a detailed layout. Identify any three methods of constructing a detailed layout. [3]

QUESTION 9
Match the statements in Column B to the terms in Column A. Write down the answers only, for example 1. (a)

<table>
<thead>
<tr>
<th>Column A</th>
<th>Column B</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. total cost</td>
<td>(a) equipment or work processes, arranged according to the stages of production</td>
</tr>
<tr>
<td>2. product layout</td>
<td>(b) similar equipment or functions grouped together, for example, cutters in one section and melts in another</td>
</tr>
<tr>
<td>3. process layout</td>
<td>(c) retail area layout, departmental layout, warehouse layout, manufacturing layout, office layout, etc.</td>
</tr>
<tr>
<td>4. plant layout</td>
<td>(d) labour costs, taxes and energy costs</td>
</tr>
<tr>
<td>5. templates</td>
<td>(e) scaled representations (usually 1 : 50) of physical objects to be considered in a layout, for example, a machine, materials handling equipment, a man or materials</td>
</tr>
</tbody>
</table>

QUESTION 10
Discuss any five steps to measuring the efficiency of a plant layout. [5]

TOTAL: 50 MARKS