JUNE 2012 EXAMINATION

DATE: 7 JUNE 2012

TIME: 09H00 – 10H00

TOTAL: 50 MARKS

DURATION: 1 HOUR

PASS MARK: 40%

(GW-67)

INDUSTRIAL ENGINEERING

THIS EXAMINATION PAPER CONSISTS OF 3 SECTIONS:

SECTION A: CONSISTS OF:
(i) 10 MULTIPLE-CHOICE QUESTIONS (10 MARKS)
(ii) 10 MATCHING-STATEMENT QUESTIONS (10 MARKS)

SECTION B: CONSISTS OF 3 SHORT QUESTIONS

SECTION C: CONSISTS OF 1 LONG ANSWER QUESTION

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.

SPECIAL REQUIREMENTS: RULER AND PENCIL.
SECTION A

(20 MARKS)

ANSWER ALL THE QUESTIONS

(i) MULTIPLE-CHOICE QUESTIONS

Choose the correct option for each of the following. Write only the question number and your chosen answer. For instance, if you think that the correct answer for number 1 is (a), then write it as 1. (a).

1. Which of the following may influence the choice of location for an organisation's plant?
   (a) business climate
   (b) profit
   (c) customers
   (d) quality of product

2. Choose the correct method for solving location problems:
   (a) the centre of location method
   (b) the calculating profit method
   (c) the carrier method
   (d) the factor rating method

3. Choose the main objective of plant layout:
   (a) improve the profit
   (b) improve the work in-progress turnover
   (c) avoid unnecessary accidents
   (d) maximise the cost of handling materials

4. The most common plant layout problem is a result of:
   (a) keeping the existing layouts.
   (b) keeping the location of existing facilities.
   (c) small changes to existing layouts.
   (d) keeping the arrangement of present layouts.

5. The correct manufacturing layout is:
   (a) fixed position.
   (b) individual layout.
   (c) layout by profit.
   (d) layout by expenses.
6. The person who is responsible for a plant layout is the:
   (a) bookeeper.
   (b) product engineer.
   (c) project manager.
   (d) plant engineer.

7. The skill a good plant layout engineer should have is:
   (a) management knowledge.
   (b) financial knowledge.
   (c) physical ability.
   (d) steel structure knowledge.

8. Choose the personal characteristic required for a good plant layout engineer:
   (a) patience
   (b) hope
   (c) boldness
   (d) inferiority

9. Choose the criterion required for a good layout:
   (a) maximum strength
   (b) maximum flexibility
   (c) minimum strength
   (d) minimum comfort

10. Choose the correct step for measuring the efficiency of a plant layout:
    (a) Do not develop a method for transforming the plant.
    (b) Develop a method to calculate profit.
    (c) Do not state the objective in decision-making.
    (d) Develop a measure of efficiency for each objective.
(ii) **MATCHING-STATEMENT QUESTIONS**

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. proximity to customers</td>
<td>(a) includes adequate road, rail, air and sea transportation</td>
</tr>
<tr>
<td>2. business climate</td>
<td>(b) education and skill levels of the labour force, their willingness and ability to learn</td>
</tr>
<tr>
<td>3. total cost</td>
<td>(c) a suitable location will have a high quality and a competitive supplier base</td>
</tr>
<tr>
<td>4. infrastructure</td>
<td>(d) a closed facility (under the supervision of the customs department) into which foreign goods can be brought without being subject to customs requirements</td>
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<tr>
<td>5. quality of labour</td>
<td>(e) influence on the relationship between the host country and the country of location</td>
</tr>
<tr>
<td>6. suppliers</td>
<td>(f) removed today through legislation</td>
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<tr>
<td>7. free trade zones</td>
<td>(g) enables faster delivery of goods</td>
</tr>
<tr>
<td>8. political risk</td>
<td>(h) form part of the deciding factors of where to locate an organisation</td>
</tr>
<tr>
<td>9. government barriers</td>
<td>(i) includes factors such as labour, taxes and energy</td>
</tr>
<tr>
<td>10. environmental regulations</td>
<td>(j) can include the presence of similar businesses, other companies in the same industry and in the case of international locations, the presence of other foreign companies</td>
</tr>
</tbody>
</table>

[10]  

[20]
SECTION B: SHORT QUESTIONS (10 MARKS)

ANSWER ALL THE QUESTIONS

QUESTION 1
Name two methods by which a detailed layout can be constructed. [2]

QUESTION 2
Describe under which circumstances draughting is feasible. [2]

QUESTION 3
Name the positions of six personnel members responsible for a plant layout. [6]

[10]
QUESTION 1

(a) i. Describe the measuring of qualitative and quantitative objectives. (4)

ii. Explain the steps to take to measure the efficiency of a plant layout. (6)

(b) i. Draw a rabbit chase cell. (5)

ii. Draw a U-line cell. (5) [20]