NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

FACULTY OF INDUSTRIAL TECHNOLOGY

DEPARTMENT OF INDUSTRIAL AND MANUFACTURING ENGINEERING

B-Eng Hons Industrial and Manufacturing Engineering

<u>Supplementary Examination</u>

COURSE	**:**	**INTRODUCTION TO INDUSTRIAL AND MANUFACTURINGENGINEERING**
CODE	**:**	**TIE 1105**
DATE	**:**	**JANUARY 2013**
DURATION	**:**	**3 HRS**

<u>INSTRUCTIONS TO CANDIDATE</u>

1.   Answer any **five (5) questions.**
2.   All Questions carry 2**0 marks.**
3.   This paper contains **seven (7)** questions.
5.   There are **three (3)** printed pages.

QUESTION 1

a) John has been offered to study at the National University of Science and Technology in the department of Industrial and Manufacturing Engineering. However, he is unsure what this discipline of engineering entails. Suppose you were tasked to advise him, elaborate on the following points:

    i.   What is industrial and manufacturing engineering?   [6]
    ii.   Describe three (3) career paths for Industrial and Manufacturing Engineers.   [9]
    iii.   What types of Industries can an Industrial and Manufacturing Engineer work at?
                                                                                                   [5]

QUESTION 2

Define the following in Productivity:
    i.   Man-hour.   [2]
    ii.   Machine- hour.   [2]
a) What factors contribute to excess work content in production?   [6]
b) "Work Study is a direct means of raising productivity". Discuss.   [10]

QUESTION 3

a) Explain factors that influence task learning.   [6]
b) Briefly explain two techniques within direct work measurement.   [14]

QUESTION 4

State and discuss the four major factors that affect organizational productivity   [20]

QUESTION 5

a) What is lean manufacturing and what is its relevance to an Industrial and Manufacturing Engineer today?   [10]
b) What courses within Industrial and Manufacturing Engineering programme can be used to improve productivity after a method study activity?   [10]

QUESTION 6

Develop a two-handed processes chart for the assembly of an Eversharp 15M pen with the following components (Refill, Barrel, back cap, front cap). Include illustrations of the work area arrangement assuming refills are sub assembled already.   [20]

QUESTION 7

a)   Define Work study and its value to an organization?   [10]
b)   What are the two major techniques of work study?   [10]

END OF EXAM

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