MASENO UNIVERSITY

UNIVERSITY EXAMINATIONS 2016/2017

FOURTH YEAR SECOND SEMESTER EXAMINATION FOR DEGREE OF BACHELOR OF BUSINESS ADMINISTRATION WITH INFORMATION TECHNOLOGY

CITY CAMPUS –EVENING

ABA 441: OPERATIONS MANAGEMENT

Date: 28th November, 2016 Time: 5.30 - 8.30pm

INSTRUCTIONS:

- Answer Question ONE (Compulsory) and any other TWO.

QUESTION ONE (30 MARKS) (COMPULSORY)

CASE STUDY: **MAKING HOTPLATES**

Group of 10 workers were responsible for assembling hotplates (instruments for heating solutions to a given temperature) for hospital and medical laboratory use. A number of different models of hotplates were being manufactured. Some had a vibrating device so that the solution could be mixed while being heated. Others heated only test tubes. Still others could heat solutions in a variety of different containers.

With the appropriate small tools, each worker assembled part of a hotplate. The partially completed hotplate was placed on a moving belt, to be carried from one assembly station to the next. When the hotplate was completed, an inspector would check it over to ensure that it was working properly. Then the last worker would place it in a specially prepared cardboard box for shipping.

The assembly line had been carefully balanced by industrial engineers, who had used a time and motion study to break the job down into subassembly tasks, each requiring about three minutes to accomplish. The amount of time calculated for each subassembly had also been "balanced" so that the task performed by each worker was supposed to take almost exactly the same amount of time. The workers were paid a straight hourly rate.

However, there were some problems. Morale seemed to be low, and the inspector was finding a relatively high percentage of badly assembled hotplates. Controllable rejects-those "caused" by the operator rather than by faulty materials-were running about 23 percent. After discussing the situation, management decided to try something new. The workers were called together and asked if they would like to build the hotplates individually. The workers decided they would like to try this approach, provided they could go back to the old program if the new one did not work well. After several days of training, each worker began to assemble the entire hotplate.

The change was made at about the middle of the year. Productivity climbed quickly. By the end of the year, it had leveled off at about 84 percent higher than during the first half of the year, although no other changes had been made in the department or its personnel. Controllable rejects had dropped from 23 percent to 1 percent during the same period. Absenteeism had dropped

from 8 percent to less than 1 percent. The workers had responded positively to the change, and their morale was higher. As one person put it, "Now, it is my hotplate." Eventually, the reject rate dropped so low that the assembly workers themselves did all routine final inspection. The fulltime inspector was transferred to another job in the organization.

Required

(i) Explain the meaning of 'Assembly Line' as used in the case [3 Marks]

(ii) Describe the changes in the work situation that might account for the increase in productivity and the decrease in controllable rejects. [4 Marks]

(iii) Evaluate what might have accounted for the drop in absenteeism and the increase in morale. [5 Marks]

(iv) Explain the major changes in the situation. [5 Marks]

(v) Identify the changes under the control of:

a. the manager [4 Marks]

b. the workers [4 Marks]

(vi) Examine what might happen if the workers went back to the old assembly line method. [5 Marks]

QUESTION TWO

(a) Explain the terms:

i. Production [2 Marks]

ii. System [2 Marks]

iii. Transformation System [2 Marks]

(b) List the characteristics of a transformation system [6 Marks]

(c) Discuss the objectives of Operations Management in a business organization [8 Marks]

QUESTION THREE

(a) Using any products you are familiar with, distinguish between 'Order Winners' and 'Order Qualifiers' [4 Marks]

(b) Examine the ways of improving the productivity of a business [4 Marks]

(c) As the Operations Manager of an SME in a competitive fast-moving products sector, you are concerned about being able to meet sales targets in the coming months. Your assistant has availed you the following Production Report.

Month	**January**	**February**	**March**	**April**
Units produced	2,300	1,800	2,800	3,000
Hours per machine	325	200	400	320
Number of machines	3	5	4	4

Determine the average monthly productivity in units per hour (Clearly show all your workings) [12 Marks]

QUESTION FOUR

(a) Explain the term ' Standardization' and identify its merits and demerits [8 Marks]

(b) Identify the factors likely to be considered in capacity planning [6 Marks]

(c) Using an organization you are familiar with, explain how capacity can be improved [6 Marks]

QUESTION FIVE

Discuss the following

(i) Product Design [5 Marks]

(ii) Service Processes [5 Marks]

(iii) Aggregate Planning [5 Marks]

(iv) Performance Measurement [5 Marks]