

**NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY  
FACULTY OF COMMERCE  
DEPARTMENT OF BUSINESS MANAGEMENT  
OPERATIONS MANAGEMENT – CBU 2108**

**FINAL EXAMINATION – JANUARY 2008  
TIME ALLOWED 3 HOURS**

**INSTRUCTIONS**

- *Answer all questions from Section A and any three questions from Section B.*
- *Questions may be answered in any order.*
- *As much as possible, use relevant examples.*

**SECTION A**

**Question 1**

A retailer must decide whether to build a small or a large facility at a new location. Demand at the location can be either small or large, with probabilities estimated at 0.4 and 0.6 respectively. If a small facility is built and demand proves to be large, the manager may choose to maintain the current size or to expand. The payoff [present value of net profits] is \$223 million for the first alternative (not expanding) and \$270 million for expanding. If a small facility is built and demand is small, there is no reason to expand and the payoff is \$200 million. If a large facility is built and demand proves to be small, the choice is to do nothing (\$40.00) or to stimulate demand through local advertising. The response to advertising can either be modest or sizeable, with their probabilities estimated at 0.3 and 0.7 respectively. If it is modest, the payoff is estimated to be only \$20 million. The payoff grows to \$220 million if the response is sizeable. Finally the best possible alternative event combination is the scenario where a large facility is built and demand turns out to be large. There is no reason for expansion and the payoff is \$800 million.

**Required:**

Draw a decision tree and then analyse it to determine the expected payoff for each decision and event node. Make an appropriate recommendation as to the highest expected payoff.

**(25 marks)**

## **Section B**

*Answer any three questions from this Section*

### **Question 2**

(a) Customer involvement reflects how much and in what ways the customer becomes a part of the production process. In service industries, customer contact is crucial. Discuss the various ways in which customers may interact with the production process.

**[15 marks]**

(b) With the aid of diagrams, establish and discuss the relationship among the four facets of process design

**[10 marks]**

### **Question 3**

'Quality is free.' To what extent do you agree with this assertion?

**[25 marks]**

### **Question 4**

Discuss the prerequisites to a successful implementation of a Materials Requirement Planning (MRP) system in an organisation of your choice.

**[25 marks]**

### **Question 5**

Identify and discuss the reactive alternatives that can be taken by an operations manager to cope with demand requirements at work.

**[25 marks]**

### **Question 6**

Outline and discuss the steps an operations manager needs to take in order to carry out a time study.

**[25 marks]**

### **Question 7**

Operations Management is one of the several approaches that can be used by an organisation to achieve a position of competitive advantage. Discuss.

**[25 marks]**