

NATIONAL UNIVERSITY OF SCIENCE AND TECHNOLOGY

FACULTY OF INDUSTRIAL TECHNOLOGY

DEPARTMENT OF INDUSTRIAL & MANUFACTURING ENGINEERING

PRODUCTION PLANNING & CONTROL – TIE 5107

1st SEMESTER EXAMINATIONS APRIL 2009

Instructions to candidates

1. Time allowed 3 hours
2. Answer all Questions in Section A and one question in Section B

SECTION A

Question 1

- (a) Discuss the importance of production in society from different viewpoints? [9]
- (b) In what ways can Operations Management impact on adverse environmental effects associated with productive systems? [6]
- (c) How is a Production system different from a Production process? Explain using diagrams. [10]

Question 2

- (a) Define work-study and outline its objectives. [10]
- (b) What are predetermined time standards, and under what conditions would these be used in Work study? [10]
- (c) Using specific examples in choosing elements of productive systems, what factors affect choice between machines and people. [5]

Question 3

- (a) Outline three major functions that are the backbone of business organisations and describe their relationships for the success of a business. [12]
- (d) What are the inputs into a Strategic capacity plan? [5]
- (e) Explain how the knowledge of the entire network helps you in Strategic Capacity planning. [3]
- (f) What production alternatives can be employed to absorb unavoidable seasonal demand fluctuations? [5].

Section B

Question 4

- (a) Define aggregate production planning and relate its planning period to the overall planning process of an organisation? [5]
- (b) What is Rough-cut capacity planning and why is it necessary? [4]
- (c) Explain the four main phases of aggregate production planning and outline what transpires in each of those phases. [16]

Question 5

- (a) Describe the difference between dependent and independent demand? [2]
- (b) A component T consists of two parts U, three parts V, and one part Y. Part U in turn is made of one part W and two parts X. Part V is made of two parts W and two parts Y. The lead times needed to either produce or obtain these products from outside vendors, On hand inventory and Scheduled receipts are shown in the Table below.

| Part | Lead Time (Weeks) | On Hand Inventory | Scheduled Receipts |
|-------------|------------------------------|------------------------------|-------------------------------|
| T | 1 | 25 | - |
| U | 2 | 5 | 5 |
| V | 2 | 15 | - |
| W | 3 | 30 | - |
| X | 2 | 20 | - |
| Y | 1 | 10 | - |

- i) Construct the Bill of Materials of component T. [3]
- ii) Prepare a Material Requirements Plan for completing 100 units of Product T in period 8 [18]
- iii) Explain what the information in your MRP means to the Buyer. [2]

THE END