



B.E. / B.Tech. (Full- Time) DEGREE END SEMESTER EXAMINATIONS, NOV/ DEC 2011

PRINTING TECHNOLOGY BRANCH

SEVENTH SEMESTER

PT9402 SCHEDULING AND PLANNING FOR PRINT PRODUCTION

(REGULATIONS 2009)

Time : 3 hrs

Max Mark:100

ANSWER ALL QUESTIONS

Part – A (10 x 2 = 20 Mark)

1. What is organisation chart?
2. Define : Ergonomics
3. Where do we use gantt chart?
4. Enumerate the methods of solving transportation problems.
5. How do we calculate incremental cost?
6. Justify the need for calculating independent float?
7. Why the SS system of inventory management is best?
8. Differentiate the back ordering and stock out cost.
9. Write a short note on ERP?
10. Mention few advantages of BOM.

Part – B (5 x 16 = 80 Mark)

11. Define: MRP. Write the functions, inputs and output of MRP using neat flow chart.
12. a. A company has three plants and four warehouses. The supply and demand in units and the corresponding transportation cost are given in below table.

| Plants | Warehouse | | | | Supply | |
|--------|-----------|----|----|---|--------|---|
| | 1 | 2 | 3 | 4 | | |
| A | 5 | 10 | 4 | 5 | 1 | 0 |
| B | 6 | 8 | 7 | 2 | 2 | 5 |
| C | 4 | 2 | 5 | 7 | 2 | 0 |
| Demand | 25 | 10 | 15 | 5 | 5 | 5 |

Answer the following questions, giving brief reasons:

- 1). Find the solution feasible by VAM? (4 Marks)
- 2). Is the solution degenerate and optimal? (8 Marks)
- 3). Does this problem have more than one optimal solution? (4 Marks)

b. i) Determine the optimal sequence and obtain the value of T , total elapsed time from the below given data if the processing the order is M1-M2. (8 Marks)

| Job | J1 | J2 | J3 | J4 | J5 | J6 | J7 | J8 |
|-----|----|----|----|----|----|----|----|----|
| M1 | 7 | 3 | 6 | 8 | 9 | 5 | 4 | 3 |
| M2 | 8 | 8 | 2 | 4 | 7 | 5 | 6 | 8 |

ii) Using the following cost matrix find i) Optimal job assignment (4 Marks) ii). The cost of assignment. (4 Marks).

| Men | JOB | | | | |
|-----|-----|----|---|---|----|
| | 1 | 2 | 3 | 4 | 5 |
| A | 10 | 3 | 3 | 2 | 8 |
| B | 9 | 7 | 8 | 2 | 7 |
| C | 7 | 5 | 6 | 2 | 4 |
| D | 3 | 5 | 8 | 2 | 4 |
| E | 9 | 10 | 9 | 6 | 10 |

13. a. A company purchases the flutes for cartons from another company. From the past records, the EOQ is 3600 units with the avg. of 50 units per day. The normal lead time is 6 days and the carrying cost per unit is Rs 10 per year. The cost of being cost out for this component is estimated to be Rs.50 per unit and the comp[any places 5 orders per year.

| | | | | | | | |
|------------------------------------|-----|-----|-----|-----|-----|-----|-----|
| Usage during re-order period | 150 | 200 | 250 | 300 | 350 | 400 | 450 |
| No. Of times the Quantity was used | 3 | 4 | 6 | 68 | 9 | 7 | 3 |

1. Find the SS and the reorder level for the component.

OR

- b. An aircraft uses high tensile bolts at an constant rate of 50,000 numbers per year. The unit price is Rs 20 and the cost of order is Rs200 per order. The opportunity cost of inventory is 20% per year.

- How frequently the order should be placed and at what EOQ? (2 Marks)
- If orders could be placed only once in two months, is there a change in EOQ? (3 Marks)
- The company finds a, to its error, that the cost of placing an order was Rs5000/- & carrying cost was 15% per year. Find the lose due the erratic data. (3 Marks)
- Working on the new ordering and carrying cost the company receives the following offer from the supplier (8 Marks)

| | |
|----------------------------|-------------------|
| i. upto 20,000 units | Rs. 20 /- /unit |
| ii. 20,000 - 30,000 units | Rs. 19.50/- /unit |
| iii. 30,000 - 40,000 units | Rs. 19.25/- /unit |
| iv above 40,000 units | Rs. 19.00/- /unit |

14. a. From the following information determine ES, EF, LS, LF, FF, IF and TF for each activities.

| | | | | | | | | | | | | | |
|-------------|---|---|----|----|---|---|-----|-----|-----|-----|----|-----|---|
| Activity | A | B | C | D | E | F | G | H | I | J | K | L | M |
| predecessor | - | - | - | - | A | B | C,F | D,G | E,G | H,I | D | J,K | L |
| Time (days) | 9 | 4 | 15 | 10 | 7 | 5 | 4 | 4 | 3 | 3 | 10 | 6 | 2 |

OR

- b. The following data related to a project.

| Activity | Activity time | | Activity cost | |
|----------|---------------|-------|---------------|-------|
| | Regular | Crash | Regular | Crash |
| 1-2 | 7 | 6 | 700 | 750 |
| 1-3 | 8 | 6 | 650 | 750 |
| 2-4 | 9 | 7 | 800 | 900 |
| 2-5 | 11 | 8 | 1600 | 1800 |
| 3-5 | 8 | 5 | 750 | 1000 |
| 3-6 | 10 | 7 | 1900 | 2100 |
| 4-7 | 12 | 10 | 1200 | 1300 |
| 5-7 | 13 | 11 | 1300 | 1400 |
| 6-7 | 14 | 10 | 1500 | 1800 |

1. Draw the network and find the CP along with the duration of the project. (5Marks)
2. If the project manager wants to reduce the duration to 25 days, what is the crashing cost involved? (6 Marks)
3. What is the probability of completing the project within 22 days? (5 Marks)

15 a. i. Write elaborately the significant feature and types of organisation in details. (10 Marks)

ii. Write the factors influencing the selection of factory location. (6 Marks)

OR

b. Discuss elaborately the important ergonomics specification required for a carton making company.