



B.E (Full Time) DEGREE END SEMESTER EXAMINATIONS, APRIL/MAY 2011

MANUFACTURING ENGINEERING BRANCH

EIGHTH SEMESTER – (REGULATIONS 2004)

**MN 481 – COMPUTER INTEGRATED PRODUCTION MANAGEMENT SYSTEM**

Time : 3 hr

Max Mark : 100

Answer ALL Questions

Part- A (10 x 2 = 20 marks)

1. What are the major functions of traditional production planning and control?
2. Demand for part number 2710 was 200 in April, 50 in May and 150 in June. The forecast for April was 100 units. With a smoothing constant of 0.2 and using single exponential smoothing, what is the July forecast?
3. What is capacity planning and how capacity adjustments can be accomplished?
4. What is manufacturing resource planning – MRP II?
5. Draw the flow chart for the three modules in SFC and interconnections with PPC functions?
6. What is the purpose of factory data collection system?
7. What are the functions of process planning?
8. What are the benefits of material requirement planning?
9. Give your comment on using CAD data for process planning input.
10. Draw the modular structure of generative process planning.

Part- B (5 x 16 = 80 marks)

11. i) Describe the problems with traditional production planning and control, and discuss the factors to cause the evolution of CIPMS. (10)
- ii) How forecasting methods are classified and when to use those methods?  
Explain. (6)

12. a) The inventory balance of certain product for first 12 periods is given below.

Period (T)	1	2	3	4	5	6	7	8	9	10	11	12
Inv balance	60	70	85	60	88	68	106	75	86	124	122	87

Apply single exponential smoothing and forecast for the 13<sup>th</sup> period as of period

One. Assume  $S_1(0) = X(1)$  and smoothing constant  $\alpha = 0.1$

(OR)

b) Year      2002   03   04   05   06   07   08   09   10

X	1	2	3	4	5	6	7	8	9
Y	481	498	485	487	495	515	470	490	510

- Develop the simple linear regression equation.
- Compute standard error of estimate and coefficient of correlation
- Forecast for the year 2011.
- Construct 99% control limits for forecast. ( $z=2.75$ ).

13. a) Explain the inputs to mrp and procedure for material requirement planning system with an example.

(OR)

b) With a case study explain how mrp logic and computer system works?

14. a) i) What are the functions of shop floor control and explain the significance of priority control? (6)

ii) Four jobs are to be scheduled through a certain work center. The following table gives data regarding the due date and remaining process time.

Job	Remaining process time (days)	Due date
A	12	39
B	7	26
C	9	37
D	6	45

In the job shop calendar, the current date is day 10. The jobs arrived at the work center in the order A, then B, then C, then D. use the EDD, SPT, Least Slack, Critical Ratio priority rules to sequence for these jobs. Evaluate the results using the criteria of average manufacturing lead time and average job lateness. (10)

(OR)

b) Explain the three phases of shop floor control.

15. a) Describe the sequences in the design of variable process planning system.

(OR)

b) How generative process planning differs from variant process planning and describe the forward & backward planning and decision logic methods of generative process planning?