

B.E. (Full Time) DEGREE END SEMESTER EXAMINATIONS, MAY 2012
INDUSTRIAL ENGINEERING BRANCH
SEVENTH SEMESTER
IE9403 -OPERATIONS SCHEDULING
(REGULATIONS 2008)

23

Time:3 hr

Max. Mark =100

Answer ALL questions.
PART -A (10x2=20 Marks)

1. Distinguish between sequencing and scheduling.
2. Prepare EDD sequence and SPT sequence for the single machine data given below:

Job j	1	2	3	4	5
t_j	5	6	4	9	8
d_j	7	8	5	12	10

3. In a job shop scheduling problem how will you identify whether a schedule is feasible one or not?
4. Give the stepwise procedure for Muntz Coffman algorithm.
5. What are the characteristics of Flow shop scheduling model?
6. Define Makespan.
7. State the application of Palmer's algorithm.
8. What is open job shop scheduling?
9. Indicate the differences between a job shop and a flow shop.
10. State the limitations of McNaughton's algorithm.

PART -B (5x16=80 Marks)

11. Solve the set up time dependent job problem to get the near-optimal sequence which minimizes total set up time. The set up times required are given in the matrix below:

i\j	1	2	3	4
1	-	10	5	4
2	7	-	10	1
3	4	9	-	4
4	8	5	6	-

- 12A. Determine the best sequence to minimize the mean tardiness for the following single machine problem. Apply Branch and Bound technique.

Job #	Process time	Due date
A	10	17
B	6	10
C	14	24
D	11	16
E	8	11

[OR]

12.B. Apply Dynamic programming approach to obtain the sequence to minimize the mean tardiness for the single machine data given in question No.12.A.

13.A. Describe the procedure involved in Despatch Index heuristic used to solve n jobs and m machines flow shop problem.

[OR]

13.B. Solve the following flow shop scheduling problem using C-D-S algorithm.

Machine/Job	A	B	C	D
1	3	4	5	7
2	5	7	2	3
3	5	8	7	7
4	9	6	5	4

14.A. What do you mean by non simultaneous arrival problem? How would you minimize the mean flow time and the mean tardiness in such cases?

[OR]

14.B. State and prove any four sequencing and scheduling theorems.

15.A. Prepare an active schedule for the given Job shop data. Draw the Gantt chart to show the schedule.

Process time				Routing			
i\j	1	2	3	i\j	1	2	3
1	3	6	2	1	2	1	3
2	5	3	7	2	3	2	1
3	2	9	1	3	2	1	3
4	8	4	6	4	1	2	3

[OR]

15.B. Write short notes on the following:

- i) Non Delay schedule
- ii) Heuristic schedule