SUBJECT NAME : **Resource Management Techniques**

SUBJECT CODE : **CS 6704**

MATERIAL NAME : **Part – A questions**

REGULATION : **R2013**

UPDATED ON : **November 2017** **(Upto N/D 2017 Q.P)**

(Scan the above Q.R code for the direct download of this material)

Unit – I (Linear Programming)

1. Define feasible solution and optimal solution to the linear programming problem.
2. What is feasible region in a LPP?
3. Explain slack variables of LP problem.
4. Explain surplus variables of LP problem.
5. How do you conclude problem is infeasible while solving a linear programming problem and in graphical method?
6. What is sensitivity analysis?
7. What do you mean by shadow pricing?

Unit – II (Duality and Networks)

1. Define primal and dual problem in LPP.
2. What is dual simplex method?
3. What do you mean by transportation problem?
4. What do you understand by assignment problem?
5. Write the difference between the transportation problem and the assignment problem.
6. State the necessary and sufficient condition for a transportation problem to have a solution.

Unit – III (Integer Programming)

1. List different types of integer programming problems.
2. Mention some important applications of integer programming problem.
3. Write down the methods for solving integer linear programming problems.
4. What do you understand by cutting plane algorithm?
5. Write the Gomory's constraint for the all integer programming problem whose simplex table (with non integer solution) given below.

C_j 2 20 -10 0

Basic Variable	C_B	X_B	X_1	X_2	X_3	S_1
x_2	20	5/8	0	1	1/5	3/40
x_1	2	5/4	1	0	0	1/4
	$z = C_B X_B = 15$		0	0	-14	-1

6. What is dynamic programming?

Unit – IV (Classical Optimisation Theory)

1. Define the general quadratic programming problem.
2. Write down the necessary condition for general non linear programming problem by Lagrange's multiplier method for equal constraints.
3. For what type of non linear programming problem, Lagrangean method is used? Write the Lagrangean function.
4. Define the Jacobian matrix J and the control matrix C.
5. Write down the Lagrangian function for Khun-Tucker method for following non linear programming with inequality constraints.
6. State sufficient condtions of Kuhn-Tucker condtions.
7. What are the Kuhn-Tucker conditions to solve:

   Maximize $z = f(x)$

   Subject to $g(x) \le b$

$x \geq 0,$

$x = (x_1, x_2, ..., x_n)$

8. Write the Khun-Tucker conditions for the NLP problem.

$\text{Max } Z = 3x_1^2 + 14x_1x_2 - 8x_2^2$

$\text{Subject to } 3x_1 + 6x_2 \leq 72$

$x_1, x_2 \geq 0$

9. Examine $f(x) = 6x^5 - 4x^3 + 10$ for extreme points.

Unit – V (Object Scheduling)

1. State the rules for network construction.
2. Define critical path method (CPM).
3. Write about PERT.
4. Draw the network for the project whose activities and their precedence relationship are as given below:

Activities:	A	B	C	D	E	F	G	H	I
Precedence:	---	A	A	---	D	B, C, E	F	E	G, H

5. If there are five activities P, Q, R, S and T such that P, Q, R have no immediate predecessors but S and T have immediate predecessors P, Q and Q, R respectively. Represent this situation by a network.

---- All the Best----