PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)
BSc DEGREE EXAMINATION MAY 2018
(Fifth Semester)

Branch - STATISTICSX

Time : Three Hours   Maximum : 75 Marks

SECTION-A (20 Marks)
Answer ALL questions
ALL questions carry EQUAL marks   (10 x 2 = 20)

1   What are the different phases of OR?
2   What is the scope of OR?
3   Define Objective function.
4   Define Optimal Solution.
5   Define Primal Problem.
6   What is symmetric form and unsymmetric form in terms of vector?
7   What do you mean by unbalanced transportation problem?
8   Define degenerate basic feasible solution of a transportation problem.
9   Write down the mathematical formulation of assignment problem?
10   Difference between Transportation and Assignment problem?

SECTION - B (25 Marks)
Answer ALL Questions
ALL Questions Carry EQUAL Marks (5 x 5 = 25)

11 a   Explain the limitations of the graphical method of solving a LPP,
                         OR
    b Explain the principles of modelling.

12 a Explain the terms Slack variables. Surplus variable. Feasible Solution.
                         OR
    b   Explain the use of Artificial variables in LPP.

13 a Explain the importance of integer programming problems and their
          applications.
                         OR
    b Explain the relationship of the dual and primal problems.

14 a Describe a transportation problem and give a method of finding an initial
          feasible solution.
                         OR
    b   Explain in brief with examples for North West Corner rule.

15 a Distinguish between transportation and assignment model.
                         OR
    b Explain processing of n jobs to three machines in a sequencing problem.

SECTION - C (30 Marks)
Answer any THREE Questions
ALL Questions Carry EQUAL Marks (3 x 10 = 30)

16   Solve the following LPP by the graphical method
          Max $z=3x_1+2x_2$
        stc., $-2x_1+x_2<1$
              $x_1<2$
              $x_1+x_2<3$
          and $x_1,x_2>0$

17   Use two-phase Simplex method to solve

Max $z - 5x_1 + 8x_2$
stc., $3x_1 + 2x_2 > 3$
$x_1 + 4x_2 > 4$
$x_1 + x_2 < 5$
and $x_1, x_2 > 0$

18   Discuss the procedure of Gomory's constraint of solving integer programming problem.

19   Solve the following transportation problem to maximize profit

Profit (unit)

Destination

		A	B	C	D	Supply
	1	40	25	22	33	100
Source	2	44	35	30	30	30
	3	38	38	28	30	70
Demand		40	20	60	30	

20   Solve the assignment problem

Machines

		M_1	M_2	M_3	M_4
	h	5	7	11	6
Jobs	h	8	5	9	6
	h	4	7	10	7
	h	10	4	8	3

Z-Z-Z   END