**SAINTGITS COLLEGE OF APPLIED SCIENCES**

**First Internal Assessment Examination, FEB 2019**

**Department of BCA , Semester IV**

**Operational Research**

Time : **2 hours** Total: **50 Marks**

**Section A**

*Answer any 5 questions. Each question carries 2 marks.*

1.Explain the term objective function in L.P.P?

2.What are the different phases of O. R?

3.What do you understand by graphical method? Give its limitations?

4.Distinguish between static and dynamic models?

5.What are the advantages of O.R models?

6.Define the term slack and surplus variables in L.P.P?

 **(5 X 2 = 10 marks)**

 **Section B**

*Short essay questions*

*Answer any 5 questions. Each question carries 5 marks.*

7.Solve graphically Min Z= -x1+2x2

Subject to –x1+3x2≤10

 x1+x2≤6

 x1-x2≤2

 x1, x2≥0

8. Explain three types of models used in O.R, giving suitable examples.

9.Use simplex method to solve the L.P.P Max Z= 100 x+40 y

 40x+50 y≤900

 $\frac{3}{2}x+\frac{2}{3}y$≤30

 x, y≥0

10.Explain the scope of O.R.

11.Explain the basic assumptions in L.P.P?

12.Determine the values of x1 and x2 so as to Max z= 5x+3y, subject to the constraints

 2x+y≤1000, x≤400, y≤700, x, y≥0

**(5 X 5 = 25 marks)**

**Section C**

*Long essay questions*

*Answer any 1question. It carries 15marks.*

13.Solve Max z= 5x+3y

 Subject to x+y≤2

 5x+2y≤10

 3x+8y≤12

 x,y≥0

14.Solve using Big M method Min Z= 5x+6y

 Subject to 2x+5y≥1500

 3x+y≥1200

 x,y≥0

**(1 X 15 = 15 marks)**

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