**SAINTGITS COLLEGE OF APPLIED SCIENCES**

**PATHAMUTTOM, KOTTAYAM**

**FIRST INTERNAL EXAMINATION, FEBRUARY 2020**

**Department of Computer Applications, Semester IV**

**OPERATIONS RESEARCH**

Total : 50 **marks** Time: **2 hours**

**Section A**

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

1. What are the limitations of graphical method of solving a LPP?

2. What are the main phases of operations research?

3. Write the properties of a good model?

4. Define feasible region?

5. What are the basic assumptions in linear programming model?

6. What are slack variables in LPP?

**Section B**

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

7.Explain the various steps involved in solving LPP by graphical method.

8.Solve the LPP using graphical method Max z=4x1+3x2 subject to x1-x2≤ -1, -x1+x2≤0, x1,x2≥0.

9. What are models in operations research? Explain the advantages and disadvantages of a model.

10. Explain iconic and analogue models.

11.A dealer wishes to purchase a number of fans and sewing machines. He has only Rs. 5760 to invest and has space at most for 20 items. A fan costs him Rs.360 and a sewing machine Rs.230.His expectation is that he can sell a fan at a profit of Rs.22 and sewing machine at a profit of Rs.18.Assuming that he can sell all the items that he can buy. How should he invest his money in order to maximise his profit? Formulate a L.P.P

12. Explain simplex method?

**Section C**

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

13. Solve by simplex method Max Z=5x+3y, subject to x+y≤2, 5x+2y≤10, 3x+8y≤12 x,y≥0.

14. Solve by graphical method Max z=80x+120 y, subject to x+y≤9,x≥2,y≥3 20x+50y≤360 x,y≥0.



*[Scan QR code for Answer Key]*