Code No. 10070

FACULTY OF COMMERCE

B.Com. V – Semester (CBCS) Examination, November / December

2019 (Only for Computer / Computer Application Courses) Subject:

Business Analytics

Paper Code – BC – 507   **Elective – I**

Time: 3 Hours   **Max.Marks: 80**

PART – A (5x4 = 20 Marks)
[Short Answer Type]

Note: Answer any five of the following questions.

1 Opportunities of Decision Science Approach
2 Unbounded Solution
3 Application Areas of LPP
4 Optionality Test
5 Define Two Phase Method
6 Departing Variable
7 Kurtosis
8 Standard Deviation

PART – B (5x12 = 60 Marks)
[Essay Answer Type]

Note: Answer all the questions.

9   a) Define Operation Research. Give the main characteristics of Operation Research.

OR

b) "Much of the success of applications of Decision Sciences is due to Computers" – Discuss.

10 a) What is LPP? Give a brief account of applications of LPP.

OR

b) Evening shift resident doctors in a Government Hospital work five consecutive days and have to consecutive days off. Their five days of work can start on any day of the week and the schedule rotates indefinitely. The hospital requires the following minimum number of doctors working:

Sun	Mon	Tues	Wed	Thurs	Fri	Sat
35	55	60	50	60	50	45

No more than   40   Doctors   can   start   their working days   on the same day. Formulate the general LP Model to minimize the number of Doctors employed by the Hospital.

11 a) A box manufacturer makes small and large boxes from large piece of cardboard. The large box requires 4 Sq.ft. per box, while small boxes require 3 Sq.ft per box. The manufacturer is required to make at least three large boxes and at least twice as many small boxes as large boxes. If 60 Sq,ft. of cardboard is in stock and if profit on small and large boxes are Rs.2/- and Rs.3/- per box respectively. Find how many of each should be made in order to maximize the total profit (Use Graphic Method).

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OR

b) Put the following LPP into Standard Form. Find x_1, x_2, x_3, x_4 to

Maximize $x_1 + 2x_2 + 3x+3+ + 4x_4 + 5$,

Subject to the Constraints: $4x_1 + 3x_2 + 2x_3 + x_4 \le 10$

$$x_1 - x_3 + 2x_4 = 2$$
$$x_1 + x_2 + x_3 + x_4 \ge 1$$
$$\text{and } x_1, x_2 \ge 0, x_3 \ge 0, x_4 \ge 0.$$

12 a) Using Simplex Method, solve:

Maximize $Z = 3x_1 + 2x_2$

Subject to the Constraints: $x_1 + x_2 \le 4$

$$x_1 - x_2 \le 2$$
$$x_1, x_2 \ge 0$$

OR

b) Using Simplex Algorithm, Solve:

Maximize $Z = 2x_1 + x_2$

Subject to the Constraints: $4x_1 + 3x_2 \le 12$

$$4x_1 + x_2 \le 8$$
$$4x_1 - x_2 \le 4$$
$$x_1, x_2 \ge 0$$

13 a) What are the various types of positional averages? Explain the uses of Median and partitioned values.

OR

b) Find the missing information from the following:

	Group-I	Group-II	Group-III	Group-IV
Number	50	?	90	200
S.D.	6	7	?	7.746
Mean	113	?	115	116

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