PSG COLLEGE OF ARTS & SCIENCE
(AUTONOMOUS)

BCA DEGREE EXAMINATION DECEMBER 2019
(First Semester)

Branch - **COMPUTER APPLICATIONS**

STATISTICS & OPERATIONS RESEARCH

Time : Three Hours Maximum : 75 Marks

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

1 What do you mean by secondary data?
2 Define Statistics.
3 Write the formula of Median for continuous series.
4 What are the relative measures of dispersion?
5 State the methods of long term variation.
6 Write the methods of seasonal variation.
7 Define LPP.
8 What do you mean by slack variable?
9 Define Activity.
10 How do you change the unbalanced problem into balanced problem?

1

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

11 a Briefly explain the diagrammatic representation of data and its types.

OR

b Explain various types of classification.

12 a Find median for the following data.

78,86,45,36,62,90,65,75

OR

b Calculate Quartile deviation for the following data:

125,86,100,98,108,105,120,111,118

13 a Explain components of time series in detail.

OR

b Using 3 yearly moving average determine the trend and short term fluctuations for the following data.

Year:	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Production ('000 tons):	21	22	23	25	24	22	25	26	27	28

14 a Discuss the condition and general form of canonical form.

OR

b Solve the following LPP by using graphical method:

Maximize $z=xi+x_2$
Subject to the constraints
$\mathbf{X!+2x_2<2000}$
$\mathbf{XI+x_2<1500}$
$\mathbf{x_2<600}$
and $x_t,x_2>0$

15 a Distinguish between CPM and PERT.

OR

b Draw a network diagram for the following project:

Activity:	A	B	C	D	E	F	G	H	I	J	K
Predecessors:	-	-	A	A	B	D,E	C,F	D,E	H	G	y

SECTION - C (30 Marks)

Answer any **THREE** Questions

ALL Questions Carry **EQUAL** Marks (3 x 10 = 30)

16 Explain collection of data with merits and demerits.

17 Find mean and standard deviation for the following data:

Class Interval:	10-15	15-20	20-25	25-30	30-35	35-40
Frequency:	48	56	63	52	38	13

18 Calculate Seasonal index by the ratio to moving average method from the following data:

Year	Qi	Q_2	Q_B	Q_4
2011	4(5	35	38	40
2012	42	37	39	38
2013	41	35	38	42
2014	45	36	36	41
2015	44	38	38	42

19 Solve the following LPP by using Simplex method

Maximize $Z=X_I+X_2+3X_3$

Subject to the constraints

$3X_I+2X_2+3X_3<3$

$2X_I+X_2+2X_3<2$

and $x_i, x_2>0$

20 Find IBFS using Vogel's approximation method for the following transportation problem:

	D,	D_2	D_3	D_4	Supply
Si	10	30	25	15	14
S_2	20	15	20	10	11
S_3	10	30	20	20	15
S_4	30	40	35	45	12
Demand	10	15	12	15	

Z-Z-Z END