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K19U 3293

Reg. No. : .....

Name : .....

I Semester B.Com Degree (CBCSS(OBE) - Regular)

Examination, November - 2019

(2019 Admission)

GENERAL AWARENESS COURSE

1A11COM : BUSINESS STATISTICS AND BASIC NUMERICAL SKILLS

Time : 3 Hours

Max. Marks : 40

**SECTION - A**

Answer any **Six** questions. Each question carries **1** mark. (1×6=6)

1. Define quartile deviation.
2. Define truth table with an example.
3. What is mutually exclusive events? Write an example.
4. If  $A=\{3,6,9\}$ ,  $B=\{3,4,5,6,7\}$  and  $U= \{1,2,3,4,5,6,7,8,9\}$ , then what is  $A \cup B$  and  $A \cap B$ ?
5. Write any three limitations of statistics.

6. Write the transpose of the matrix  $A = \begin{matrix} 2 & 3 & 1 \\ 4 & 8 & 3 \\ 1 & 7 & 5 \end{matrix}$

7. What is the rank of a matrix?
8. Define Kelly's method of index number and write its equation.

**SECTION - B**

Answer any **Six** questions. Each question carries **3** marks. (6×3=18)

9. Find the inverse, if it exists, of the matrix  $A = \begin{matrix} 1 & -1 & 1 \\ 0 & 2 & -1 \\ 2 & 3 & 0 \end{matrix}$

P.T.O.



10. Use matrix inverse methods to solve the system

$$x_1 - x_2 + x_3 = -5$$

$$2x_2 - x_3 = 2$$

$$2x_1 + 3x_2 = -3$$

11. A city has two daily newspapers, the *Sentinel* and the *Journal*. The following information was obtained from a survey of 100 city residents: 35 people subscribe to the *Sentinel*, 60 subscribe to the *Journal*, and 20 subscribe to both newspapers.

- How many people subscribe to the *Sentinel* but not to the *Journal*?
- How many subscribe to the *Journal* but not to the *Sentinel*?
- How many do not subscribe to either paper?
- Organize this information in a table.

12. Calculate the mean and standard deviation for the following table giving the age distribution of 542 members.

Age in years:	20-30	30-40	40-50	50-60	60-70	70-80	80-90
No. of members:	3	61	132	153	140	51	2

13. Find the determinant of the given matrix

$$A = \begin{bmatrix} 2 & -3 & 1 \\ 2 & 0 & -1 \\ 1 & 4 & 5 \end{bmatrix}$$

14. For a group of 200 candidates, the mean and standard deviation of scores were found to be 40 and 15 respectively. Later on it was discovered that the scores 43 and 35 were misread as 34 and 53 respectively. Find the corrected mean and standard deviation corresponding to the corrected figures.

15. Let the universal set  $U$  be the set of positive integers less than or equal to 100. Let  $A$  be the set of multiples of 3 in  $U$ , and let  $B$  be the set of multiples of 5 in  $U$ .



- a) Find  $n(A \cap B)$ ,  $n(A \cap B')$ ,  $n(B \cap A')$ , and  $n(A' \cap B')$
- b) Draw a Venn diagram with circles labelled A and B, indicating the numbers of elements in the subsets of part(A).

16. From the following table showing the wage distribution in a certain factory, determine:

- a) The mean wage,  
b) The median wage,  
c) The mode wage

Weekly wage	No of employees
20 - 40	8
40 - 60	12
60 - 80	20
80 - 100	30
100-120	40
120-140	35
140-160	18
160-180	7
180-200	5

### SECTION - C

Answer any **TWO** questions. Each question carries **8** marks. **(2×8=16)**

17. An analysis of monthly wages paid to the workers of the firms A and B belonging to the same industry gives the following results:

	Firm A	Firm B
No of workers	500	600
Average monthly wage	186	175
Variance of distribution of wages	81	100

P.T.O.



- a) Which firm. A or B. has the larger wage bill?
- b) In which firm. A or B, is there greater variability in individual wages?
- c) Calculate the average monthly wage and variance of distribution of wages of all workers in both firm worked together.
18. From the following find out the paasche's price index and check for time reversal and factor reversal test.

Commodity	Base year price	Current year price	Base year quantity	Current year quantity
A	400	850	100	120
B	320	690	20	60
C	720	1600	10	10
D	720	2100	10	20

19. Solve the following system of equations using Cramer's rule

$$-4x+2y-9z=2$$

$$3x+4y+z=5$$

$$x-3y+2z=8$$

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