Mid-West University

Examinations Management Office

Surkhet, Nepal

End-Semester Examination-2080

Bachelor of Business Studies (BBS)

Semester - II

Subject: Business Statistics -I
Full Marks: 60 Pass Marks: 30

Course Code: MGMT 421/321
Time: 3: 00 Hours

You are required to answer in your own words as far as applicable. Figures in the margins indicate full marks.

SECTION A: VERY SHORT ANSWER QUESTIONS (10 X 1 = 10 MARKS)

Answer ALL the questions.

1. Define primary and secondary data.
2. Represent by a simple bar diagrams the following production of sugar in a factory in five different years.

Years	2046	2047	2048	2049	2050
Production in 100 tons	0.8	1.4	3.2	4.6	5.8

3. The average wage of the male workers working in a factory is Rs. 80 and the number of workers is 100. The average wage of the female workers is Rs.70 and their number is 50. Find the average wage of all the workers taken together.
4. The coefficient of variation of a distribution is found to be 75% and variance of distribution is 225. Find the mean value of the distribution.
5. If n = 50, $\Sigma X = 75, \Sigma Y = 80, \Sigma X^2 = 130, \Sigma Y^2 = 140, \Sigma XY = 120$, find the value of r and interpret the results.
6. From the following results, find the regression coefficients:
   $\sigma_x = 20, \sigma_y = 15$ and r = 0.48
7. If A = $\begin{pmatrix} 4 & 5 & 6 \\ 2 & 3 & 4 \end{pmatrix}$ and B = $\begin{pmatrix} 3 & -2 & 4 \\ 3 & 6 & 2 \end{pmatrix}$, Find 2(A+B).
8. Find the value of following determinant $\begin{vmatrix} 4 & 5 & 6 \\ 2 & 3 & 4 \\ 3 & 3 & 2 \end{vmatrix}$
9. If n(U) = 100 n(A) = 75, n(B) = 40, n(AUB) = 80. Find n(A – B) and n(B – A).
10. Three unbiased coins are tossed simultaneously. Find the probability of getting at least one tail.

SECTION B: SHORT ANSWER QUESTIONS (3 X 8 = 24 MARKS)

Answer any THREE questions.

11. Monthly income of 400 employees in an organization are given below:

Monthly incomes (Rs)	Below 80	80-120	120-160	160-200	200-240	240-280
No. of employees	10	25	130	145	70	20

Obtain the limits and range of income of middle 60% of observed employees.

12. For a group containing 120 observation the arithmetic mean and standard deviation are 7 and $\sqrt{22}$. For 60 observations selected from these 120 observations, the mean and the standard deviation are 11 and 3 respectively. Find the mean and standard deviation of other half.
13. Find the correlation coefficient between age and blood pressure of 10 patients in a clinic from the following data. Test the significance of the data and also find the limit of 'r'.

Age	55	43	35	48	49	41	59	71	62	56
B.P.	148	126	119	129	146	141	156	161	150	151

14. (a) Solve the following equations by using Cramer's rule. [5]

$$2x + y - z = 3$$
$$x + y + z = 1$$
$$x - 2y - 3z = 4$$

(b) If $A = \begin{pmatrix} 4 & 2 \\ 3 & 6 \end{pmatrix}$ and $B = \begin{pmatrix} 2 & 6 \\ 4 & 3 \end{pmatrix}$, Show that $AB \neq BA$ [3]

15. (a) In a town on 50000 population, 28000 read Gorkhapatra and 5000 read Rising Nepal and 1000 both. What percentage reads neither the Gorkhapatra nor the Rising Nepal? [4]

(b) From a pack of 52 cards, a card is drawn. Find the probability of getting (i) a jack (ii) queen of black colour (iii) red card (iv) a spade card. [4]

SECTION C: LONG ANSWER QUESTIONS (2 X 13 = 26 MARKS)

*Answer any **TWO** questions.*

16. From the following bi-variate frequency table, find out if there exists any relationship between advertisement expenditure (in 00 Rs.) and sales revenue (in 000 Rs.) and test the significance of the result. Also estimate sales revenue when advertisement expenditure is Rs. 40,000.

Advertisement Expenditure (in 00 Rs.)	Sales turnover (in 000 Rs.)				
	0-50	50-100	100-150	150-200	200-250
0-40	12	6	8	-	-
40-80	2	18	4	5	1
80-120	-	8	10	2	4
120-160	-	1	10	2	1
160-200	-	-	1	2	3

17. A sample of 60 cars of two makes P and Q is taken and their average life in years is recorded as follows.

Life (years)	0-2	2-4	4-6	6-8	8-10
Make P	8	12	22	14	4
Make Q	10	14	19	12	5

18. A person requires 10, 12, and 12 units of chemical A, B and C respectively for his garden. A liquid product contains 5, 2 and 1 units of A, B and C respectively per jar. A dry product contains 1, 2, and 4 units of A, B and C per cartoon. If the liquid product sells for Rs. 3 per jar and the dry product sells for Rs.2 per cartoon, how many of each should be purchased in order to minimize the cost and meet the requirements. Formulate this problem and solve graphically.

THE END