TRIBHUVAN UNIVERSITY
2080

B.B.S. 4 Yrs. Prog. / I Year / MGMT   Full Marks: 100

MGT 202 : Business Statistics (Regular)   Time: 3 hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Group "A"

Brief Answer Questions   [10×2=20]

Attempt ALL questions.

1. State any two principle objectives of classification.

2. If mean = 25, mode = 28 and standard deviation = 5, find coefficient of skaewness.

3. If the third quartile and median are 30 and 22 respectively. Find the first quartile, assuming the distribution to be symmetrical.

4. If the quartiles coefficient of skewness is 0.6, quartile deviation is 5 and the third quartile is 28, find the median of the distribution.

5. Given the following Regression equations,

   $4X - 5Y + 33 = 0; \quad 20X - 9Y - 107 = 0$.

   Find the mean values of X and Y.

6. Evaluate $|A| = \begin{vmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \end{vmatrix}$

7. A card is drawn at random from a pack of cards, what is the probability of getting (a) a black card and (b) a king.

8. Find the simple aggregative price index number from the following data of 2015 taking 2014 as base year when current year quantity is taken as weight.

Commodities	2014 Price	2015 Price
A	5	8
B	4	6
C	10	12
D	7	5

(1)

9. Find the transpose of matrix A where $A = \begin{vmatrix} 1 & -2 \\ 4 & 3 \end{vmatrix}$.

10. The year of origin of the following trend line equation of production (in tonne's) is 2017.

    $y = 40 + 1.5 x$. Estimate the production for the year 2033.

Group "B"

Descriptive Answer Questions   [5×10=50]

Attempt any FIVE questions.

11. (i) The coefficient of rank correlation of marks obtained by 10 students, in Statistics and Account was found to be 0.5. It was later discovered that the difference in ranks in the two subjects obtained by one student was wrongly taken as 3 instead of 7. Find the correct coefficient of rank correlation.

    (ii) An analysis of the monthly wages paid to workers in the firm A and B belonging to the same industry given the following results.

	Firm A	Firm B
No. of workers	500	600
Average monthly wage (Rs).	480	475
Variance of distribution of wage (Rs).	400	625

    (a) Which firm pays larger wage bill?

    (b) In which firm is there greater variability in individual wages?

12. Calculate percentile coefficient of kurtosis for the following data:

Expenditure (Rs. '00)	10-19	20-29	30-39	40-49	50-59	60-69	70-79
No. of Families	35	32	45	58	43	17	10

(2)   P.T.O.

13. The following table gives information on ages and cholesterol levels for a random sample of 10 men. Develop the regression line of cholesterol level on age.

Age	58	69	43	39	63	52	47	31	74	36
Cholesterol level	189	235	193	177	154	191	213	165	198	181

Predict the cholesterol level of a 60 - year -old man.

14. An inquiry into the budget of middle class families in a certain city gave the following information.

Expenses	Food	Fuel	Clothing	Rent	Miscellaneous
	35%	10%	20%	15%	20%
price in 2015	145	23	65	30	40
Price in 2016	150	25	75	30	45

What is the cost of living index number of 2016 as compared with that 2015. If an employee's salary of Rs. 20,000 per month is raised to Rs. 21,000 in 2016, is it adequate? If not, what should be the increment in salary in 2016?

15. Solve the following problem graphically:

Minimize the cost   Z = Rs. 20x + Rs.30y

Subject to constraints: $3x + 5y \geq 45$

$$2x + y \geq 20$$

and x, y ≥ 0 non -negative condition

16. Solve the following equations by using matrix or determent method

$3x+2y +5z = 10$

$2x - 3y + 7z = 9$

$x + y + z = 5$

Group "C"

Analytical Answer Questions   [2×15=30]
Attempt any TWO questions.

17. The manager of Flower shop promises its customers delivery within four hours on all flower orders. All flowers are purchased on the

(3)

previous day and delivered to parker by 8.0 AM in the next morning. The daily demand for roses is as follows:

Dozens of roses	70	80	90	100
Probability	0.1	0.2	0.4	0.3

The manager purchase roses for Rs. 10 per dozen and sells them for Rs. 30. All unsold roses are donated to a local hospital. Construct the pay-off table. Also, find : EMV, EPPI and EVPI.

18. Below are given the annual production of sugar (in thousand tons) of a factory

Year	2011	2012	2013	2014	2015	2016	2017
Production	77	88	94	85	91	98	90

i.   Fit a straight by the method of least square
ii. Obtain the trend values
iii. Plot the given figures on a graph and show the trend line
iv. What is the monthly increase in production?
v.   Estimate production of sugar for the year 2020.

19. Construct a frequency table for the following data regarding annual profit, in lakhs of rupees in 50 firms taking 25 - 34, 35 - 44 etc. as class intervals.

28	35	61	29	36	48	59	67	69	50
48	40	49	42	41	37	51	62	63	33
31	32	35	40	38	39	60	51	54	56
69	46	42	38	61	59	58	44	39	57
38	44	45	45	47	38	44	47	47	64

i.   Find the number of firms having profit between Rs. 37 lakhs and Rs. 58 lakhs.
ii. Profit above which 10% of the firm will have their profits.
iii. Middle 50% profit group.

(4)