

Avinashilingam Institute for Home Science and Higher Education for Women  
(Deemed to be University), Coimbatore – 641 043

Master's Degree Examination - November 2018  
I Semester

Class : I PG  
Major : MBA / M.B.A. - IT Administration

Time: 3 hours  
Max. Marks: 60

17MBAC05 / 17MBMC05 / Quantitative Methods for Management

Part A

10 x 1/2 = 5

Choose the correct answer

- The arithmetic mean of 9 observations is 100 and that of 6 is 80, the combined mean of all the 15 observations will be -----.  
a. 100                      b. 80                      c. 90                      d. 92
- In a series of 25 observations  $\sum (x-7) = -8$ . Then, mean is equal to -----.  
a. 7                      b. 8                      c. 6.68                      d. 7.68
- The median of the series 6, 3, 8, 9, 5, 7 is -----.  
a. 5.5                      b. 6.0                      c. 6.5                      d. 7.0
- Which of the following is a relative measure of dispersion (or variability) -----.  
a. Variance                      b. Standard deviation  
c. Coefficient of variation                      d. Range
- Which of the following is true if the coefficient of correlation between two variables "X" and "Y" is zero?  
a. Covariance of the variables X and Y is zero  
b. covariance of the variables X and Y is positive  
c. Covariance of the variables X and Y is negative  
d. Variance of the variable X is zero
- Which of the following represents the proportion of variation in the dependent variable that is explained by the regression line?  
a. Coefficient of determination                      b. Coefficient of correlation  
c. Coefficient of variation                      d. Standard error of estimate
- A bag contains 5 brown and 4 white socks. A man pulls out two socks. The probability that they are of the same colour is -----.  
a. 5/108                      b. 1/6                      c. 5/18                      d. 4/9
- The probability of success in a Bernoulli's experiment is 0.40. The experiment is repeated 50 times. The mean of the binomial distribution of the number of successes is -----.  
a. 12                      b. 20                      c. 30                      d. 35
- In time series analysis both trends and seasonal variations are studied because they -----.  
a. Describe past patterns                      b. Allow projections into the future  
c. Allow the elimination of the component from the series  
d. None of these
- Weighted aggregate index formula using the average of base year and current year's quantities as weights is called -----.  
a. Laspeyre's price index                      b. Fisher's price index  
c. Marshall- Edgeworth's index                      d. Bowley's index

**Part B**

**5 x 4 = 20**

**Answer ALL questions**

**Each answer should not exceed 200 words or one page**

- 11.a. Discuss the steps in solving optimization problems.  
(Or)  
11.b. Describe the applications of functions in business decision making.  
12.a. Calculate mean from the following data:

R.Nos.	1	2	3	4	5	6	7	8	9	10
Marks	40	50	55	78	58	60	73	35	43	48

(Or)

12. b. If in a moderately asymmetrical frequency distribution, the value of median and arithmetic mean are 72 and 78 respectively, estimate the value of the mode.  
13.a. Is the following statement true? Give reasons.  
 $40x-18y=5$  and  $8x-10y+6=0$  are respectively the regression equations of  $y$  on  $x$  and  $x$  on  $y$ .  
(Or)  
13.b. Distinguish between correlation and regression.  
14.a. What is the chance of getting a king in a draw from a pack of 52 cards?  
(Or)  
14.b. According to a survey of 20,000 ten plus two school students, 70% admitted to cheating in an examination. Suppose this result is true for the current population of all Indian ten plus two school students. What is the probability that in a sample of 100 such students, 61 to 65 would admit to cheating in an examination?  
15.a. Explain the components of time series.  
(Or)  
15.b. Discuss the various types of index numbers.

**Part C**

**5 x 7 = 35**

**Answer ALL questions**

**Each answer should not exceed 600 words or three pages**

- 16.a. Analyse the important aspects of modern business planning applying statistics.  
(Or)  
16.b. Find AB for each of the following cases.

(a)  $A = \begin{pmatrix} 1 & 2 \\ 3 & -1 \end{pmatrix}$ ,  $B = \begin{pmatrix} 4 & 3 \end{pmatrix}^T$

(b)  $A = \begin{pmatrix} 1 & 1 & 1 \\ -2 & 1 & -3 \end{pmatrix}$ ,  $B = \begin{pmatrix} 2 & 3 & 4 \end{pmatrix}^T$

- 17.a. Compute the geometric mean from the following data:

Marks	No. of students
0-10	10
10-20	5
20-30	8
30-40	7
40-50	20

(Or)

17.b. Find the mean deviation for the median for the following frequency distribution:

Marks	0-10	10-20	20-30	30-40	40-50
No. of students	5		15	16	6

18.a. Calculate the co-efficient of correlation for the following ages of husbands and wives:

Husband's age x	23	27	28	28	29	30	31	33	35	36
Wife's age y	18	20	22	27	21	29	27	29	28	29

(Or)

18.b. In a correlation analysis, between production and price of a commodity, the following constants were obtained:

Particulars	Production index	Price index
Arithmetic mean	110	98
Standard deviation	12	5
r between production and price	-0.4	

Write down the regression equation of price on production and calculate the price index when the production index is 116.

19.a. One card is drawn at random from a well-shuffled pack of 52 cards. What is the probability that it will be a) a diamond b) a queen?

(Or)

19.b. The mean of a binomial distribution is 20 and standard deviation is 4. Find out n, p and q.

20.a. Calculate quantity index by a) Laspeyre's method, b) Paasche's method, c) Fisher's method.

Year Commodity	Price $P_0$	2004 Total Value ( $P_0 q_0$ )	Price $p'$	2006 Total value ( $P_1 q_1$ )
A	10	100	12	144
B	12	144	14	196
C	14	196	16	256
D	16	256	18	324
E	18	324	20	400

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