AVINASHILINGAM INSTITUTE FOR HOME SCIENCE AND HIGHER EDUCATION FOR WOMEN, COIMBATORE – 641 043

Master's Degree Examination – November 2017

I Semester

Class : I PG **Maximum Marks: 60**

Major : MBA (IT Organization and Administration) **Time: 3 Hours**

17MBMC05 – Quantitative Methods for Management

PART – A **10 × ½ = 5**

Answer the following

Choose the correct answer

1. $G_1, G_2, \ldots, G^n$ are said to be n geometric means between a and b if $a, G_1, \ldots G^n, b$ is
   (a) A sequence (b) Not a sequence (c) G.P (d) A.P

2. If $|A| = 0$, then A is
   (a) Zero matrix (b) Singular matrix (c) Non-singular matrix (d) 0

3. Statistics can be considered as
   (a) An art (b) A science (c) Neither an art not science (d) Both art and science

4. Extreme value have no effect on
   (a) Average (b) Median (c) Geometric mean (d) Harmonic mean

5. The value of correlation ratio varies from
   (a) -1 to 1 (b) -1 to 0 (c) 0 to 1 (d) 0 to ∞

6. The regression lines $5x+2y=16$, and $9x+10y=48$ intersect at
   (a) 0,8 (b) 2,3 (c) 3,2 (d) 8,0

7. In a throw of coin what is the probability of getting head
   (a) 1 (b) 2 (c) 1/2 (d) 0

8. In a _____ distribution, mean is equal to variance.
   (a) Binomial (b) Poisson (c) Normal (d) Gamma

9. The general decline in sales of cotton clothes is attached to the component of the time series is
   (a) Secular trend (b) Cyclical variation (c) Seasonal variation (d) All of the above

10. In paache's Index Number priority is given to the price of
    (a) Current year (b) Base year (c) Future year (d) None of the above

PART – B $5 \times 4 = 20$

Answer ALL questions

Each answer should not exceed 200 words or one page

11. (a) In an A.P, the first term is 2 and the sum of the first five terms is one-fourth of the next five terms. Show that 20th term is –112.

(OR)

(b) Find the 20^{th} and n^{th} terms of the G.P. 5/2, 5/4, 5/8...

12. (a) Calculate mean from the following data:

R.No.	1	2	3	4	5	6	7	8	9	10
Marks	40	50	55	78	58	60	73	35	43	48

(OR)

(b) Calculate the standard deviation from the following data:

14, 22, 9, 15, 20, 17, 12, 11

13. (a) Find out the coefficient correlation in the following case.

Height father (in inches)

65	66	67	67	68	69	71	73

Height of the son (in incites)

67	68	64	68	72	70	69	70

(OR)

(b) Following are the rank obtained by 10 students in two subjects. Statistics and Mathematics. To what extent the knowledge of the students in the two subjects is related?

Statistics	1	2	3	4	5	6	7	8	9	10
Mathematics	2	4	1	5	3	9	7	10	6	8

14. (a) In how many ways can the letters of the word DAUGHTER be arranged so that the vowels may never be separated?

(OR)

(b) Two cards are drawn from a pack of cards at random. What is the probability that it will be (a) a diamond and a heart (b) a king and a queen (c) two kings?

15. (a) What are the various types of index number?

(OR)

(b) Explain the Laspeyres method.

PART – C $5 \times 7 = 35$

Answer ALL questions

Each answer should not exceed 600 words or one page

Question No.20 is compulsory.

16. (a) The sum of first three terms of a G.P. is 16 and the sum of the next three terms is 128. Determine the first term, the common ratio and the sum to n terms of the G.P.

(OR)

(b) Find the inverse of A $\begin{pmatrix} 2 & 3 & 4 \\ 3 & 2 & 1 \\ 1 & 1 & -2 \end{pmatrix}$

17. (a) The following data relate to the age of a group of workers. Calculate the arithmetic and standard deviation.

Age:	20 – 25	25 – 30	30 – 35	35 – 40	40 – 45	45 – 50	50 – 55
No. of workers:	170	110	80	45	40	30	25

(OR)

(b) Calculate Karl Pearson's coefficient of skewness for the following data:

25 15 23 40 27 25 23 23 25 20

18. (a) Given the following data, estimate the value of Y when $X = 60$ and also find out the coefficient of correlation:

The mean value of $X = 53.2$
The mean value of $Y = 27.9$
The regression coefficient of Y on $X = -1.5$
The regression coefficient of X on $Y = -0.2$

(OR)

(b) Calculate trend value from the following data using the method of Least Square.

Year:	2002	2003	2004	2005	2006	2007
Production:	7	9	12	15	18	23

19. (a) Seven coins are tossed and number of heads noted. The experiment is repeated 128 times and the following distribution is obtained:

No. of heads	0	1	2	3	4	5	6	7	*Total*
Mathematics	7	6	19	35	30	23	7	1	128

Fit a binomial distribution assuming, (i) The coin is unbiased (ii) The nature of the coin is not known (iii) Probability of a head for four coins is 0.5 and for the remaining three coins is 0.45.

(OR)

(b) X is a normal variate with mean 30 and S.D. 5. Find the probabilities that (i) $26 \leq X \leq 40$, (ii) $X \geq 45$, (iii) $|X - 30| > 5$.

Compulsory :-

20. Calculate the Laspeyre's and the Paache's Index numbers from the following data:

Commodity	Units consumed		Price per unit	
	2006	2007	2006	2007
A	20	16	1.2	2.0
B	35	38	2.1	2.4
C	10	9	3.0	4.1
D	45	50	0.8	1.2

And also calculate Fisher's Ideal Index.

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