

BMS DEGREE (C.B.C.S.) EXAMINATION, NOVEMBER 2022
 (2022 Admissions (regular) 2021 Admissions (Improvement / Supplementary), 2020, 2019,
 2018, Admissions Supplementary)
SEMESTER I - CORE COURSE (INTERNATIONAL BUSINESS)
MS1B03B18 - QUANTITATIVE TECHNIQUES FOR MANAGEMENT

Time : 3 Hours

Maximum Marks : 80

Part A

I. Answer any Ten questions. Each question carries 2 marks (10x2=20)

1. Explain the formulae for calculating median from a frequency table.
2. Find the median of the following two sets of data of monthly income of workers.
 (a) 150, 80, 200, 100, 125, 180, 112
 (b) 500, 480, 320, 70, 600, 540
3. What is dispersion?
4. State Bayes theorem.
5. If x and y are two independent variates and $V(x) = 2$ and $V(y) = 3$, Find $V(2x+3y)$
6. Define Poisson distribution.
7. Distinguish between total float and free float.
8. Define Fishers index number.

9. Verify that $(AB)' = B' A'$ if $A = \begin{bmatrix} 1 & 0 & 2 \\ -1 & 2 & -3 \end{bmatrix}$ and $B = \begin{bmatrix} 2 & 0 \\ 1 & -1 \\ 0 & -2 \end{bmatrix}$.

10. When and for what purpose 't' test is used?
11. What are type I and type II errors?
12. Define p - value in hypothesis testing.

Part B

II. Answer any Six questions. Each question carries 5 marks (6x5=30)

13. Explain the advantages and disadvantages of median.
14. Calculate the coefficient of correlation by spearman's method from the following data.

Roll no	1	2	3	4	5	6	7	8	9	10
Marks in Statistics	45	56	39	54	45	40	56	60	30	35
Marks in Law	40	56	30	44	36	32	45	42	20	36

15. Which are the desirable properties of good measure of central tendency?
16. A random variable x follows a probability distribution as given below.

x	0	1	2	3
f(x)	k/2	k/3	(k+1)/3	(2k-1)/3

Find the value of k. Also find mean and variance of the variable.

17. The odds against X solving a business statistics problem are 8 to 6 and odds in favor of student Y solving the same problem are 14 to 16. What is the probability that (a) Problem is solved (b) Problem is not solved

18.

$$\begin{bmatrix} 3 & 5 & 9 \\ 2 & 6 & 8 \\ 6 & 1 & 2 \end{bmatrix}$$

Compute the determinant of the matrix $A =$

19.

If $A = \begin{bmatrix} 3 & 1 & 2 \\ 2 & 0 & 1 \\ -2 & 5 & -9 \end{bmatrix}$; $B = \begin{bmatrix} 1 & 0 & -1 \\ 2 & 3 & -4 \\ 3 & 2 & 1 \end{bmatrix}$, Show that $(AB)^t = B^t A^t$

20. The mean life of 100 florescent light tubes produced by a company claims that the average life of the tubes produced by the company is 1600 hours. Using the level of significance of 0.05, is the claim acceptable?

21. Explain the different steps for finding the confidence limit for the population mean.

Part C

III. Answer any Two questions. Each question carries 15 marks

(2x15=30)

22. Define co-efficient of variation.

A factory produces two types of electric lamps A and B. In an experiment relating to their lives, the following data was obtained.

Life in hours	No. of lamp	
	Type A	Type B
500-700	5	4
700-900	11	30
900-1100	26	12
1100-1300	10	8
1300-1500	8	6

Compare the variability of the lives of the two types of lamps using co-efficient of variation.

23. Explain the properties of normal distribution.

24. (a) Calculate the Simple Arithmetic Mean index numbers for 1978 and 1981 with 1970 as base from the following data giving the prices of 6 commodities in these years.

Commodity	1	2	3	4	5	6
Price in 1970	25	30	16	18	30	42
Price in 1978	30	45	32	30	35	43
Price in 1981	33	36	35	28	38	50

(b) Compare Laspeyre's and Paasche's index numbers.

25. (a) Explain t test. (b) A soap manufacturing company was distributing a particular brand of soap through a number of retail shops. Before a heavy advertisement campaign, the mean sale per week per shop was 140 dozens. After the campaign, a sample of 20 shops was taken and mean sale was found to be 147 dozen with standard deviation 16. can you consider the advertisement affective?