

MASTER OF BUSINESS ADMINISTRATION
FIRST SEMESTER
QUANTITATIVE TECHNIQUES IN BUSINESS
MBA – 105 [REPEAT]
[USE OMR FOR OBJECTIVE PART]

2024/12

**SET
A**

Duration: 3 hrs.

Full Marks: 70

Time: 20 min.

Marks: 20

(Objective)

Choose the correct answer from the following:

1×20=20

- Which class interval of the following is open end class interval?
 - Less than 20- 40
 - 10 - above 40
 - 20-40
 - a. & b.
- Which measures of central tendency is used for calculation of average in categorical data.
 - Mean
 - Median
 - Mode
 - Harmonic mean
- Which of the following is the mean deviation of the series 2, 5, 9, 6, 3,1
 - 3.25
 - 2.33
 - 4.02
 - None of the above
- For a Symmetric distribution if Mean is 34 what is the value of Median and Mode?
 - 25& 34
 - 30 & 34
 - 34 & 34
 - None of these
- For an asymmetrical distribution if mode is 25 and median is 27 then what is the mean of the distribution?
 - 29
 - 25
 - 31
 - None of these
- Which one of the following is correct for a positively skewed distribution, the tail extends towards ____
 - Right
 - Left
 - Lower values
 - None of these

7. The limit of the correlation lies in between _____
- $-1 < r < 0$
 - $0 < r < 1$
 - $-1 < r < 1$
 - None of these
8. Which one of the following is used to calculate correlation coefficient for quantitative variables
- Pearson's Correlation Coefficient
 - Spearman's Rank Correlation Coefficient
 - Both of these
 - None of these
9. 'T-shirt size' is what type of variable?
- Quantitative & discrete
 - Quantitative & continuous
 - Qualitative & nominal
 - All of these
10. Which one is the example of negative correlation
- Hours of Exercise and Body Fat Percentage
 - Temperature and Hot Beverage Sales
 - Study Time and Number of Errors in a Test
 - All of these
11. The component of a time series associated with strikes against factory is _____
- Irregular movement
 - Secular trend
 - cyclical variation
 - Seasonal variation
12. Which of the following statement is not true for the determination of trend by using least squares method?
- Trend values can be determined for each period
 - Trend values cannot be determined for each period
 - It is free from the subjective error
 - Both (a) and (c).
13. Paasche's index possesses:
- Downward bias
 - Upward bias
 - No bias
 - None of the above

- 14 Consumer's price index number is a
- a. value index number
 - b. wholesale price index number
 - c. retail price index number
 - d. None of the above
- 15 For two events A and B, if $P(A \cap B) = 0$, then the events A and B are:
- a. Mutually exclusive
 - b. Exhaustive
 - c. Independent
 - d. None of the above
- 16 Estimation of the two values of a statistic, in which the true value of a parameter lies, with a certain level of confidence, is called:
- a. Point estimation
 - b. Interval estimation
 - c. Hypothetical value
 - d. None of the above
- 17 Type II error is:
- a. Accepting the null hypothesis, when it is not true.
 - b. Accepting the null hypothesis, when it is true.
 - c. Rejecting the null hypothesis, when it is true.
 - d. Rejecting the null hypothesis, when it is not true.
- 18 A good estimator of Population variance is
- a. Sample proportion
 - b. Sample mean
 - c. Sample variance
 - d. None of the above
- 19 If the random variable X follows a Binomial distribution with parameter $n = 4$, and $p = 0.6$ then the standard deviation of X is:
- a. 0.89
 - b. 0.98
 - c. 1.60
 - d. None of the above
- 20 Which of the following is a symmetric distribution?
- a. Binomial
 - b. Poisson
 - c. Normal
 - d. None of the above

(Descriptive)

Time: 2 hr. 40 mins.

Marks: 50

[Answer question no.1 & any four (4) from the rest]

1. a. When Spearman's Rank Correlation Coefficient is used? 2+8=10

b. A random sample of recent repair jobs was selected and estimated cost and actual cost were recorded.

Estimated Cost	400	490	300	650	600	900	500	500
Actual Cost	275	496	444	280	635	872	396	457

Calculate the value of Spearman's Rank Correlation Coefficient and interpret the result.

2. a. What are the different measures of central tendency? Define. 4+6=10

b. The median of the following data set is 525. Find the values of x and y, if the total frequency is 100.

Monthly Consumption of electricity in units	Number of consumers
50- 100	2
100- 150	5
150-200	X
200-250	12
250-300	17
300-350	20
350-400	Y
400-450	9
450-500	7
500-550	4

3. a. Distinguish between the use of absolute measures and relative measures. $2+8=10$

b. Following are the runs scored by two batsmen A and B in different matches

A	70	90	80	50	40
B	70	90	60	50	30

Find who is a better run getter and more consistent player.

4. Explain what constitutes a linear programming problem, including the objective function, constraints, and decision variables. $3+3+4=10$

5. Fit a straight line trend of the following data and estimate sales for the year 2018 $7+3=10$

Year	: 2011	2012	2013	2014	2015	2016	2017
Sales (in crores ₹)	10	12	15	20	18	19	22

6. Write in brief the problems involved in the construction of index number. 10

7. a. Write the Classical and Axiomatic approaches of probability. $2+2=4$

b. A bag contains 5 red and 3 blue balls. Two balls are drawn at random without replacement. What is the probability that the balls drawn are (i) blue balls? (ii) the first ball is red and the second ball is blue? $3+3=6$

8. Explain Null hypothesis, Alternative hypothesis, Level of significance, Type-I error and Type-II error. $5+5=10$
