

MID-WESTERN UNIVERSITY
SCHOOL OF MANAGEMENT (MUSOM)
(An Autonomous Institution)
FINAL EXAMINATION: 2021
BACHELOR OF BUSINESS ADMINISTRATION (BBA)
SEMESTER –II

Subject: Business Statistics-I
Full Marks: 100

Course Code: MGT 322
Time: 3 Hrs.

Exam Roll No.:

Section A: Multiple Choice Questions (1×15 = 15 Marks) Time: 15 Minutes

Tick (✓) the best answer

1. In an individual series, each variate value
 - a. has same frequency
 - b. has frequency one
 - c. has varied frequency
 - d. has frequency two
2. In a bar diagram, the base line is
 - a. horizontal
 - b. vertical
 - c. false base line
 - d. any of the above
3. Which of the following represents median?
 - a. first quartile
 - b. fiftieth percentile
 - c. sixth decile
 - d. none of the above
4. If the sum of an observation is 630 and their mean is 42, then the value n is
 - a. 21
 - b. 30
 - c. 15
 - d. 20
5. Which of the following statement is NOT correct?
 - a. Some data sets do not have means
 - b. Calculation of a mean is affected by extreme data values.
 - c. A weighted mean should be used when it is necessary to take the important of each value into account.
 - d. All these statements are correct.
6. In case of an even number of observations which of the following is median?
 - a. Any of the two middle most value
 - b. The simple average of these two middle value.
 - c. The weighted average of these two middle value
 - d. Any of these.
7. The appropriate measure of dispersion for open-end classification is
 - a. Standard deviation
 - b. Mean Deviation
 - c. Quartile deviation
 - d. All these measure
8. If profit of a company remains same for the last 10 months, then the standard deviation of profits for these 10 months would be
 - a. Positive
 - b. Negative
 - c. Zero
 - d. 10
9. For a positively skewed distribution, which of the following inequality holds?
 - a. Median > Mode
 - b. Mode > Mean
 - c. Mean > Median
 - d. Mean > Mode
10. A sample consists of
 - a. all units of the population
 - b. 50% of units of the population
 - c. 10% of the units of the population
 - d. any fraction of the population.
11. In simple random sampling with replacement, the same sampling unit may be included in the sample.
 - a. only once
 - b. only twice
 - c. more than once
 - d. none of the above
12. Systematic sampling means
 - a. selection of any n units
 - b. selection of n largest units
 - c. selection of n units situated at equal distance
 - d. selection of n middle units in a sequence
13. If $P(A) = 0$, then the event A
 - a. will never happen
 - b. will always happen
 - c. may happen
 - d. may not happen.
14. The probability of an event can assume any value between
 - a. -1 and 1
 - b. 0 and 1
 - c. -1 and 0
 - d. both a and b.
15. The distribution which deals with the rare events is
 - a. Binomial distribution
 - b. Poisson distribution
 - c. Normal distribution
 - d. Hypergeometric distribution



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You are required to answer in your own words as far as applicable. The figures in the margin indicate full marks.

SECTION B: SHORT ANSWER QUESTIONS (8×5 = 40 MARKS)

Answer any EIGHT questions:

1. Discuss the importance of statistics with special reference to business. [5]
2. What are the sources of data? Distinguish between primary and secondary data. [1+4]
3. What do you mean by dispersion? Discuss the different types of measures of dispersion. [5]
4. The mean age of a combined group of men and women is 30 years. If the mean age of the group of men is 32 and that of the group of women is 27. Find out the percentage of men and women in the group. [5]
5. If the first central moments about the mean are 0, 2.8, - 2, and 24.5, respectively. Calculate the coefficient of Kurtosis and Skewness and interpret the result. [5]
6. The arithmetic mean of 98 items is 50. At the time of calculations, two items, 60 and 70, were left out. What is the correct mean of all items? [5]
7. The average price and standard deviation of the price of Mansuli rice per kg for the last seven days in two markets, M_1 and M_2 , are recorded below:

	Average price (Rs)	S.D. of price (Rs)
Market (M_1)	90	7
Market (M_2)	94	6

Which market is more uniform in price? [5]

8. For a certain frequency table, the mean was found to be 1.46. Find the missing frequencies. [5]

Mid value	0	1	2	3	4	5	Total
frequency	46	?	?	25	10	5	200

9. Define probability with examples. A, B, and C can hit a target 3 times in 5 shots, 2 times in 5 shots, and 3 times in 5 shots, respectively. If they fire a volley, what is the probability that
 - a) the target is hit at all?
 - b) two shots hit?[1+4]

10. Mention the types of Hypotheses. Explain two types of error in Hypothesis testing. [2+3]

SECTION C: LONG ANSWER QUESTIONS (3×10 = 30 MARKS)

Answer any THREE questions:

11. It is 3:4 against a husband who is now 40 years old and living till he is 65 and 4:5 in favor of his wife, who is now 35 and living till she is 60 years. Find the probability that
 - a. The couple will be alive for 25 years. [2]
 - b. Only the husband will live for 25 years. [2]
 - c. One of them will be alive for 25 years. [2]
 - d. None will be alive for 25 years. [2]
 - e. At least one of them will be alive for 25 years. [2]
12. Before and after implementing an economic program to uplift a commodity's economic condition, the following information was found. Give your answer based on a statistical analysis of the available data.

Monthly income (in Rs.00)	Prior to the plan	After the plan
	No. of families	No. of families
4-6	10	8
6-8	70	65
8-10	35	37
10-12	20	15
12-14	10	15
14-16	3	5
16-18	2	5

- a. Indicate the percent of the amount changed in the highest income of the poorest 40% of the population before and after the plan. [5]
- b. Obtain the limits of income of the middle 50% of families before and after the plan and comment on the results. [5]
13. Find out the missing information in the table given below.

	Group			Combined
	A	B	C	
number	50	-	90	200
Mean	113	-	115	116
Standard Deviation	6	7	-	7.746

14. Provide a concept of sampling with its types. Compare and contrast between Sampling and Census. [5+5]
15. A claim is made that ABC college students have an IQ of 120. To test this claim, a random sample of 10 students was taken and their IQ scores are recorded as follows:
105, 110, 120, 125, 100, 130, 120, 115, 125, 130
Test the validity of this claim at a 5% level of significance. [$t_{0.05}(9) = 2.262$] [10]

SECTION D: CASE STUDY (15 MARKS)

16. Read the following case and answer the questions that follow.

The following are the weekly production in units (output) of 60 workers of a factory.

72	23	48	51	64	82	12	33	50	39	57	35
88	77	25	39	52	48	64	49	52	41	72	62
49	32	54	67	46	55	57	82	44	75	56	51
63	59	69	53	42	75	85	68	55	52	45	40
57	20	75	46	51	50	16	62	56	54	40	55

The management has decided to give a bonus of Rs. 5000, Rs. 6000, Rs. 7000, Rs.8000 and Rs. 9000 to each worker in the respective output group 40 to 50, 50 to 60 and so on.

Find:

- a. The mean output of all the workers. [5]
- b. The median bonus of the workers. [5]
- c. The standard deviation of bonus. [5]