

2014-16

Time : 4 Hours

Full Marks - 80

Candidates are required to give their answers
in their own words as far as practicable

The questions are of equal value

Answer any five questions

1. Discuss the role of quantitative methods in business and industry. Also write the limitations of quantitative methods.
2. What are the objects of classification of data? Discuss the different methods of classification. Also explain limits of classification. <http://www.biharpaper.com>
3. (a) From the following data find out the missing

frequency if the median is 50. The class intervals are given on the basis of exclusive method :

Class intervals :	10-20	20-30	30-40	40-50	50-60	60-70
Frequency :	2	8	6	?	15	10

- b. Calculate mean, median and mode from the following data : <http://www.biharpaper.com>

Marks less than : 10 20 30 40 50 60 70 80

No of students : 15 35 60 84 96 127 198 250

4. (a) Find out the mean deviation from mean, median and mode and their coefficients from the following series.

size of items : 4 6 8 10 12 14 16

Frequency : 2 1 3 6 4 3 1

- (b) Find standard deviation and its coefficient from the following data :

Age (in years) : 5-7 8-10 11-13 14-16 17-19

Frequency : 7 12 19 10 2

5. (a) Explain the importance of correlation analysis. Also write about different types of correlation. <http://www.biharpaper.com>

(b) Calculate rank correlation coefficient from the following data :

(Rank) x : 5 3 4 8 2 1 7 10 6 9

(Rank) y : 3 7 5 9 2 4 1 10 8 6

6. Explain the concept of regression. How does it differ from correlation. Why are there two regression lines?

Under what conditions can these be only one line?

The two regression equations obtained by a student were as given below : <http://www.biharpaper.com>

$$3x - 4y = 5, 8x + 16y = 15$$

Do you agree with him? Explain with reasons.

7. (a) If $A = \{2, 3, 5, 9\}$, $B = \{2, 3, 4, 8\}$, $C = \{3, 4, 5\}$ then verify the following :

~~i)~~ $A - (B \cup C) = (A - B) \cap (A - C)$

ii) $A \cup (B \cap C) = (A \cup B) \cap (A \cup C)$

(b) 65% of the students know Bengali and 85% know Hindi. What percentage of students know both the languages if each know either of the two?

8. (A) Define with examples :

~~i)~~ Exhaustive events

~~ii)~~ Mutually exclusive events

~~iii)~~ Equally likely events

~~iv)~~ Compound events

~~v)~~ Conditional probability

~~vi)~~ Independent events

~~(b)~~ What is the chance that a leap year selected at random will contain 53 sundays?

9. What is meaning of L.P.P.? Explain with an example.

Solve the following L.P.P. by graphical method.

Minimize $z = -3x + 4y$ <http://www.biharpaper.com>

subject to constraints :

$$x + 2y \leq 8, 3x + 2y \leq 12$$

$$x \geq 0, y \geq 0$$

10. Write short notes on :

~~a)~~ Merits and Demerits of standard deviation.

~~b)~~ Difference between primary and secondary data

~~c)~~ 't' ratio. _____