

- (b) The frequency table gives information about the weight of some rugby players.

Weight (kg)	Frequency
$50 \leq W \leq 60$	14
$60 < W \leq 70$	22
$70 < W \leq 80$	50
$80 < W \leq 90$	64
$90 < W \leq 100$	20

Draw a frequency polygon to represent this data.

22. (a) The average salary of male employees in a firm was Rs. 520 and that of females was Rs. 420. The mean salary of all the employees was Rs. 500. Find the percentage of male, and female employees.
- (b) Find the simple and weighted arithmetic mean of the first n natural numbers, the weights being the corresponding numbers.
23. Find the mean deviation from the mean and standard deviation of A.P.
 $a, a + d, a + 2d, \dots, a + 2n$ and verify that latter is greater than the former.
24. Calculate the correlation coefficient for the following heights of fathers (X) and their sons (Y):
- | | | | | | | | | |
|----|----|----|----|----|----|----|----|----|
| X: | 65 | 66 | 67 | 67 | 68 | 69 | 70 | 72 |
| Y: | 67 | 68 | 65 | 68 | 72 | 72 | 69 | 71 |

NOVEMBER 2023

52503/125E1B/
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127E1B/126E1B

Time : Three hours

Maximum : 75 marks

PART A — ($10 \times 2 = 20$ marks)

Answer any TEN questions.

- What is Complete Enumeration?
- Define scale data.
- Define how to draw less than and more than Ogives.
- Define Histogram.
- Define Arithmetic mean.
- Write Median Formula.
- Define Range.
- Define Quartile Deviation.
- Define Simple correlation.
- Mention the use of Scatter Diagram.

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11. Define Standard Deviation.

12. Define Spearman Rank Correlation.

PART B — (5 × 5 = 25 marks)

Answer any FIVE questions.

13. Explain the Norminal, Ordinal data.

14. Explain the divisions in a Pie chart.

15. In a factory employing 3,000 persons, 5 per cent earn less than Rs. 3 per hour, 580 earn from Rs. 3.01 to Rs. 4.50 per hour, 30 percent earn from Rs. 4.51 to Rs. 6.00 per hour, 500 earn from Rs. 6.01 to Rs. 7.50 per hour, 20 percent earn from Rs. 7.51 to Rs. 9.00 per hour, and the rest earn Rs. 9.01 or more per hour. What is the median wage?

16. Find the mode of the following frequency distribution.

Size (x) :	1	2	3	4	5	6	7	8	9	10	11	12
Frequency (f) :	3	8	15	23	35	40	32	28	20	45	14	6

17. Find the median wage of the following distribution :

Wages (in Rs.) :	20-30	30-40	40-50	50-60	60-70
No. of labourers :	3	5	20	10	5

18. Prove that for any discrete distribution standard deviation is not less than mean deviation from mean.

19. If X , Y are standardized random variables, and $r(aX + bY, bX + aY) = \frac{1 + 2ab}{a^2 + b^2}$ find $r(X, Y)$. The coefficient of correlation between X and Y .

PART C — (3 × 10 = 30 marks)

Answer any THREE questions.

20. What are the difference between census method and sampling method?

21. (a) The table below shows the weekly sales of pencil boxes in a stationery store represent the given data in a bar graph using an appropriate scale.

Days	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Pencil Boxes sold	15	20	30	60	50	10

- (i) Create the bar graph's title.
- (ii) When did the most number of pencil boxes get sold?
- (iii) If the merchant closes down his business for one extra day each week, which days would result in the least amount of sales loss and the most amount of sales loss?