

APOLLO

# Measure of Central Tendency

## FBISE Mathematics Class 9 (SSC-I)

Domain C: Information Handling

19 questions | questions

Original FBISE question crops. National Curriculum 2022-23 topic.

|                           |                                             |                                                                           |    |       |       |       |       |       |
|---------------------------|---------------------------------------------|---------------------------------------------------------------------------|----|-------|-------|-------|-------|-------|
| Scenario for MCQs (41-44) |                                             | The table below shows weight distribution (in kg) of students in a class. |    |       |       |       |       |       |
|                           |                                             | C-I                                                                       |    | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 |
|                           |                                             | $f$                                                                       | 6  | 10    | 16    | 12    | 6     |       |
| 42                        | What is the value of $\frac{\Sigma f}{2}$ ? | 20                                                                        | 22 | 25    | 26    |       |       |       |

|                           |                            |                                                                           |         |         |         |       |       |
|---------------------------|----------------------------|---------------------------------------------------------------------------|---------|---------|---------|-------|-------|
| Scenario for MCQs (41-44) |                            | The table below shows weight distribution (in kg) of students in a class. |         |         |         |       |       |
|                           |                            | C-I                                                                       | 30-40   | 40-50   | 50-60   | 60-70 | 70-80 |
|                           |                            | $f$                                                                       | 6       | 10      | 16      | 12    | 6     |
| 44                        | Which is the median class? | 40 – 50                                                                   | 50 – 60 | 60 – 70 | 30 – 40 |       |       |

|                                                                                                                                                                  |   |         |       |         |   |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|---------|-------|---------|---|
| A school principal wants to allocate funds to different departments based on student enrolment. The number of students in each department is tabulated as under. |   |         |       |         | 6 |
| Subject                                                                                                                                                          | x | Science | Maths | English |   |
| No. of Students                                                                                                                                                  | f | 200     | 150   | 180     |   |
| If the total available fund is Rs. 700,000, calculate the amount each department should receive if funds are distributed equally per student.                    |   |         |       |         |   |

|    |    |                                                                                                                     |    |
|----|----|---------------------------------------------------------------------------------------------------------------------|----|
| 04 | OR | a The drawn ball is red.                                                                                            | 04 |
| 04 | OR | b The drawn ball is NOT blue.                                                                                       | 04 |
| 04 | OR | Transform the given equation in:<br>$3x + 2y - 18 = 0$                                                              | 04 |
| 04 | OR | a Slope-Intercept form: $(y=mx+c)$ .                                                                                | 04 |
| 04 | OR | b Two-Intercepts form $\left(\frac{x}{a} + \frac{y}{b} = 1\right)$                                                  | 04 |
| 04 | OR | The given data shows the distribution of weights (in kg) of 30 bags of rice. Calculate mean weight of the rice bags | 04 |
| 04 | OR |                                                                                                                     | 04 |

|                        |                        |
|------------------------|------------------------|
| $A \cup B, (A \cup B)$ | $B \cap C, (B \cap C)$ |
|------------------------|------------------------|

| <b>Q.5</b> | Construct a triangle $\triangle ABC$ of sides measure<br>$m\overline{AB} = m\overline{BC} = m\overline{AC} = 5cm,$<br>$m\overline{AB} = m\overline{BC} = m\overline{AC} = 5cm,$ ایک مثلث $\triangle ABC$ بنائیں جس میں،<br><b>a</b> Construct perpendicular<br>مثلث کے عمودی نامف | <b>OR</b> | The given table shows distribution of marks obtained by 50 students in a mathematics test:<br><b>Calculate the median marks.</b> <table><tr><th>C-I</th><th>01-10</th><th>11-20</th><th>21-30</th><th>31-40</th><th>41-50</th></tr><tr><td>f</td><td>5</td><td>10</td><td>15</td><td>12</td><td>8</td></tr></table> | C-I   | 01-10 | 11-20 | 21-30 | 31-40 | 41-50 | f | 5 | 10 | 15 | 12 | 8 | <b>OR</b> |
|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|---|---|----|----|----|---|-----------|
| C-I        | 01-10                                                                                                                                                                                                                                                                             | 11-20     | 21-30                                                                                                                                                                                                                                                                                                               | 31-40 | 41-50 |       |       |       |       |   |   |    |    |    |   |           |
| f          | 5                                                                                                                                                                                                                                                                                 | 10        | 15                                                                                                                                                                                                                                                                                                                  | 12    | 8     |       |       |       |       |   |   |    |    |    |   |           |

| <p>ایک سیلنڈرکی راسی 5 سم اور اونچائی 12 سم ہے۔ ایک دوسرے سیلنڈرکی راسی 7.5 سم ہے۔ دوسرے سیلنڈرکی اونچائی معلوم کریں اگر دونوں سیلنڈرز کے حجم (وولیوم) برابر ہوں۔</p>                                                                                                                                                                                                                                                                     |       | 04    |       |       |       |       |       |   |   |    |    |   |   |  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|-------|-------|---|---|----|----|---|---|--|
| OR                                                                                                                                                                                                                                                                                                                                                                                                                                        |       | 04    |       |       |       |       |       |   |   |    |    |   |   |  |
| <p>The given table shows distribution of daily wages in US dollars of 50 overseas employees. <b>Calculate average wage of the employees.</b></p> <table><tr><th>C-I</th><th>10-14</th><th>15-19</th><th>20-24</th><th>25-29</th><th>30-34</th></tr><tr><td>f</td><td>7</td><td>20</td><td>16</td><td>3</td><td>4</td></tr></table> <p>درج جدول میں امریکی ڈالروں میں 50 ملازمین کی تنخواہیں دی گئی ہیں۔ ان کی اوسط تنخواہ معلوم کریں۔</p> |       | C-I   | 10-14 | 15-19 | 20-24 | 25-29 | 30-34 | f | 7 | 20 | 16 | 3 | 4 |  |
| C-I                                                                                                                                                                                                                                                                                                                                                                                                                                       | 10-14 | 15-19 | 20-24 | 25-29 | 30-34 |       |       |   |   |    |    |   |   |  |
| f                                                                                                                                                                                                                                                                                                                                                                                                                                         | 7     | 20    | 16    | 3     | 4     |       |       |   |   |    |    |   |   |  |

The daily consumption of electricity units of 35 factory machines is recorded as in given table.

**Calculate mode of the data.**

| C-I | 20-24 | 25-29 | 30-34 | 35-39 | 40-44 |
|-----|-------|-------|-------|-------|-------|
| f   | 8     | 12    | 2     | 10    | 3     |

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|                                                                                                                                                                              |           |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| <p>Find the mean, mode and median of the data:</p> <p>3, 4, 6, 6, 6, 7, 7, 8, 9.</p> <p>درج اعداد کا عادی، اوسط اور وسطانیہ معلوم کریں:</p> <p>3, 4, 6, 6, 6, 7, 7, 8, 9</p> | <p>04</p> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|

|    |                                                                                                                                                                                                                                                                                        |     |
|----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| OR | calculate:<br>a. The probability of selecting a white ball.<br>b. The probability of selecting a black ball<br>c. The sum of all the probability                                                                                                                                       | 04  |
| OR | An earthquake that occurred in Pakistan in 2005, measured 7.6 on the Richter scale. In 1978, an earthquake in China measured 8.2 on the Richter scale. How many times, the China's earthquake was stronger than the Pakistan's earthquake? (Use $M = \log\left(\frac{I}{I_0}\right)$ ) | 04  |
| OR | Find the equation of a line through the point (1,3) and the point of intersection of lines $2x - 3y + 4 = 0$ and $4x + y - 1 = 0$ .                                                                                                                                                    | 04  |
| OR | Factorize the quadratic expression: $3x^2 + 16x - 12$                                                                                                                                                                                                                                  | 04  |
| OR | Verify that $\sin^2 \theta + \cos^2 \theta = 1$                                                                                                                                                                                                                                        | 04  |
| OR | Prove by using Venn diagram $(P \cup Q) \cup R = P \cup (Q \cup R)$ .<br>$P = \{0, 1, 2, 3\}, Q = \{2, 3, 4, 5, 6\}, R = \{5, 6, 7, 8, 9\}$                                                                                                                                            | 2+2 |
| OR | Find the equation of straight line passing through $(-4, -4)$ and parallel to the line with slope $-5$ .                                                                                                                                                                               | 04  |
| OR | The monthly incomes (in thousand rupees) of five workers are:<br>20, 22, 25, 90, 23.<br>Calculate the mean and median. Which measure better represents the income level? Give reason.<br>In a coin toss experiment, Head is obtained 15 times                                          | 1x4 |

|    |                                      |         |         |         |         |     |         |
|----|--------------------------------------|---------|---------|---------|---------|-----|---------|
| OR | Consider the data and find the mean. |         |         |         |         | 4+4 |         |
|    | CI                                   | 140-150 | 150-160 | 160-170 | 170-180 |     | 180-190 |
|    | f                                    | 6       | 9       | 13      | 7       |     | 5       |

|    |                                                                                                                            |    |
|----|----------------------------------------------------------------------------------------------------------------------------|----|
| OR | The number of items sold by a shop on different days are; 6, 8, 6, 5, 7, 6, 9.<br>a. Find mode b. Find median c. Find mean | 04 |
|    | The number of items sold by a shop on different days are; 6, 8, 6, 5, 7, 6, 9.<br>a. Find mode b. Find median c. Find mean | 04 |

OR

The given table shows distribution of marks obtained by 50 students in a mathematics test:

**Calculate the median marks.**

|           |       |       |       |       |       |
|-----------|-------|-------|-------|-------|-------|
| <i>CI</i> | 01-10 | 11-20 | 21-30 | 31-40 | 41-50 |
| <i>f</i>  | 5     | 10    | 15    | 12    | 8     |

|                                              |    |    |    |
|----------------------------------------------|----|----|----|
| The median of 17, 27, 37, 47, 57, 67, 77 is: | 47 | 17 | 77 |
|----------------------------------------------|----|----|----|

|                                                                                                                             |       |       |       |       |       |    |
|-----------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|----|
| The given data shows the distribution of weights (in kg) of 30 bags of rice. <b>Calculate mean weight of the rice bags.</b> |       |       |       |       |       | 04 |
| <i>C-I</i>                                                                                                                  | 05-09 | 10-14 | 15-19 | 20-24 | 25-29 |    |
| <i>f</i>                                                                                                                    | 5     | 7     | 10    | 4     | 4     |    |

|    |                                                                                          |  |           |
|----|------------------------------------------------------------------------------------------|--|-----------|
| OR | The populations (in thousands) of nine towns are:<br>24, 18, 30, 22, 26, 26, 26, 32, 36. |  | 1+1<br>+2 |
|    | Find                                                                                     |  |           |
|    | Mode                                                                                     |  |           |
|    | Median                                                                                   |  |           |
|    | Mean                                                                                     |  |           |

|                                                                                                                                   |           |    |                                                                                                                                        |       |       |       |       |       |
|-----------------------------------------------------------------------------------------------------------------------------------|-----------|----|----------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|-------|-------|
| a. Draw a triangle with lengths, 2cm, 3cm, 4cm.<br>a. Draw perpendicular bisectors.<br>b. Are these bisectors concurrent? Verify. | 3+3<br>+2 | OR | The daily consumption of electricity units of 35 factory machines is recorded as in given table.<br><b>Calculate mode of the data.</b> |       |       |       |       |       |
|                                                                                                                                   |           |    | <i>C-I</i>                                                                                                                             | 20-24 | 25-29 | 30-34 | 35-39 | 40-44 |
|                                                                                                                                   |           |    | <i>f</i>                                                                                                                               | 8     | 12    | 2     | 10    | 3     |

|       |                                                                                                              |     |     |     |     |
|-------|--------------------------------------------------------------------------------------------------------------|-----|-----|-----|-----|
| xiii. | The mean of 11 numbers is 7. One of the numbers 13 is deleted. What is the mean of the remaining 10 numbers? | 7.7 | 6.4 | 6.0 | 5.8 |
|-------|--------------------------------------------------------------------------------------------------------------|-----|-----|-----|-----|

|    |                                                                                                                                                                                                                                                                                                               |   |
|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
| OR | In a 50-over cricket match, average runs scored by Pakistani team for different sessions of the innings is given below:<br>The score in<br>01 to 10 overs: 12 runs per over,<br>11 to 35 overs: 06 runs per over,<br>36 to 50 overs: 13 runs per over.<br>Find average runs scored by the team in an innings. | 4 |
|    |                                                                                                                                                                                                                                                                                                               |   |

The grouped data for a company's monthly expense (in million rupees) is given as:

| C-I | 140 – 149 | 150 – 159 | 160 – 169 | 170 – 179 |
|-----|-----------|-----------|-----------|-----------|
| $f$ | 3         | 7         | 5         | 9         |

Calculate the median and mode expense for 24 months.

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