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| HCCS EDUCATIONAL SYSTEM | ROLL NUMBER |
| G |  |  |  |  |  |
| **HSSC – I** |  |  |  |  |  |  |
| **STATISTICS – I** |  |  |  |  |  |  |
| **SECTION – A (Marks 17)** |  |  |  |  |  |  |
| **Time Allowed: 25 minutes** |  |  |  |  |  |  |
| **Section – A is compulsory. All parts of this section are to be answered on this page and handed over to the Centre Superintendent. Deleting/ overwriting is not allowed. Do not use lead pencil.****حصہ اول لازمی ہے۔ اس کے جوابات اسی صفحہ پر دے کر ناظم مرکز کے حوالے کریں۔ کاٹ کر دوبارہ لکھنے کی اجازت نہیں ہے۔ لیڈ پنسل کا استعمال ممنوع ہے۔** |  |  |  |  |  |  |
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| **PREBOARD EXAMS, 2024** |  |  |  |  |  |  |
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**Student Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Answer Sheet No: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Candidate Sign. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Invigilator Sign: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**ہر سوال کے سامنے دیے گئے، کریکولم کے مطابق درست دائرہ کو پر کریں۔**

**Fill the relevant bubble against each question according to curriculum:**

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|  | **Questions سوال** | **A** | **B** | **C** | **D** | **A** | **B** | **C** | **D** |
| **1.** | NADRA records are the: | Primary data | Secondary data | Fictitious data | Official data |  |  |  |  |
| **2.** | The word Statistics has been derived from the German word: | Statista | Status | Statistik | Statistique |  |  |  |  |
| **3.** | Eye colour is an example of: | Discrete variable | Continuous Variable | Qualitative | Finite variable |  |  |  |  |
| **4.** | The graph of time series data is called: | Historigram | Pie chart | 100 | Quarter |  |  |  |  |
| **5.** | The sum of squared deviations from mean is always: | Minimum | Maximum | One | Zero |  |  |  |  |
| **6.** | If mean of 5 values is 10, then the sum of the values will be: | 2 | 15 | 25 | 50 |  |  |  |  |
| **7.** | Which of the following averages is affected by extreme values? | Arithmetic mean | Median | Mode | G.M |  |  |  |  |
| **8.** | The mean of the values 7,7,7,7,7,7 is: | 42 | 7 | Zero | $$\sqrt{7}$$ |  |  |  |  |
| **9.** | The empirical relationship between mean, median and mode is Mode= \_\_\_\_\_\_\_\_\_. | 3 mean-2 Median | 2Mean-3 median | 3 median-2 mean | 2 median-3 mean |  |  |  |  |
| **10.** | If X and Y are two independent random variables, Var(x)=4 and Var(Y)=9, then Var(2X+y) is: | 13 | 17 | 25 | 26 |  |  |  |  |
| **11.** | In fixed base method the base period should be: | Pervious year quantity | Not fixed | Fixed year | Preceding year |  |  |  |  |
| **12.** | Which index number helps the government to formulate economic policies and determine the wages of employees: | Whole sale price index | Consumer price index | Quantity index | Simple index |  |  |  |  |
| **13.** | The independent variable is also called: | Regressand | Explanatory Variable | Predicted | Explained variable |  |  |  |  |
| **14.** | The value of correlation coefficient lies between: | 0 and 1 | -1 to 0 | -1 to +1 | -2 to +2 |  |  |  |  |
| **15.** | In positive correlation problem both variables move in \_\_\_\_\_\_\_\_\_ direction: | Equal | same | Fixed | Not same |  |  |  |  |
| **16.** | Floods are example of which component of time series: | Seasonal variation | Secular variation | Cyclical variation | Random variation |  |  |  |  |
| **17.** | A time series consist of: | Short-term variations | Long term variation | Irregular variation | All of these |  |  |  |  |

** HCCS Educational System**

 **(PRE – BOARD EXAM, 2024)**

 **STATISTICS HSSC–I**

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| **Time allowed: 2:35 Hours Total Marks Section B and C: 68** |
| **Note: Attempt any FOURTEEN parts from Section ‘B’ and any two Questions from Section ‘C’ on the separately provided answer book. Use supplementary answer sheet i.e., Sheet B if required. Write your answer neatly and legibly.** |

**SECTION-B (Marks 42)**

**Q.2 Attempt any FOURTEEN questions. All questions carry equal marks. (14 x 3 = 42)**

1. Differentiate between Grouped and Ungrouped data.
2. Differentiate between Qualitative and Quantitative variable.
3. In a music competition, students are asked to rate the music on five points scale A, B, C, D, E .The ratings are A, D, A, D, E, B, C, D, A, B, B, C, E, A, E, S, C, E, C, C, E, E, C, A, B construct a frequency distribution for the above ratings.
4. Write down the qualities of Good Average.
5. The reciprocals of the values of the variable X are 0.0500, 0.0400, 0.0200, 0.0285, and 0.0143. Find Harmonic mean of X.
6. If X1=2 and X2=8 show that A.M>G.M.
7. If for n=10 observations, $\sum\_{}^{}\left(x-23\right)=17,$ then find the value of mean.
8. The mean of 15 values is 10. If one more value is included, then mean becomes 12. Find the value included?
9. Data given below find out the Range and coefficient of range: 80, 195, 120, 100, 250, 200, 165, 120, 140, and 130**.**
10. A student calculated mean and standard deviation of 25 values as 20 and 4 respectively. Find the value of coefficient of variation.
11. What is the difference between Simple price index number and Composite price index number?
12. If ∑pnqn = 600, ∑poqn =150 compute Paasche’s price index.
13. If n = 15, Sx = 7.933, Sy = 16.627, ∑(x-$\overline{x}$)(y-$\overline{y}$) = 148 then find the regression coefficients.
14. Two regressions lines are:$ \begin{matrix}Y=19.55+0.5423X\\X=3.62+1.2387Y\end{matrix} $Find the correlation coefficient ‘r’.
15. State three properties of the regression coefficient.
16. Given Y=14, 11, 11 and X=0, 1, 2. Find the Simple correlation coefficient.
17. Define time series.
18. What are the different between secular variation and seasonal variation?
19. The following represent the 3-year moving total: 168, 177, 189, 201, 207, and 216. Compute the 3 year moving average.

**SECTION-C (Marks 26)**

**Note: Attempt any TWO questions. All questions carry equal marks. (2 x 13 = 26)**

**Q.3 a.** The average marks obtained by three sections of a statistics class are given below: **07**

|  |  |  |
| --- | --- | --- |
|  **Sections** | **Numbers of students** | **Means** |
| **A** | 45 | 68 |
| **B** | 42 | 58 |
| **C** | 38 | 52 |

 Find the value of overall mean?

 **b.** Compute the Karl Pearson coefficient of Skewness from the following data. **06**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Classes** | 0-7 | 7-14 | 14-21 | 21-28 | 28-35 |
| **f** | 5 | 11 | 15 | 9 | 4 |

**Q.4 a.** Compute Fisher ideal index number: **07**

|  |  |
| --- | --- |
| **1996** | **1998** |
| **Price**  | **Quantity** | **Price**  | **Quantity** |
| 15 | 255 | 20 | 260 |
| 18 | 186 | 25 | 200 |
| 28 | 312 | 30 | 350 |

 **b.** An enquiry into the budget of middle class families in a city gave the following information: **06**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Expenses on** | **Food****30%** | **Rent****15%** | **Clothing****20%** | **Fuel****10%** | **Education****25%** |
| **Prices in 2000** | 3000 | 600 | 2100 | 600 | 1200 |
| **Prices in 2001** | 3600 | 600 | 2400 | 600 | 1650 |

What is the change in the cost of living figure in 2001 as compared with 2000?

**Q.5 a.** The following are 5 pairs of values of two variables X and Y. Compute and interpret the coefficient of regression bxy by byx and also find the regression line y on x. **07**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **X** | 13 | 14 | 15 | 16 | 17 |
| **Y** | 15 | 14 | 13 | 12 | 16 |

 **b.** Compute 4-year moving average centered for the following time series: **06**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Year** | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 |
| **Production** | 60 | 90 | 92 | 83 | 87 | 96 | 101 | 110 |