**Business Statistics for Decision Making**

**December 2022 Examination**

**1. Calculate the Weighted Arithmetic Mean using following data.**

**A Rajinder-Cycle has organized recruitment for the post of Product Manager. The process involves writing test, group discussion, interview, and experience. If the candidate scores 90%, then only he/she gets selected.**

**The weightage for each criterion is given as below:**

|  |  |
| --- | --- |
| **Criterion** | **Weight (%)** |
| **Written test** | **40** |
| **Group discussion** | **10** |
| **Interview** | **30** |
| **Experience** | **20** |

**Ms. Anjali Saproo scores 91, 95, 86 and 96 in each of the criterion respectively, what is her chance of getting this job? (10 Marks)**

**Ans 1.**

Depending on the organization's size, different tasks are designated to different individuals. For example, product managers are incorporated into teams of specialists in more prominent firms. While programmers and designers deal with the day-to-day implementation, create layouts, examine prototypes, and determine insects, analysts, scientists, and marketers assist in collecting details. Although they have better assistance, these product supervisors likewise spend more time obtaining these stakeholders to sustain a specific vision.

On the other hand, product supervisors at smaller businesses spend much less time acquiring

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**2. Calculate the Regression line Y on X for the following Data. Interpret the b1 only. Raman Kaul is running a Tea making Firm, Doda Tea Factory. He wanted to know the impact of amount his firm spending in marketing the product on sales. He has generated one sample data on sales and amount spending in marketing of the product. This sample data is available here. (10 Marks)**

|  |  |
| --- | --- |
| **Sales (in ‘000 INR)** | **Budget for marketing (in ‘000 INR)** |
| **18** | **1** |
| **24** | **1** |
| **45** | **1** |
| **65** | **1** |
| **133** | **1** |
| **134** | **2** |
| **134** | **2** |
| **168** | **2** |
| **187** | **2** |
| **197** | **2** |
| **252** | **3** |
| **270** | **3** |
| **270** | **3** |
| **275** | **3** |
| **397** | **3** |
| **444** | **3** |
| **453** | **3** |
| **593** | **4** |
| **637** | **4** |
| **841** | **5** |
| **862** | **5** |
| **906** | **5** |
| **947** | **5** |
| **961** | **5** |

**Note: Do not use any software, calculate manually.**

**Ans 2.**

The statistical method of linear regression is the one that is used most often; it is a method to represent a relationship between 2 various sets of variables. The conclusion is a formula based on direct regression, which can be related to data to make predictions.

Regression analysis aims to locate formulas that provide an excellent suit for the data. After we have obtained the regression equation, we can make predictions based on the version. The linear analysis is a subtype of the much more general regression analysis. Finding an anticipating function utilizing simple direct regression is possible when a relationship coefficient suggests

**3. a. Write the steps of forming a sample (of size 20) only once you download the data from the provided source. I want to know the challenges that Active Registered Companies are facing in Ladakh in recent time. I will conduct interview round with them, but I need sample of 20 Active-companies of Ladakh. I want to adopt Proportionate Stratified Random Sampling. I could see all the companies are divided into subgroups (subpopulations) like public, Private and Private one person company. (5 Marks)**

**Data Link for the data has been provided.**

[**https://data.gov.in/catalog/company-master-data**](https://data.gov.in/catalog/company-master-data)

**Ans 3a.**

# Proportionate Stratified Random Sampling

**Introduction:** Proportionate Stratified Random Sampling is a sort of sampling that is feasible to the group and divides the entire populace of data into multiple teams, which are homogenous and non-overlapping. Such teams can be called "strata". The final sample can be after that picked from these teams. This sampling technique helps lower the price of the study and increase the

**3. b. Write the Data-classification type of the following data along with justification.**

**Data Source: RBI**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **TABLE NO. 2.14 - DISTRICT AND POPULATION GROUP-WISE CREDIT OF SCB's**  **MARCH 2021** | | | | | | | |
| **Year** | **REGION** | **STATE** | **DISTRICT** | **Population Group** | **No. of**  **Offices** | **No. of**  **Accounts** | **Credit- Amount**  **Outstanding in**  **Crore** |
| **2021** | **CENTRAL**  **REGION** | **CHHATTISGARH** | **Balod** | Rural | 51 | 37594 | 384 |
| **2021** | **CENTRAL**  **REGION** | **CHHATTISGARH** | **Balod** | Semi-urban | 31 | 28890 | 601 |
| **2021** | **CENTRAL**  **REGION** | **CHHATTISGARH** | **Balodabazar** | Rural | 46 | 136024 | 842 |
| **2021** | **CENTRAL**  **REGION** | **CHHATTISGARH** | **Balodabazar** | Semi-urban | 62 | 114782 | 1605 |
| **2021** | **CENTRAL**  **REGION** | **CHHATTISGARH** | **Balrampur** | Rural | 39 | 28065 | 397 |
| **2021** | **CENTRAL**  **REGION** | **CHHATTISGARH** | **Balrampur** | Semi-urban | 10 | 10067 | 127 |
| **2021** | **CENTRAL**  **REGION** | **CHHATTISGARH** | **Bastar** | Rural | 57 | 21732 | 451 |
| **2021** | **CENTRAL**  **REGION** | **CHHATTISGARH** | **Bastar** | Semi-urban | 5 | 11321 | 61 |

**Ans 3b.**

**The Data-classification type of the given data is Public.**

This is a public data collection because all the information can be provided to the general public without concerns.

Suppose the data has information that can not have a negative effect on any person's life or cannot have a negative influence on a firm. In that case, it can be easily accessible to the general