

GUJARAT TECHNOLOGICAL UNIVERSITY**BVOC- SEMESTER-II EXAMINATION – WINTER 2022****Subject Code:1122201****Date:21-02-2023****Subject Name:Business Statistics****Time:02:30 PM TO 04:30 PM****Total Marks:50****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

- | | | Marks | | | | | | | | | | | | | | | | |
|------------|--|--------------|-------|-------|-------|-------|-------|-------|-----------|-----------|----|----|----|----|----|----|----|--|
| Q.1 | (a) Discuss important measures of central tendency in detail. | 05 | | | | | | | | | | | | | | | | |
| | (b) Define Statistics. Also discuss the importance and limitations of Statistics. | 05 | | | | | | | | | | | | | | | | |
| Q.2 | (a) Find mean, median, mode and range for the following data.
9,14,20,18,22,14,10,15,21 | 05 | | | | | | | | | | | | | | | | |
| | (b) Draw frequency curve for the following frequency distribution. | 05 | | | | | | | | | | | | | | | | |
| | <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th>Class</th> <th>20-30</th> <th>30-40</th> <th>40-50</th> <th>50-60</th> <th>60-70</th> <th>70-80</th> <th>80-90</th> </tr> </thead> <tbody> <tr> <td>Fi</td> <td>9</td> <td>14</td> <td>21</td> <td>26</td> <td>18</td> <td>12</td> <td>8</td> </tr> </tbody> </table> | Class | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | Fi | 9 | 14 | 21 | 26 | 18 | 12 | 8 | |
| Class | 20-30 | 30-40 | 40-50 | 50-60 | 60-70 | 70-80 | 80-90 | | | | | | | | | | | |
| Fi | 9 | 14 | 21 | 26 | 18 | 12 | 8 | | | | | | | | | | | |
| | OR | | | | | | | | | | | | | | | | | |
| | (b) Calculate Q1, D7 and P87 for the following data.
12,15,21,27,10,8,9,16,18,11,10 | 05 | | | | | | | | | | | | | | | | |
| Q.3 | (a) What is average? Give it's uses and characteristics. | 05 | | | | | | | | | | | | | | | | |
| | (b) Calculate mean, median and mode for the following frequency distribution. | 05 | | | | | | | | | | | | | | | | |
| | <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th>Class</th> <th>0-10</th> <th>10-20</th> <th>20-30</th> <th>30-40</th> <th>40-50</th> <th>50-60</th> </tr> </thead> <tbody> <tr> <td>Fi</td> <td>6</td> <td>11</td> <td>17</td> <td>10</td> <td>8</td> <td>3</td> </tr> </tbody> </table> | Class | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | Fi | 6 | 11 | 17 | 10 | 8 | 3 | | | |
| Class | 0-10 | 10-20 | 20-30 | 30-40 | 40-50 | 50-60 | | | | | | | | | | | | |
| Fi | 6 | 11 | 17 | 10 | 8 | 3 | | | | | | | | | | | | |
| | OR | | | | | | | | | | | | | | | | | |
| Q.3 | (a) Define: Range, Quartile deviation, standard deviation, variance and coefficient of variance. | 05 | | | | | | | | | | | | | | | | |
| | (b) Find standard deviation and quartile deviation for the data
14, 8, 16, 7, 17, 6, 10, 15. | 05 | | | | | | | | | | | | | | | | |
| Q.4 | (a) What is correlation? Discuss it's types with example. | 05 | | | | | | | | | | | | | | | | |
| | (b) Find equation of regression line. | 05 | | | | | | | | | | | | | | | | |
| | <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tbody> <tr> <td>X</td> <td>10</td> <td>7</td> <td>15</td> <td>16</td> <td>11</td> <td>14</td> <td>9</td> </tr> <tr> <td>Y</td> <td>14</td> <td>10</td> <td>18</td> <td>17</td> <td>12</td> <td>20</td> <td>12</td> </tr> </tbody> </table> | X | 10 | 7 | 15 | 16 | 11 | 14 | 9 | Y | 14 | 10 | 18 | 17 | 12 | 20 | 12 | |
| X | 10 | 7 | 15 | 16 | 11 | 14 | 9 | | | | | | | | | | | |
| Y | 14 | 10 | 18 | 17 | 12 | 20 | 12 | | | | | | | | | | | |
| | OR | | | | | | | | | | | | | | | | | |
| Q.4 | (a) Write a note on Spearman's rank correlation method. | 05 | | | | | | | | | | | | | | | | |
| | (b) Calculate co-efficient of correlation between variables X and Y. | 05 | | | | | | | | | | | | | | | | |
| | <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <tbody> <tr> <td>X</td> <td>12</td> <td>18</td> <td>20</td> <td>10</td> <td>15</td> <td>16</td> </tr> <tr> <td>Y</td> <td>10</td> <td>15</td> <td>16</td> <td>14</td> <td>18</td> <td>20</td> </tr> </tbody> </table> | X | 12 | 18 | 20 | 10 | 15 | 16 | Y | 10 | 15 | 16 | 14 | 18 | 20 | | | |
| X | 12 | 18 | 20 | 10 | 15 | 16 | | | | | | | | | | | | |
| Y | 10 | 15 | 16 | 14 | 18 | 20 | | | | | | | | | | | | |
| Q.5 | (a) What do you mean by time series? Explain its important components. | 05 | | | | | | | | | | | | | | | | |

- (b) Find trends by 5 yearly moving averages. 05

Year	2014	2015	2016	2017	2018	2019	2020	2021
Sales	34	25	27	40	45	54	50	47

OR

- Q.5** (a) Discuss the characteristics of a good sample. 05
(b) Write a note on Systematic sampling method. 05
