[This question paper contains 6 printed pages.]

**Sr. No. of Question Paper : 1850** **GC-3** **Your Roll No.....**

Unique Paper Code : 42373305

Name of the Paper : Data Analysis Using Software

Name of the Course : **B.Sc. (Prog.) Mathematical Science (Statistics)**

Semester : III

Duration : 2 Hours

Maximum Marks : 50

**Instructions for Candidates**

1. Write your Roll No. on the top immediately on the receipt of this question paper.
2. **All** the questions are compulsory.

1. Fill in the blanks :

   (i) In SPSS, Data file is saved with the extension ..... and output file is saved with the extension .....

   (ii) 'Insert variable' inserts a variable to the ..... of the variable containing the active cell in SPSS.

   (iii) The data editor has two views ..... and .....

   (iv) In the box-plot graph, if the center line of the box is closer to the top of the box, then the distribution is ..... skewed.

   (v) In SPSS the default variable type is ..... (1×5)

2. Answer any **five** of the following :

   (i) Data of marks of 10 students in three different subjects are given. Using transform in SPSS, give the steps for calculating average marks of each student.

*P.T.O.*

(ii) Write the procedure to insert new variables between any two pre-defined variables in data file of SPSS.

(iii) Differentiate between frequencies and descriptive menus of SPSS.

(iv) Name five standard command pushbuttons in most dialogue boxes of SPSS.

(v) Give the procedure for constructing bar chart in SPSS.

(vi) Write the procedure for selecting random sample following normal distribution in SPSS. (2×5)

3. Answer the following :

(i) To assess the performance of 20 students in business statistics test, stem-and-leaf diagram of their marks was constructed in SPSS.

marks Stem-and-Leaf Plot

| Frequency | Stem & Leaf |
|---|---|
| 2.00 | 5 . 46 |
| 5.00 | 6 . 12334 |
| 5.00 | 7 . 23488 |
| 7.00 | 8 . 1336789 |
| 1.00 | 9 . 3 |

Stem width : 10

Each leaf : 1 case(s)

Can we say that the performance of the students is normally distributed ?

(ii) A conservation scientist in Northern California conducted an experiment to know the average speed of jackrabbits. A random sample of 20 jackrabbits was taken and the speed was recorded. After conducting the test in SPSS following result was obtained :

| Test Value = 8.3 | | | | | |
|---|---|---|---|---|---|
| | | | | 95% Confidence Interval of the Difference | |
| T | Df | Sig. (2-tailed) | Mean Difference | Lower | Upper |
| .813 | 19 | .426 | .42200 | -.6641 | 1.5081 |

Which of the following statement is true ?

(a) The null hypothesis is rejected and the average speed is not 8.3 miles per hour.

(b) The null hypothesis is accepted and the average speed is 8.3 miles per hour.

(c) The null hypothesis is rejected and the average speed is 0.813 miles per hour.

(d) The null hypothesis is accepted and the average speed is 0.813 miles per hour.

(iii) Which statement concerning SPSS Statistics application windows is correct ?

(a) At least one Data Editor window must be open in each SPSS Statistics session.

(b) At least one Output Viewer window must be open in each SPSS Statistics session.

(c) At least one Syntax window must be open in each SPSS Statistics session.

(a) Closing all open Syntax windows will result in the program automatically shutting down.

(iv) For a random sample of 10 employees, regression analysis was conducted using SPSS and the following result was obtained.

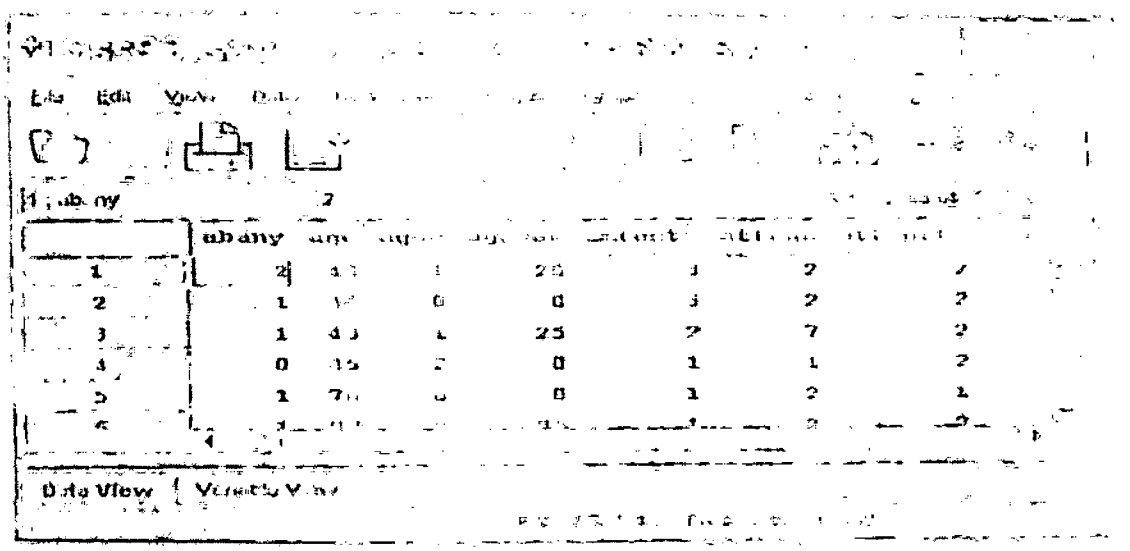
Dependent Variable:weeks of employment

| Equation | Model Summary | | | | | Parameter Estimates | | |
|---|---|---|---|---|---|---|---|---|
| | R Square | F | df1 | df2 | Sig. | Constant | b1 | b2 |
| Quadratic | .911 | 35.801 | 2 | 7 | .000 | 4.405 | –.193 | .003 |

The independent variable is job_effcy.

Using the above table write the fitted model.

(v) Which of the following statements is true ?



(a) Gss93.sav is the dataset name.

(b) DataSet2 is the dataset name.

(c) DataSet2 is the file name.

(d) DataSet2 is both the file and dataset name. (1×5)

4. Answer any **six** of the following :

(i) What are the different levels of measurement specified in SPSS ? Briefly explain them.

(ii) A random sample of first-year students at a local community college was selected and a general survey that included a number of items was conducted. A series of questions results in self-esteem ratings, and part of their official record includes their IQ. Give the procedure to calculate correlation coefficient for these two variables in SPSS. Using the following table give the correlation coefficient between the two variables and interpret the result.

**Correlations**

| | | Self esteem | IQ |
|---|---|---|---|
| Self esteem | Pearson Correlation | 1 | .599* |
| | Sig. (2-tailed) | | .040 |
| | N | 12 | 12 |
| IQ | Pearson Correlation | .599* | 1 |
| | Sig. (2-tailed) | .040 | |
| | N | 12 | 12 |

*.Correlation is significant at the 0.05 level (2-tailed).

(iii) A community activist believed that there was a relationship between membership in the police SWAT Team and prior military experience. He collected data from several police departments in an effort to support his belief. He found that there were 57 members of the SWAT team with prior military experience and 13 members with no prior military service. There were also 358 police personnel who had military experience but were not members of SWAT and another 413 with no military experience and not members of SWAT. Write the null and alternative hypotheses. Select the correct statistical method and write the procedure for conducting the test in SPSS.

(iv) Name any three interfaces of SPSS and give their applications.

(v) Explain the functions of any three of the following functions used in SPSS: recede, crosstabs, descriptive, compute.

(vi) Write the procedure for constructing box-plot graph in SPSS and its interpretation.

(vii) Using 'recode function' in SPSS, write the procedure for constructing frequency distribution from the given raw data in case of

(a) equal class intervals

(b) unequal class intervals (5×6)

(100)