Assessment Procedure

Statistical Analysis using R Programming- CPCC02

The assessment procedure of this course was done by an exam. The total mark for the exam was 50. The minimum pass percentage was 50 %. Those who secured minimum pass marks in exams were declared qualified. A sample question paper is given below:

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CERTIFICATE COURSE IN R PROGRAMMING -2018
(STATISTICS)

Time: 2 HRS **MARKS: 50**

Answer any *five* questions; each question carries 10 marks

1. Generate a random sample of 100 observations from a normal population having sample mean 500 and sample standard deviation 32. Compute its density function and distribution function.

Sample 1	5.42	0.81	2.72	4.507	4.208	4.11	3.902	6.018	5.83	4.04
Sample 2	5.94	-0.34	1.64	3.044	4.26	1.69	3.31	3.14	6.46	0.94

2. Two samples are taken from N (μ_1,σ_1) and N(μ_2,σ_2) respectively. Test whether Ho: $\sigma_{12} = \sigma_{22}$ against H_1: $\sigma_{12} \neq \sigma_{22}$.

3. Ten soldiers visit rifle range for two consecutive weeks. For the first week their scores are 67,24,57,63,54,56,68,33,43 and during the second week they score in the same order 70,38,58,58,56,56,72,42,38. Examine if there is any significant difference in their performance. (Paired t test)
4. Represent the data by a pie chart with headline " TAX REVENUE OF INDIA"

Sources	Excise	Customs	Corporation tax	Income tax	Other
Tax revenue	6526	7108	2568	560	763

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Fr. Dr. Jolly Andrews
Assistant Professor-
In-charge of Principal
Christ College (Autonomous)
Irinjalakuda

5. Access the data set *"treering"* from the base package of R. Use R commands to answer the following:
   i) How many observations are in the data set?
   ii) What is the minimum observation and what is the maximum obervations?
   iii) List the observations larger than 1.8
6. Compute mean, median, variance, standard deviation and coefficient of variation(SD/A.M) for the following data: 24.4, 30.4, 21.4, 25.4, 21.3, 23.8, 20.8, 22.9, 23.2, 21.1, 23, 20.6, 26 and 20.9

7. Three Professors A, B and C are tested to see whether their outputs are equivalent. The following results are obtained.

   A 10, 12, 13, 13, 10, 14, 15, 13

   B 9, 11, 10, 12, 13

   C 11, 10, 15, 14, 12, 13

   Carry out Analysis of Anova

8. The inside diameter measurements for an automobile engine piston range is given by:

Sample Number	Observations				
1	74.030	74.02	74.019	73.992	74.008
2	73.995	73.992	74.001	74.011	74.004
3	73.988	74.024	74.021	74.005	74.002
4	74.002	73.996	73.993	74.015	74.009
5	73.992	74.007	74.015	73.989	74.014
6	74.009	73.994	73.997	73.985	73.993
7	73.995	74.006	73.994	74.000	74.005
8	73.985	74.003	73.993	74.015	73.988
9	74.008	73.995	74.009	74.005	74.004
10	73.998	74.000	73.990	74.007	73.995

   Examine whether the process is in control using i) $\bar{X}$ chart. ii) R chart.

9. For the following data

Mid point	25	35	45	55	65	75	85	95
Frequency	55	93	113	90	85	73	29	5

   i) Enter the data set using data frame

ii) Add a column of cumulative frequency

iii) Add a column of relative frequency (frequency/total frequency)

iv) Add a column of relative cumulative frequency (cumulative frequency/total frequency)

v) Plot cumulative frequency Vs midpoint

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