PG Odd Semester (CBCS) Exam., December—2016

STATISTICS

(3rd Semester)

Course No. : STSCC–305

(Statistical Software)

(Practical)

Full Marks : 70
Pass Marks : 28

Time : 3 hours

The figures in the margin indicate full marks for the questions

GROUP—A

(Theory)

(*Marks* : 25)

1. Answer any *five* questions : 5×5=25

(a) Write a short note on SPSS. Explain its uses.

(b) How many types of windows are there in SPSS? Explain them briefly.

(c) Describe how you will insert and delete cases and variables in SPSS.

(d) Describe clearly computation of new variables in SPSS.

(e) Define the following :

(i) Nominal scale

(ii) Ordinal scale

(iii) Scale

(f) What is box plot? How do we interpret box plot in SPSS?

GROUP—B

(Practical)

(*Marks* : 30)

Answer *any* **two** questions

2. *(a)* A new fitness programme is devised for obese people. Each participant's weight was measured before and after the

programme to see if the fitness program is effective in reducing their weights :

Weight (before)	*Weight* (after)
145	143
116	120
120	117
133	130
130	125
119	119
133	134
125	128
126	123
140	141

Is the program effective? 9

(b) Marks obtained by two students for a particular subject are given below :

Student A	:	74	78	68	72	76	69	71	74
Student B	:	75	80	87	81	72	73	80	76

Assuming that the given data is not taken from a normal population, use Mann-Whitney *U*-test at 0 05 to determine if the allocations of the two distributions are equal. 6

3. Given below are the heights and weights of a group of children :

Height (cm)	*Weight* (kg)	*Gender*
141	28	M
136	28	F
154	36	F
151	48	F
155	36	M
133	31	F
149	34	M
141	32	F
164	47	M
146	37	M
149	46	M
147	36	F
152	47	M
140	33	F
143	42	M

(a) Draw a scatter diagram with height along *X*-axis and find the line of regression of weight with respect to height and comment on the value of R^2. 6

(b) Fit a multiple regression line of weight with respect to height and gender. 9

4. The effective life (in hours) of batteries is compared by material type (1, 2 or 3) and operating temperature—low (10 C), medium (20 °C) or high (45 °C). Twelve batteries are randomly selected from each material type and are then randomly allocated to each temperature level. The resulting life of all 36 batteries is shown below :

Life (in hours) *of batteries by material type and temperature*

Material type	*Temperature*		
	Low (10 C)	*Medium* (20 °C)	*High* (45 °C)
1	130, 155, 74, 180	34, 40, 80, 75	20, 70, 82, 58
2	150, 188, 159, 126	136, 122, 106, 115	25, 70, 58, 45
3	138,110, 168, 160	174, 120, 150, 139	96, 104, 82, 60

Perform two-way ANOVA and test if there is any difference in mean life of the batteries for differing material types and operating temperature levels. 15

5. In the table given below are the effect of digitalis on calcium levels in dogs. Analyze the RBD (Randomized Block Design). State

the hypothesis to be tested. Interpret the SPSS output and draw conclusion : 15

	Level of Digitalis		
Dog	*A*	*B*	*C*
1	1342	1608	1881
2	1140	1387	1698
3	1029	1296	1549
4	1150	1319	1579

GROUP—C

(*Marks* : 15)

6. Viva voce. 8

7. Practical Notebook. 7

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