

BOWEN UNIVERSITY, IWO, NIGERIA
COLLEGE OF AGRICULTURE, ENGINEERING AND SCIENCE
STATISTICS PROGRAMME

B.Sc DEGREE 2022/2023 SECOND SEMESTER EXAMINATION
COURSE CODE: STA 326 COURSE TITLE: Statistical Computing II

DATE: TIME ALLOWED: 2 Hours 30 minutes CREDIT: 3

INSTRUCTION: Answer Any Four Questions

1(a) Write short notes on each of the following (i) Epi Info (ii) SPSS (iii) Create form (iv) Enter data (v) Classic (vi) Stat Calc. (7.5 marks)

1(b) Assuming you are asked to design a form for adherence to Covid-19 preventive measures using Epi Info., classify the following variables accordingly: (i) Height (ii) age (iii) occupation (iv) marital status (v) Name of the respondent (vi) address of the respondents (vii) name of the dependencies (viii) marital status (ix) Are you ill (x) symptoms of illness (10 marks)

2. (a) Write out SPSS procedures for carrying out these analyses (i) Paired t test (ii) Spearman rank correlation (iii) Frequency analysis (iv) one way ANOVA (v) Multiple linear regression (vi) test of normality (12.5 marks)

2 (b) Suggest the most suitable statistical tools to be used in achieving the following:

- (i) Relationship between two continuous variables when assumption of normality is violated
- (ii) Comparing the difference in the mean of a sample with an hypothesized value under the assumption of normality
- (iii) Comparing differences in the means of paired samples under the assumption of normality.
- (iv) Predict the dependent variable using one dependent variable under the assumption of linearity.
- (v) Examine the normality of sets of data. (5 marks)

3 (a.) Write short notes on the following (i) Analyse Menu (ii) Data editor (iii) Data view (iv) Variable view. (8 marks)

3(b) Data below give the body weight of three groups of animals

Group A	28	29	26	26	27	28	29
Group B	35	36	40	37	39	39	42
Group C	29	23	27	28	28	29	30

Carry out the appropriate tests to determine if there is any significant difference in the body weight of the different groups. (9.5 marks)

4(a) Given the following data:

s/n	PM 2.5 (Y)	PM 10(X1)	CO2 (X2)	CO(X3)	NO(x4)
1	0.08	0.4	408	0.01	0.07
2	0.07	0.4	476	0.01	0.05
3	0.08	0.41	508	0.27	0.09
4	0.08	0.39	503.5	0.28	0.1
5	0.08	0.4	480.5	0.29	0.11
6	0.1	0.44	510.5	0.28	0.14
7	0.1	0.44	493	0.29	0.11
8	0.09	0.44	493	0.28	0.07
9	0.15	0.57	487	0.38	0.1
10	0.12	0.48	475.5	0.29	0.1
11	0.09	0.45	489.5	1.24	0.13
12	0.1	0.42	479	0.37	0.11

(i) Use Epi info to run multiple linear regression and interpret your results. (F critical = 4.12)(10 marks)

(ii) Use SPSS to run Pearson correlation between the variables and interpret your results. (7.5 marks)

5(a) Given the following data:

Cholesterol level in blood	Sex	
	Male	Female
High	75	33
Normal	157	142

Can we conclude at the 5% level of significance that the cholesterol in the blood is related to sex. Use Epi info to carry out the appropriate test. (4.5 marks)

5(b) Provide detailed interpretation of the SPSS output below:

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.510 ^a	.260	.185	.06445

a. Predictors: (Constant), O3, CO2, H2S, NO2

ANOVA^a

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	.057	4	.014	3.434	.017 ^b
Residual	.162	39	.004		
Total	.219	43			

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	.044	.040		1.104	.277
CO2	6.520E-005	.000	.130	.928	.359
NO2	-.329	.386	-.248	-.853	.399
H2S	-.031	.039	-.208	-.808	.424
O3	-.018	.109	-.043	-.170	.866

6(a) The following data gives the level of Dissolved Oxygen in water in two sites in Iwo

S/N	1	2	3	4	5	6	7	8	9	10	11
Site A	17.67	18.75	19	19	18.8	18.73	18.6	16.3	16	16.2	16.2
Site B	17.91	17.89	17	17.1	17.1	17.13	16.8	16.2	16	16.1	16.1

Using SPSS, use appropriate statistical tool to determine:

- (i) whether there is a significant in dissolved oxygen between the two sites and comment on your results. (4 marks)
- (ii) whether there is dissolved oxygen in site A is significantly above the WHO standard of 15.01 and comment on your results. (4 marks)
- (iii) whether there is dissolved oxygen in site B is significantly above the WHO standard of 15.01 and comment on your results. (4 marks)

6(b) Write short notes on the following SPSS menus (a) Edit menu (ii) Transform (iii) Recode (5.5 marks)