AS1: Correlation

Please write "true" if the statement is true and "false" if the statement is false in the space provided.

1. _false__ If decreases in the X variable are accompanied by increases in the Y variable, then the correlation between X and Y is positive

2._false_ If the value of the Pearson correlation is r = .01, then all data points on a scatter plot fit perfectly on a straight line

3. _true__ A Pearson correlation of r = –1.00 means that all the data points fit perfectly on a straight line

4._false__ A correlation of r = –0.69 means that there is essentially no consistent relationship between X and Y

5. _true__ For a negative correlation, increases in X tend to be accompanied by decreases in Y.

6. _false__ Suppose it was observed that there is a correlation of r = 0.72 between a driver's age and the cost of the car insurance. This correlation would mean that there is a tendency for older people to pay less for car insurance

7. _false____ A researcher obtained a correlation of r = –0.72 between the amount of time spent watching television and grade point average for college students. This means that there is a general tendency for students who watch less television also to have lower grade point averages

8._false__Suppose there is a perfect positive correlation between the length of time a person is in prison and the amount of aggression the person displays on a psychological inventory. This means that spending a longer amount of time in prison causes people to become more aggressive.

9._false_ A correlation of r = +0.52 will result in more accurate predictions than a correlation of r = –0.52

CORRELATION ON SPSS

Based on the following data, please answer questions 10 and 11

Here are hypothetical data for a study of the relationship between intelligence and prejudice in adults. For both variables, higher scores indicate more of the measured trait:

Subject	X= Intelligence	Y= Prejudice
1	102	22
2	128	18
3	107	28
4	126	20
5	92	32
6	120	19
7	96	26
8	104	26
9	112	24
10	92	28
11	101	28
12	108	28

10. Please calculate the Pearson-r and cut and paste your results here:

Correlations

		VAR00001	VAR00002
VAR00001	Pearson Correlation	1	$-.840^{**}$
	Sig. (2–tailed)		<.001
	N	12	12
VAR00002	Pearson Correlation	$-.840^{**}$	1
	Sig. (2–tailed)	<.001	
	N	12	12

**. Correlation is significant at the 0.01 level (2–tailed).

11. Please interpret your results:

___r =-.840. As the adult's intelligent increase , their prejudice decrease._____

CORRELATION ON SPSS

Based on the following data, please answers questions 12, 13, and 14

Correlation studies are often used to help determine whether certain characteristics are controlled more by genetic influences or by environmental influences. One study looked at television watching behavior. The study looked at the television behavior of **adopted children** and conducted two correlations. One between the children's television behavior and their adopted parents' television behavior and one with the children's television behavior and their biological parents' television behavior. The following data are similar to the results obtained in the study.

Amount of Time Spent Watching TV per Day

Adopted children	Birth parents	Adoptive parents
2	0	1
3	3	4
6	4	2
1	1	0
3	1	0
2	3	3

5	3	2
2	1	3

Using SPSS, compute the required correlations to answer the following questions:

12. Run a correlation between **adopted children** and birth parents. Cut and paste your results here:

Correlations

		VAR00001	VAR00002
VAR00001	Pearson Correlation	1	.717[*]
	Sig. (2–tailed)		.045
	N	8	8
VAR00002	Pearson Correlation	.717[*]	1
	Sig. (2–tailed)	.045	
	N	8	8

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

13. Run a correlation on **adopted children** and their adoptive parents. Cut and paste your results here:

Correlations

		VAR00001	VAR00002
VAR00001	Pearson Correlation	1	.174
	Sig. (2–tailed)		.680
	N	8	8
VAR00002	Pearson Correlation	.174	1
	Sig. (2–tailed)	.680	
	N	8	8

14. Based on the two sets of correlations, does TV watching appear to be inherited from the birth parents or is it learned from the adoptive parents?

_____The correlations r=.717 for the adopt children with the birth parents, and the correlations r=.174 for the adopted children with the adoptive parents. Since the correlations is much higher in strength with the birth parents. We can say that the TV watching behavior are controlled more by genetic influences. _____

15. A positive value for a correlation indicates ___ X and Y are change in the same direction, so as X increases, Y also increases_____.

16. The numerical value for a correlation ____c_____.
   a. can never be greater than 1.00
   b. can never be less than –1.00
   c. can never be greater than 1.00 and can never be less than –1.00
   d. can be greater than 1.00 and can be less than –1.00

17. A Pearson correlation of r = +0.85 indicates that a graph of the data would show ___a___.
   a. points clustered close to a line that slopes up to the right
   b. points clustered close to a line that slopes down to the right
   c. points widely scattered around a line that slopes up to the right
   d. points widely scattered around a line that slopes down to the right

18. Which of the following is a characteristic of a correlational study? __d____.
   a. participants are assigned to groups
   b. participants are assigned to treatment conditions
   c. participants are separated into groups based on a specific characteristic such as age or gender
   d. none of the other options is a characteristic of a correlational study

19. A college professor reports that students who finish exams early tend to get better grades than students who hold on to exams until the last possible moment. The correlation between exam score and amount of time spent on the exam is an example of ____b_____.
   a. a positive correlation.
   b. a negative correlation.
   c. a correlation near zero.
   d. a correlation near one.

20. A researcher reports that there is no consistent relationship between grade point average and the number of hours spent studying for college students. The correlation between grade point average and the number of hours studying is an example of _____c_____.

    a. a positive correlation.

    b. a negative correlation.

    c. a correlation near zero.

    d. a correlation near one.

21. A Pearson correlation of r = +1.00 between X and Y indicates __a___.

    a. each time X increases, there is a perfectly predictable increase in Y

    b. every change in X causes a change in Y

    c. every increase in X causes an increase in Y

    d. All of the other 3 choices occur with a correlation of +1.00.

22. Which of the following sets of correlations correctly shows the highest to lowest degree of relationship? ___a_____.

    a. –0.91, +0.83, +0.10, –0.03

    b. –0.91, +0.83, –0.03, –0.10

    c. +0.83, +0.10, –0.91, –0.03

    d. +0.83, +0.10, –0.03, –0.91

23. Suppose the correlation between height and weight for adults is +0.67. What proportion (or percent) of the variability in weight can be explained by the relationship with height?

Answer: ____The coefficient of determinations = (0.67 x 0.67) = 0.4489, which is the **44.89%** of the variability in weight can be explained by height._____