Q1. What is the mean father’s age?

Q2. What is the mean father’s age for low birthweight babies?

Q3. Is the father's age normally distributed? Justify your answer.

Q4. If you apply the log transformation to the father's age, what is the mean score of the transformed variable?

Q5. Is the above mean score a good representation of the real value? Justify your answer.

Q6. Is the new variable (log transform of father’s age) normally distributed? Justify your answer.

Q7. Is the variable “years father was in education” normally distributed?

Q8. Mentioning the null and alternative hypotheses, explain the above answer.

Q9. What is the mean score for the variable “years father was in education” after you apply the Box-Cox transformation?

Q10. Is this new variable normally distributed? Explain.

Q11. What is the mean score for this new variable (B-C transformed fathers’ years in education) for mothers aged under 35?

Q12. Which test would you use to investigate the relationship between birth weight and father's age?

* Pearson product-moment correlation
* Spearman’s Rank order correlation
* Point-Biserial correlation
* Phi-Coefficient

Q13. Justify the above choice in terms of the distribution of data and the nature of the test.

Q14. What is the direction of that relationship?

Q15. What is the form of that relationship?

Q16. What is the degree of that relationship?

Q17. What test would you use to investigate the relationship between smoking and birth weight?

* Pearson product-moment correlation
* Spearman’s Rank order correlation
* Point-Biserial correlation
* Phi-Coefficient

Q18. Report on the above results including information about direction/form/degree of the relationship.

Q19. If you wanted to see the effect of the length of a baby on birthweight, what would your independent variable be?

* Length of baby
* Birthweight

Q20. In statistics, when creating a scatterplot, it is a common practice to put the independent variable on the x-axis and the dependent variable on the y-axis. With this in mind, create a scatterplot for the above case and provide the regression line. For homework submitted using MS Word, insert a picture of the scatterplot.

Q21. Is the relationship between the length of baby and birthweight linear?

* Yes
* No

Q22. Justify the above choice.

Q23. Is there any evidence to suggest that the birth weight, length of baby, and head circumference are related?

* Yes
* No

Q24. Justify the above choice.

Q25. Describe the above relationship in your own words and provide evidence for your claims.