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Which of the following best describes the purpose of data visualization in exploratory data analysis?

- A. To create aesthetically pleasing graphics for presentations
- B. To reveal patterns, trends, and relationships that might not be apparent in raw data
- C. To reduce the amount of data that needs to be processed
- D. To replace statistical analysis entirely

**Question 2. (3 points)**

The principle of proportional ink states that the size of graphical elements should be proportional to the data values they represent.

- A. True
- B. False

**Question 3. (8 points)**

In the context of interaction design for visualizations, what does "brushing and linking" refer to?

- A. A technique for cleaning messy datasets
- B. Selecting data points in one view to highlight corresponding points in other views
- C. A method for creating smooth animations between different chart types
- D. The process of connecting multiple databases for visualization

**Question 4. (12 points)**

Explain the difference between diverging and sequential color scales, and provide an example of when you would use each.

**Answer:**

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**Question 5. (20 points)**

Discuss the challenges of visualizing high-dimensional data and describe at least three techniques that can be used to address these challenges. Include specific examples of when each technique would be most appropriate.

**Answer:** (Use the space below for your complete response)

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**Question 6. (4 points)**

The \_\_\_\_\_ grammar of graphics provides a systematic approach to creating visualizations by mapping data variables to visual properties.

**Answer:** \_\_\_\_\_

**Question 7. (6 points)**

Which visualization type is most appropriate for showing the relationship between three continuous variables?

- A. Bar chart
- B. Scatter plot matrix
- C. Bubble chart
- D. Parallel coordinates

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**Question 8. (10 points)**

What are the key considerations when designing visualizations for mobile devices versus desktop displays?

**Answer:**

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**Question 9. (3 points)**

Color should never be the only method used to convey important information in a visualization.

- A.** True
- B.** False

**Question 10. (29 points)**

Analyze the ethical implications of data visualization design choices. How can visualization designers ensure their work promotes understanding rather than misleading audiences? Provide specific examples of both responsible and irresponsible visualization practices.

**Answer:** (Use the space below for your complete response)

[illegible]