

Skardu 2024 - Data Visualization - Module Exam

Total Marks: 30

Marks of each question are provided next to them.

* Indicates required question

1. Email *

2. Full Name *

3. Roll Number *

4. Section *

Mark only one oval.

☐ Section-1

☐ Section-2

☐ Section-3

☐ Section-4

5. Having two strong opponent colors next to each other will have _____ effect on human eyes. [1 Mark] *

1 point

Mark only one oval.

☐ A calming

☐ A blending

☐ An energizing

☐ A disturbing

6. What is the most common type of color blindness? **[1 Mark]** *

1 point

Mark only one oval.

- ☐ Blue-yellow color blindness
- ☐ Red-green color blindness
- ☐ Red-blue color blindness
- ☐ Green-yellow color blindness

7. Which of the following factors does not affect the ability of humans to discriminate between colors? **[1 Mark]** *

1 point

Mark only one oval.

- ☐ Color saturation
- ☐ Color hue
- ☐ Color patch size
- ☐ Distance between color patches

8. *

1 point

What is the average capacity of human's Short-term memory (STM) or Working memory based on the latest research? **[1 Mark]**

Mark only one oval.

- ☐ 1 to 3 chunks
- ☐ 2 to 4 chunks
- ☐ 3 to 5 chunks
- ☐ 4 to 6 chunks

9. *

1 point

Which of the following is not a reason to use computers for generating visualizations? **[1 Mark]**

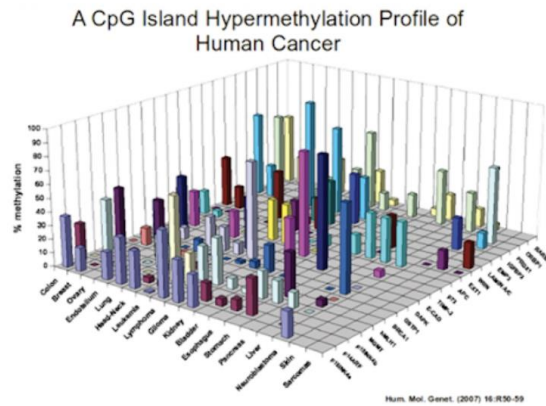
Mark only one oval.

- ☐ To support large datasets
- ☐ To support interactivity
- ☐ To support decision making
- ☐ All of them

10. *

2 points

How many channels are encoded in the following image? [2 Marks]



Mark only one oval.

- ☐ 2 channels
- ☐ 3 channels
- ☐ 4 channels
- ☐ 5 channels

11. *

1 point

Through which human input channel, it is possible to get an instant overview of the information? [1 Mark]

Mark only one oval.

- ☐ Visual
- ☐ Sound
- ☐ Touch
- ☐ All of them

12. *

1 point

Effective visualizations _____. [1 Mark]

Mark only one oval.

- ☐ Increases cognitive load.
- ☐ Reduces cognitive load.
- ☐ has no relation with cognitive load.
- ☐ All of them

13. *

1 point

Exploratory Data Analysis (EDA) is used to perform: **[1 Mark]**

Mark only one oval.

- ☐ Data cleaning and data preprocessing.
- ☐ Statistical inference and hypothesis testing.
- ☐ Building predictive models and machine learning algorithms.
- ☐ Gaining insights and understanding data patterns.

14. *

1 point

Which of the following cannot be used as a mark for the "Links" data type? **[1 Mark]**

Mark only one oval.

- ☐ Line
- ☐ Length
- ☐ Containment
- ☐ Connection

15. *

1 point

According to the Expressiveness Principle, an attribute of type "ordinal" should be encoded with: **[1 Mark]**

Mark only one oval.

- ☐ Identity Channels
- ☐ Magnitude Channels
- ☐ Both can be used
- ☐ Both cannot be used

16. *

1 point

Which principle is violated by the following statement:

"The shorter a person is, the more female she is." [1 Mark]



Mark only one oval.

- ☐ Expressiveness Principle
- ☐ Effectiveness Principle
- ☐ Both of them
- ☐ None of them

17. Which of the following idioms you can use if you want to encode "2 categorical key attributes and 1 quantitative value" * 1 point
[1 Mark]

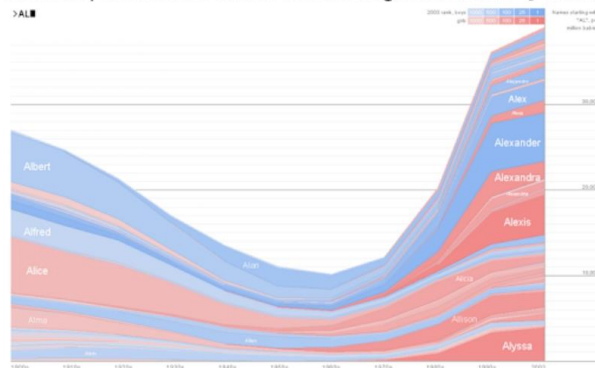
Mark only one oval.

- ☐ Scatterplot
- ☐ Bar Chart
- ☐ Grouped Bar Chart
- ☐ Line Chart

18. *

2 points

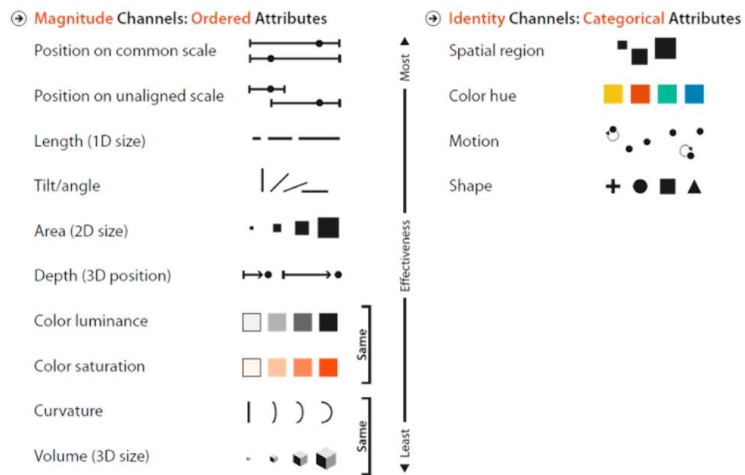
How many channels are used in the following visualization? [2 Mark]



Mark only one oval.

- ☐ 2 channels
- ☐ 3 channels
- ☐ 4 channels
- ☐ 5 channels

19. You have an attribute containing the **names of the departments** in your university. Which channel you will use to encode it based on the expressiveness principle? **[1 Mark]** * 1 point



Mark only one oval.

- ☐ Shape
- ☐ Area (2D Size)
- ☐ Position on a common scale
- ☐ Color Saturation

20. * 1 point

Which of the following is not an example of and **Ordinal** attribute. **[1 Mark]**

Mark only one oval.

- ☐ Cloth Sizes
- ☐ Grades
- ☐ Order Ids
- ☐ File Types

21. *

2 points

How many **channels** are encoded in the following visualization? **[2 Mark]**



Mark only one oval.

- ☐ Two channels
- ☐ Three channels
- ☐ Four channels
- ☐ Five channels

22. You have an attribute containing **names of the weekdays**. Which channel you will use to encode it based on the expressiveness principle? **[1 Mark]**

* 1 point

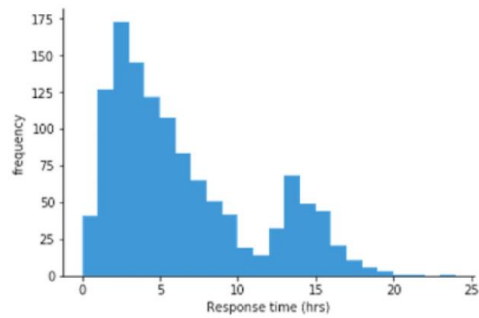
Mark only one oval.

- ☐ Spatial Region
- ☐ Color Hue
- ☐ Shape
- ☐ None of the above

23. *

1 point

What is the name of the following visualization? [1 Mark]



Mark only one oval.

- ☐ Bar Chart
- ☐ Stacked Bar Chart
- ☐ Histogram
- ☐ Area Chart

24. *

1 point

The term "glyph" in the context of information visualization is: [1 Mark]

Mark only one oval.

- ☐ Combination of marks
- ☐ Combination of channels
- ☐ Combination of both
- ☐ None of them

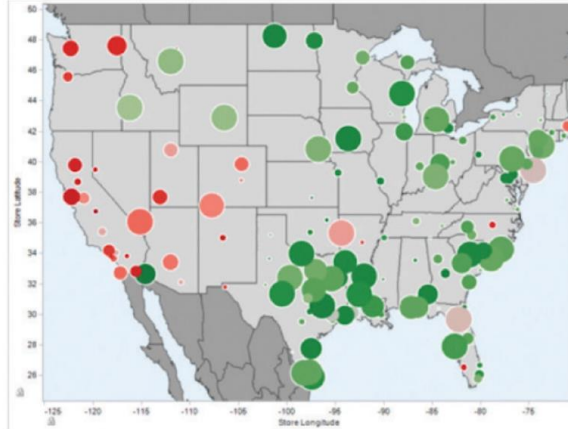
25. *

2 points

How many attributes are encoded in the following visualization?

[2 Mark]

Note: consider the position as two data attributes, i.e. latitude and longitude are separate.



Mark only one oval.

- ☐ 2 attributes
- ☐ 3 attributes
- ☐ 4 attributes
- ☐ 5 attributes

26. *

1 point

Which of the following is not a reason why our peripheral vision is poor? **[1 Mark]**

Mark only one oval.

- ☐ Low concentration of cones and rods in periphery.
- ☐ Cone cells in the periphery are connected 1:1 to the ganglion cells
- ☐ Data from periphery is compressed
- ☐ Half of the visual cortex processes data from periphery

27. *

1 point

Which of the following statements is true for the **Saturation** component of color? **[1 Mark]**

Mark only one oval.

- ☐ It represents the base color.
- ☐ It represents the amount of light in the color.
- ☐ It represents the intensity of color.
- ☐ All of the above.

28. *

1 point

Which of the following could not be an **item** in the **Geometry** dataset type? **[1 Mark]**

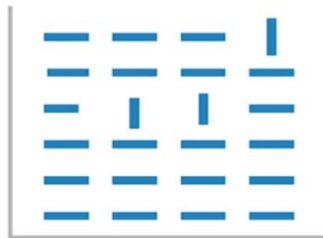
Mark only one oval.

- ☐ 2D Region
- ☐ Points
- ☐ Length
- ☐ Lines or Curves

29. *

2 points

How many **channels** are encoded in the following visualization? **[2 Mark]**



Mark only one oval.

- ☐ Two channels
- ☐ Three channels
- ☐ Four channels
- ☐ Five channels