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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1. Data may be classified by one of the four levels of measurement. What is the name of the lowest level?

|  |  |  |
| --- | --- | --- |
|   | a.  | interval |
|   | b.  | nominal |
|   | c.  | ordinal |
|   | d.  | ratio |
|   | e.  | simple |

|  |  |
| --- | --- |
| *ANSWER:* | b |

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|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| 2. Identify the variable in the information below.What is the average miles per gallon (mpg) for all new cars? Using Consumer Reports, a random sample of 35 new cars gave an average of 21.1 mpg.

|  |  |  |
| --- | --- | --- |
|   | a.  | number of new cars surveyed |
|   | b.  | cars |
|   | c.  | miles |
|   | d.  | miles per gallon |
|   | e.  | gallons |

|  |  |
| --- | --- |
| *ANSWER:* | d |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 3. Identify whether the variable in the information below is qualitative or quantitative.Government agencies carefully monitor water quality and its effect on wetlands (Reference: Environment Protection Agency Wetland Report EPA 832-R-93-005). Of particular concern is the concentration of nitrogen in water draining from fertilized lands. Too much nitrogen can kill fish and wildlife. Twenty-eight samples of water were taken at random from a lake. The nitrogen concentration (milligrams of nitrogen per liter of water) was determined for each sample.

|  |  |  |
| --- | --- | --- |
|   | a.  | quantitative |
|   | b.  | qualitative |
|   | c.  | qualitative as well as quantitative |
|   | d.  | neither qualitative nor quantitative |
|   | e.  | Information does not have any variable. |

|  |  |
| --- | --- |
| *ANSWER:* | a |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 4. Identify the implied population in the information below.Government agencies carefully monitor water quality and its effect on wetlands (Reference: Environment Protection Agency Wetland Report EPA 832-R-93-005). Of particular concern is the concentration of nitrogen in water draining from fertilized lands. Too much nitrogen can kill fish and wildlife. Twenty-eight samples of water were taken at random from a lake. The nitrogen concentration (milligrams of nitrogen per liter of water) was determined for each sample. The variable in this information is nitrogen concentration (mg nitrogen/1 liter of water).

|  |  |  |
| --- | --- | --- |
|   | a.  | number of fish |
|   | b.  | samples of water taken at random |
|   | c.  | none of these choices |
|   | d.  | nitrogen concentration (mg nitrogen/1 liter of water) in the entire lake |
|   | e.  | samples of water taken at random |

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| *ANSWER:* | d |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 5. Identify whether the variable in the information below is qualitative or quantitative.Government agencies carefully monitor water quality and its effect on wetlands (Reference: Environment Protection Agency Wetland Report EPA 832-R-93-005). Of particular concern is the concentration of nitrogen in water draining from fertilized lands. Too much nitrogen can kill fish and wildlife. Twenty-eight samples of water were taken at random from a lake. The nitrogen concentration (milligrams of nitrogen per liter of water) was determined for each sample. The variable in this information is nitrogen concentration (mg nitrogen/1 liter of water).

|  |  |  |
| --- | --- | --- |
|   | a.  | quantitative |
|   | b.  | qualitative |
|   | c.  | qualitative as well as quantitative |
|   | d.  | neither qualitative nor quantitative |
|   | e.  | none of these choices |

|  |  |
| --- | --- |
| *ANSWER:* | a |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 6. Identify the level of measurement corresponding to the data "Cost of rod and reel" associated with fishing.

|  |  |  |
| --- | --- | --- |
|   | a.  | interval |
|   | b.  | none of these choices |
|   | c.  | ratio |
|   | d.  | nominal |
|   | e.  | ordinal |

|  |  |
| --- | --- |
| *ANSWER:* | c |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 7. Use a random-number table to get a list of 10 random numbers between 1 and 99 beginning at row 2, block 2.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 65321 | 85623 | 10204 | 50218 | 20321 | 22315 |
| 98532 | 91972 | 39800 | 45670 | 20510 | 10451 |
| 92012 | 59826 | 35456 | 79289 | 91483 | 29754 |
| 45652 | 98653 | 45863 | 36963 | 15326 | 78952 |
| 45678 | 10100 | 91251 | 37041 | 13712 | 14672 |

|  |  |  |
| --- | --- | --- |
|   | a.  | 91 97 23 98 45 67 20 5 10 45 |
|   | b.  | 91 97 23 98 67 2 5 10 10 |
|   | c.  | 91 97 23 98 45 67 2 5 10 45 |
|   | d.  | 91 97 32 98 45 67 2 5 10 45 |
|   | e.  | 91 97 32 98 45 67 2 50 10 45 |

|  |  |
| --- | --- |
| *ANSWER:* | c |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8. Use a random-number table to simulate the outcomes of tossing a quarter 12 times beginning at row 1, block 4. Assume that the quarter is balanced (i.e., fair) and an even digit is assigned to the outcome heads (H) and an odd digit to the outcome tails (T).

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 65321 | 85623 | 10204 | 50218 | 20321 | 22315 |
| 98532 | 91972 | 39800 | 45670 | 20510 | 10451 |
| 92012 | 59826 | 35456 | 79289 | 91483 | 29754 |
| 45652 | 98653 | 45863 | 36963 | 15326 | 78952 |
| 45678 | 10100 | 91251 | 37041 | 13712 | 14672 |

|  |  |  |
| --- | --- | --- |
|   | a.  | T H H T H H H T H H H H |
|   | b.  | T H H T H H H T H T H T |
|   | c.  | T H H T H H H T H T T H |
|   | d.  | T H H T H H H H H T H H |
|   | e.  | T H H T H H H T H T H H |

|  |  |
| --- | --- |
| *ANSWER:* | e |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 9. Identify the sampling technique used in the following information.An important part of employee compensation is a benefits package that might include health insurance, life insurance, child care, vacation days, retirement plan, parental leave, bonuses, etc. Suppose you want to conduct a survey of benefits packages available in private businesses in Hawaii. You want a sample size of 100. Sampling technique used to get the sample size of 100 is described below.Group the businesses according to type: medical, shipping, retail, manufacturing, financial, construction, restaurant, hotel, tourism, other. Then select a random sample of  10 businesses from each sample type.

|  |  |  |
| --- | --- | --- |
|   | a.  | Systematic sample |
|   | b.  | Convenience sample |
|   | c.  | Stratified sample |
|   | d.  | Cluster sample |
|   | e.  | Simple random sample |

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| --- | --- |
| *ANSWER:* | c |

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| 10. Find the technique for gathering data in the study below.The Colorado Division of Wildlife imposed special fishing regulations on the Deckers section of the South Platte River. All trout under 15 inches had to be released. A study of trout before and after the regulations went into effect showed that the average length of trout increased by 4.2 inches after the new regulations.

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| --- | --- | --- |
|   | a.  | observational study |
|   | b.  | experiment |
|   | c.  | census |
|   | d.  | sampling |
|   | e.  | none of these choices |

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| --- | --- |
| *ANSWER:* | b |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 11. Find the technique for gathering data in the study below.An analysis of a sample of 31,000 patients from New York hospitals suggests that the poor and the elderly sue for malpractice at one-fifth the rate of wealthier patients (Journal  of the Medical Association).

|  |  |  |
| --- | --- | --- |
|   | a.  | census |
|   | b.  | sampling |
|   | c.  | simulation |
|   | d.  | experiment |
|   | e.  | none of these choices |

|  |  |
| --- | --- |
| *ANSWER:* | b |

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