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| Name: | ID #: | Section: |
|-------|-------|----------|

You have 40 questions. You have 120 minutes to solve the exam. Please mark all your answers on the answer sheet provided to you. Make sure that the answer sheet form matches the question form. You have to submit both question paper and answer sheet but **only answer sheets will be graded**. Good luck

Choose the **best answer** for each of the following questions:

1. The score on an IQ test is an example of which level of measurement
A) ordinal B) interval C) ratio D) nominal
2. In a pie graph, if the blood type A represents $\frac{9}{72}$ of the distribution, how many degrees would be needed to represent A?
A) 9° B) 45° C) 8° D) 72°
3. Nursing Supervisors are selected using random numbers in order to determine annual salaries. This is an example of
A) systematic sampling B) stratified sampling C) random sampling D) cluster sampling
4. The average life expectancy in New Zealand is 78.49 years. This statement is an example of a(an)..... statistics
A) descriptive B) quantitative C) qualitative D) inferential
5. The data set that is collected over a period of time can be best represented by a (an) ...
A) pie graph B) ogive C) histogram D) time series graph
6. Nationality represents a
A) quantitative variable C) qualitative variable
B) discrete variable D) continuous variable
7. In the relationship between the number of studying hours and an exam grade, the number of studying hours is assumed to be
A) independent variable C) confounding variable
B) nominal variable D) dependent variable
8. In a frequency distribution, if the relative frequencies are 0.20, 0.28, X and 0.16, then the relative frequency X is
A) 0.46 B) 0.63 C) 0.64 D) 0.36

The following table shows the distribution of the blood type for 32 students:

| | | | | |
|-----------|---|----|---|----|
| Classes | A | B | O | AB |
| Frequency | 5 | 10 | 8 | 9 |

9. The mode value is
A) 10 B) B C) AB D) cannot be calculated
10. The mean value is
A) 8 B) 2 C) B D) cannot be calculated
11. A negative relationship between two variables means that for the most part ,as the X variable increases, the Y variable
A) increases B) equals X C) remains the same D) decreases
12. If the value $X=6$ has a z-score of **-0.50** in a data set, then the mean
A) is 6.00 B) is 6.50 C) is 5.50 D) cannot be determined from the given data
13. Which measures are mostly affected by outliers?
A) Mean and median B) Mean and mode C) Mode and midrange D) Mean and midrange
14. Which one of the following is referred to as a statistic?
A) The population data C) The sample mode
B) The population mean D) The sample data

In the study of relationship between the number of absences X and the final grade Y of 6 students in the statistic class, the data are shown as follows

$$\sum X = 42, \sum Y = 470, \sum XY = 3143, \sum X^2 = 354 \text{ and } \sum Y^2 = 37358$$

answer the following two questions:

15. The slope of the regression line is
A) 3.45 B) -2.45 C) -3.45 D) 2.45
16. The correlation coefficient is
A) -0.82 B) 1 C) 0.92 D) 0.82
17. Determine the number of all possible outcomes of guessing the last two digits in a telephone number if repetition of digits is allowed.
A) 20 B) 30 C) 100 D) 1000

18. A committee of 4 people is to be formed from 6 doctors and 8 engineers. Find the probability that the committee will consist of at least two doctors.
 A) 0.41 B) 0.83 C) 0.59 D) 0.17
19. If the Spearman rank correlation coefficient (r_s) equals 0.6, then the relationship can be described as
 A) weak and linear C) positive, strong and non linear
 B) moderate and non linear D) positive, moderate and linear
20. How many different ways can 4 tickets be selected from 10 tickets if each ticket wins a different prize?
 A) 120 B) 5040 C) 270 D) 720
21. The probability that a student has a computer is 0.91 and the probability that he has a car is 0.49 while the probability that he has either a computer or a car is 0.94. Find the probability that the student has both.
 A) 0.84 B) 0.46 C) 0.43 D) 0.05

The table below shows the number of earned degrees in the year 2008 in a university by level and gender. A person who earned a degree in the year 2008 from this university is randomly selected. Use this problem to answer the following two questions

| | | | |
|-----------------|------------|------|--------|
| | | Male | Female |
| Level of Degree | Bachelor's | 300 | 200 |
| | Master's | 35 | 15 |

Find the probability of selecting someone who:

22. is a female given that the person earned a bachelor's degree.
 A) 0.67 B) 0.6 C) 0.4 D) 0.36
23. earned a master's degree or is a female
 A) 0.45 B) 0.64 C) 0.48 D) 0.7
24. The outcomes of each trial in a binomial experiment
 A) must be fixed B) are dependent C) are unlimited D) are independent
25. A box contains 3 red balls and 5 black balls. 4 balls are selected with replacement. The standard deviation of the number of red balls that will be obtained is
 A) 0.968 B) 4 C) 0.938 D) 5
26. A die is rolled 5 times. the probability of getting a number 4 one time only is
 A) 0.015 B) 0.386 C) 0.167 D) 0.402
27. If X is a discrete random variable with $\sum [X^2 P(X)] = 6$ and $E(X) = 2$. The variance for the probability distribution of X is
 A) 1.141 B) 4 C) 1.732 D) 2

Answer Key

1. B
2. B
3. C
4. A
5. D
6. C
7. A
8. D
9. B
10. D
11. D
12. D
13. D
14. C
15. B
16. A
17. C
18. C
19. D
20. B
21. B
22. C
23. A
24. D
25. A
26. D
27. D
28. C
29. C
30. D
31. A
32. D
33. B
34. A
35. C
36. C
37. B
38. B
39. B
40. D