Basic Course in Ornithology
Week 9 Assignment

1. Birds are reservoirs of the following diseases (choose two):
a). **Malaria**
b) Nipah Virus
c). **Influenza A virus**
d) COVID-19

2. Which disease caused a decline in endemic Hawaiian birds?
   a) Psittacosis;
   b) Avian flu
   c) **Malaria**
   d) Tuberculosis

3. Avian pox is transmitted by:
   a) **Mosquitos**
   b) Water
   c) Air
   d) Food

4. What factors could drive avian influenza outbreak (Choose two)
   a) **Poultry**
   b) Lack of surveillance
   c) **Lack of biosecurity**
   d) Egg consumption

5. Climate change is affecting
   a) Bird breeding phenology
   b) Mosquito emergence
   c) Disease ecology
   d) **All the above**

6. Vulture declines in South Asia are caused by:
   a) **Certain veterinary drugs**
   b) Malaria
   c) Avian influenza
   d) Pollution

7. Malaria-like disease in birds is caused by (Select two)
   a) **Culex quinquefasicatus**
   b) Aedes aegypti
   c) **Culicoides**
   d) Anopheles

8. Suppose your dataset contains the names of different species found in a place. What type of data is this?
   a. **Categorical**
   b. Ordinal
   c. Interval
   d. Circular

9. The true population value is called the _____ and the value we calculate from our sample is called the _____.
   a. mean, variance
   b. variance, mean
   c. estimate, parameter
   d. **parameter, estimate**

10. As a measure of central tendency, what makes the median more robust than the mean?
   a. The median tends to overestimate the true central tendency
   b. The median is more sensitive to a few extreme data points
   c. **The median is less sensitive to a few extreme data points**
   d. Because the median tends to fall away from the thicker part of the frequency distribution

11. In a distribution of bird body masses, if the 30th percentile lies at 10g, and the 80th percentile lies at 20g, then what fraction of the population DOES NOT lie between 10g and 20g in mass?
   a. 30%
   b. 40%
   c. **50%**
   d. 70%

12. Which quantiles contain the central 70% of a distribution of data?
   a. 0.025 and 0.975
   b. 0.05 and 0.95
   c. 0.3 and 0.7

b. 0.15 and 0.85

13. Which of these quantities decreases as the sample size increases?
    a. Mean
    b. Variance
    c. Standard Error
    d. All of these

14. "The distribution of sample means approximates a normal distribution as the sample size gets larger and especially if the underlying distribution of data is not too asymmetrical." This statement describes:
    a. Foucault's pendulum
    b. The Central Statistics Assumption
    c. The Normal Conjecture
    d. The Central Limit Theorem

15. The confidence interval is a measure of?
    a. The precision of the estimate
    b. The probability of making a mistake
    c. The deviation of the data points from the regression line
    f. The amount of bias in the data

16. If the distribution of body weights of peafowl follows a normal distribution with mean of 250gm and standard deviation of 50gm, then what Z score would an individual with a weight of 350gm have?
    a. -2
    b. -1
    c. +1
    d. +2

17. If our sample data follow a normal distribution with mean of 10 and standard deviation of 2, then what would be the value that divides the data into the lower 97.5% and the upper 2.5%?
    a. 10 - (1.65 x 2)
    b. 10 + (1.65 x 2)
    c. 10 - (1.96 x 2)
    d. 10 + (1.96 x 2)

18. If you needed your study to have a 95% confidence interval of 10gm from lowest to highest value (eg 50-60gm or 75-85gm), and your pilot study found a standard deviation of 25 then what would your sample size need to be in your final study?
    a. Roughly 25
    b. Roughly 50
    c. Roughly 100
    d. Roughly 250

19. We carry out a regression analysis between Number of Species (N) and Size of Forest Fragment in hectares (S), and come up with this equation for the best-fit line: N = 2.5 + 3xS. What is the predicted difference in the Number of Species between two Forest Fragments of size 1 hectare versus 5 hectares?
    a. 2.5 species
    b. 3 species
    c. 12 species
    d. 15 species

20. In a regression analysis of the relationship between Y and X, you calculate an R-square of 0.8. This implies that:
    a. With every unit increase in X there is a 0.8 increase in Y
    b. With every unit increase in Y there is a 0.8 increase in X
    c. 80% of the variation in Y is explained by X
    d. The correlation coefficient is 0.8