Sample Questions-Descriptive (AEB)

1. Describe the theories of cell aging. Describe the Na-K ATPase pump with diagram. Describe the process of clathrin formation.
2. Comment on Danielli-Davson model. Explain facilited diffusion with example. Give the biosynthesis of Glycine. What is Decarboxylation? Give the features of Transmethylation.
3. Define substitution mutation with sub types. Draw a diagram of Okazaki fragment formation. Comment on role of DnaA & DnaB protein in DNA replication. Define Mutation & mutagenic agent. Comment on pyrimidine dimer formation.
4. Give the classification of the enzymes with suitable examples. Explain the enzyme-substrate complex reaction. What is optical specificity and the substrate specificity? Explain feedback inhibition?
5. Write in brief about the impacts of pesticides on biotic environment. Extensive use of chemical fertilizers deteriorates the soil environment. Justify the statement with your answer.
6. What is grasshopper effect? Provide an example. What is temperature inversion? How does it affect air pollution? What are acute and chronic health effects of air pollution?
7. What are important trace elements influencing crop productivity? Write in short the deficiency symptoms of boron and molybdenum and suggest possible corrective measure.
8. (a) Consider a set of 10 observations such that the sum of squares of all the observations is 100. The minimum of the set is 1 and the maximum is 40. When these two observations are removed, the mean of the new set remains the same. Examine what happens to the following measures:
   (i) median
   (ii) standard deviation

   (b) Consider the following bivariate data on (X, Y)

X	0	-1	-1	2	-2
Y	0	-1	-1	-4	-4

   Calculate the correlation coefficient between X and Y. Comment on the nature of relationship between X and Y
9. For any positive number a, show that the mean and the standard deviation of the numbers 0 and a are equal. What will be the results if a is a negative number?
10. In order to study the relationship between temperature and rainfall, data were collected on the average temperature in the Celsius scale (x) and rainfall (y) for 30 consecutive days. The standard deviation of x was 5° C and the correlation between x and y was 0.35. Suppose the temperatures are converted to the Fahrenheit scale (z). Find:
    a) the variance of z.
    b) the correlation between x and z.
    c) the correlation between y and z.