

- C. Homology also refers to divergent evolution.
- D. Analogous structures develop due to the fact that different unrelated groups of organism evolved under similar environmental conditions.

Which of the above possibilities correctly explain the evolutionary process?

1. A, C and D
2. A and B
3. B, C and D
4. A, B, C and D

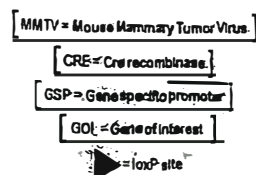
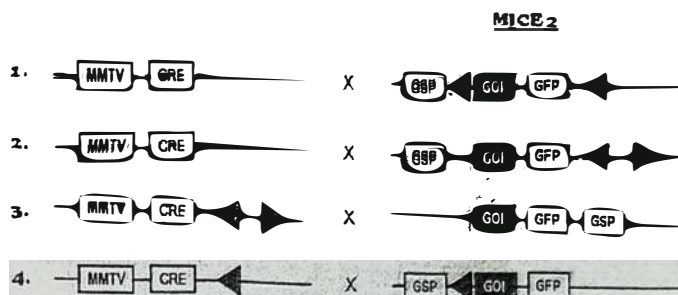
137. Following are some statements related to raising transgenic plants

- A. T-DNA of *Agrobacterium* contains oncogenes and opine synthesis genes
- B. All 8 operons present in vir region of *Agrobacterium* is essential for virulence
- C. The CaMV35S RNA promoter is a very strong constitutive promoter used in plant transformation
- D. Conjugative transfer (oriT or tra) region functions in conjugative transfer of the Ti-plasmids

Which one of the following combinations of above statements is correct?

1. B, C and D
2. A, C and D
3. A, B and D
4. A, B and C

In order to create an animal whose prostate gland is devoid of the p53 gene, engineered animals were created by cloning specially designed knock-out cassettes. Identify the most appropriate cassette combination for creating the knock out animal by breeding.



139. Microorganisms having nitrilase activity can be enriched from soil samples by supplying nitriles as the sole nitrogen or carbon source in the growth medium. A problem with this approach is that false-positive strains may be isolated, which use nitriles to produce amide with the help of a different enzyme activity such as

1. phosphorylases
2. phosphatases
3. hydratases
4. phosphoesterases

140.

The average size of human genome is about 3.2×10^9 base pairs. Considering 60% of it is made up of A-T base pairs, what will be the frequency of the following restriction sites to be present in human genome in high to low order?

X = 5'-GAATTC-3'
Y = 5'-ACCGGT-3'
Z = 5'-CGCG-3'

1. X > Y > Z
2. Z > X > Y
3. Y > Z > X
4. Z > Y > X