BIOLOGY

Class-6

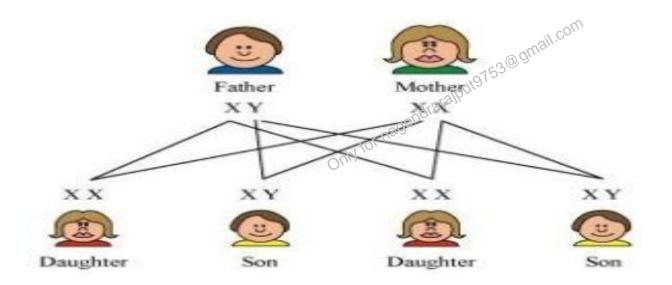
Consider the following statements:

- 1) Adenoviruses have single-stranded DNA genomes whereas retroviruses have double-stranded DNA genomes.
- 2) Common cold is sometimes caused by an adenovirus whereas AIDS is caused by a retrovirus.

Which of the statements given above is/are correct?

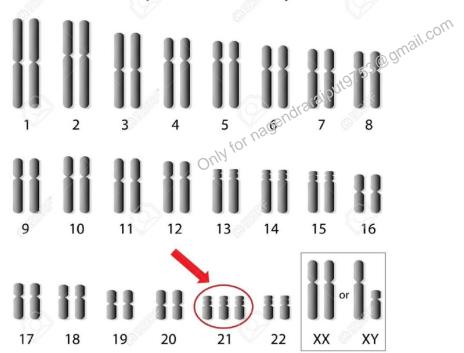
- a) 1 Only
- b) 2 Only
- c) Both 1 and 2
- d) Neither 1 nor 2

SEX DETERMINATION

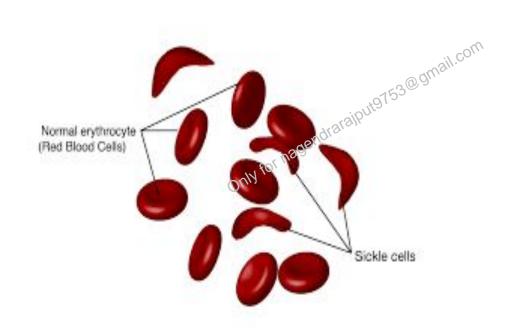


GENETIC ABNORMALITIES

Down Syndrome - Trisomy 21



GENE DEFECTS

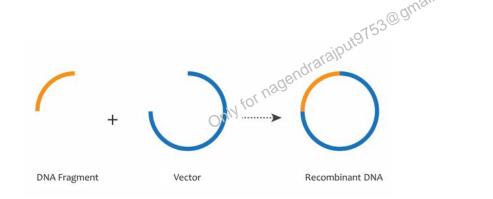


In the context of genetic disorders, consider the following:

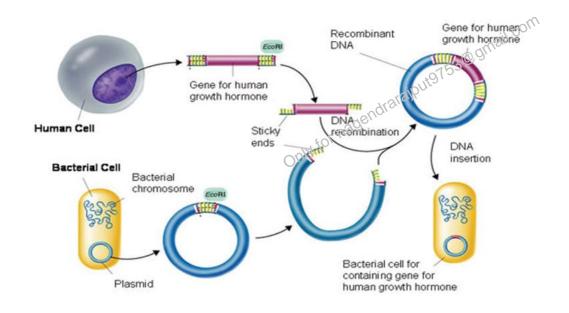
A woman suffers from colour blindness while her husband does not suffer from it. They have a son and a daughter. In this context, which one of the following statements is most probably correct?

- A. Both children suffer from colour blindness.
- B. Daughter suffers from colour blindness while son does not suffer from it.
- C. Both children do not suffer from colour blindness.
- D. Son suffers from colour blindness while daughter does not suffer from it.

BIOTECHNOLOGY



RECOMBINANT DNA TECHNOLOGY



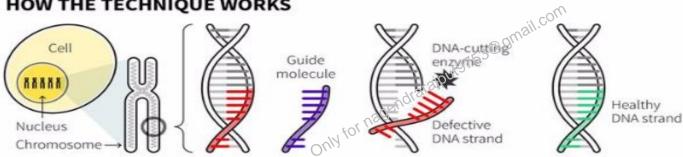
Recombinant DNA technology (Genetic Engineering) allows genes to be transferred

- 1. across different species of plants
- 2. from animals to plants
- 3. from microorganisms to higher organisms
 Select the correct answer using the codes given below.
- (a) 1 only
- (b) 2 and 3 only
- (c) 1 and 3 only
- (d) 1, 2 and 3

DNA editing

A DNA editing technique, called CRISPR/Cas9, works like a biological version of a word-processing programme's "find and replace" function.

HOW THE TECHNIQUE WORKS



A cell is transfected with an enzyme complex containing: Guide molecule Healthy DNA copy

DNA-cutting enzyme

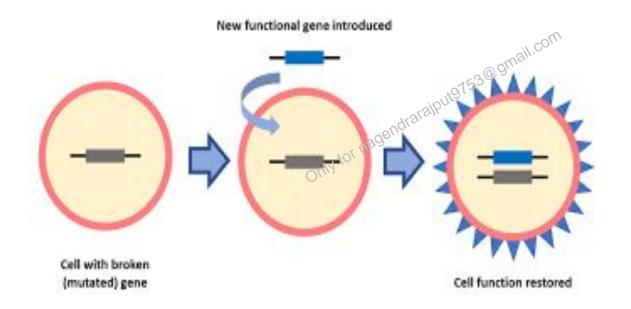
A specially designed synthetic guide molecule finds the target DNA strand.

An enzyme cuts off the target DNA strand.

The defective DNA strand is replaced with a healthy copy.

Sources: Reuters; Nature; Massachusetts Institute of Technology

GENE THERAPY





ANIMAL CLONING

