

# BIOTECHNOLOGY

## PART-I

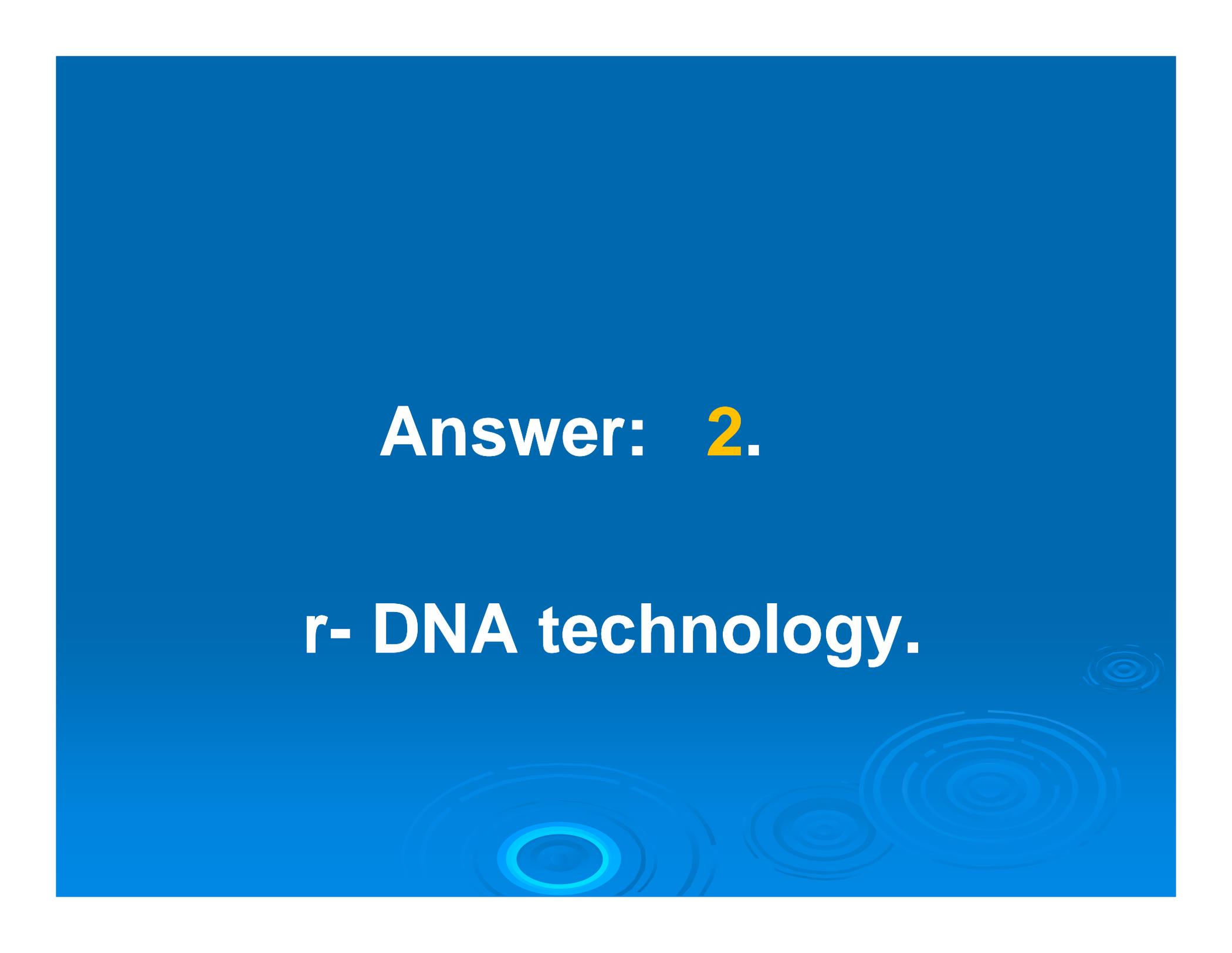


**1. *In vitro* manipulation of gene to get desired product is called**

- **1. genetic finger printing.**
- **2. r- DNA technology.**
- **3. gene therapy.**
- **4. gene cloning.**

**Answer: 2.**

**r- DNA technology.**



## **2. *Genome may be defined as***

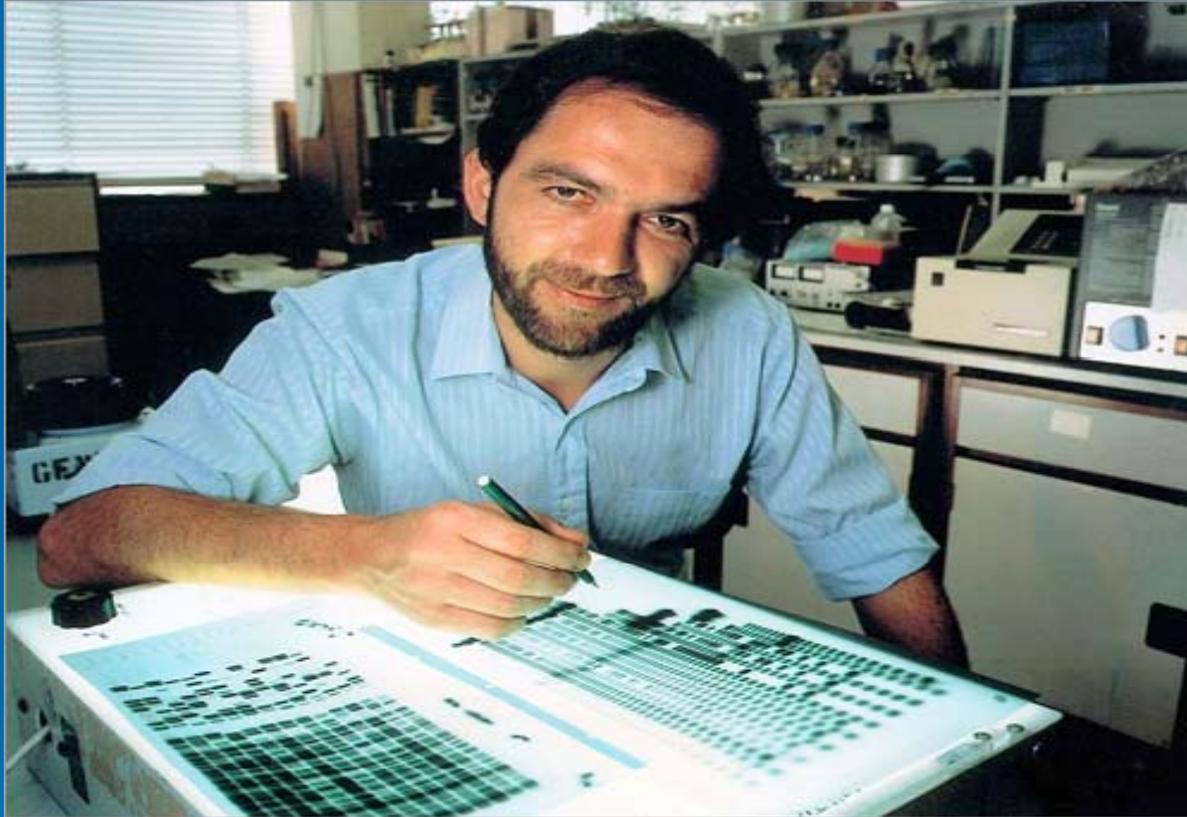
- **1. The Superiority of the hybrid over the parents.**
- **2. The Production of large number of identical copies of desired gene.**
- **3. The Number of genes present in the haploid set of chromosomes.**
- **4. The replacement of defective gene by the normal gene**

**Answer: 3.**

The Number of genes present  
in the haploid set of  
chromosomes

### **3. *The technique of DNA finger printing is developed by***

- **1. Alec Jeffreys.**
- **2. Karl Erekey.**
- **3. French Anderson**
- **4. Watson**



Answer: 1. Alec Jeffreys.

4. Match the enzymes in  
Column I  
with their activities in  
Column II  
and choose the answer with the  
correct combination of alphabets.



## Column I

## Column II

- |                                  |   |
|----------------------------------|---|
| <b>A</b> - transcriptase         | <b>P</b> -join two DNA fragments                |
| <b>B</b> - ligase                | <b>Q</b> - Synthesise RNA using DNA             |
| <b>C</b> - REN                   | <b>R</b> - Synthesise copies of DNA using RNA   |
| <b>D</b> . Reverse transcriptase | <b>S</b> -Cut single stranded DNA               |
|                                  | <b>T</b> -cut duplex DNA at Specific nucleotide |

# CHOOSE

- **1.** A=Q ,B=P,C=T,E=R
- **2.** A=P ,B=T,C=R,D=S
- **3.** A=S ,B=T,C=P,D=Q
- **4.** A=T ,B=P,C=S,D=Q

# Answer

➤ 1, A-Q, B-P, C-T, E-R

## **5. 'ELISA' IS A TECHNIQUE OF**

- 1. Used in plant tissue culture**
- 2. For detection of antibody or antigen of interest in a sample**
- 3. Of transferring DNA fragments to nitrocellulose sheet**
- 4. Of introducing DNA into eukaryotic cells**

## Answer 2.

For the detection of antibody or antigen of interest in a sample



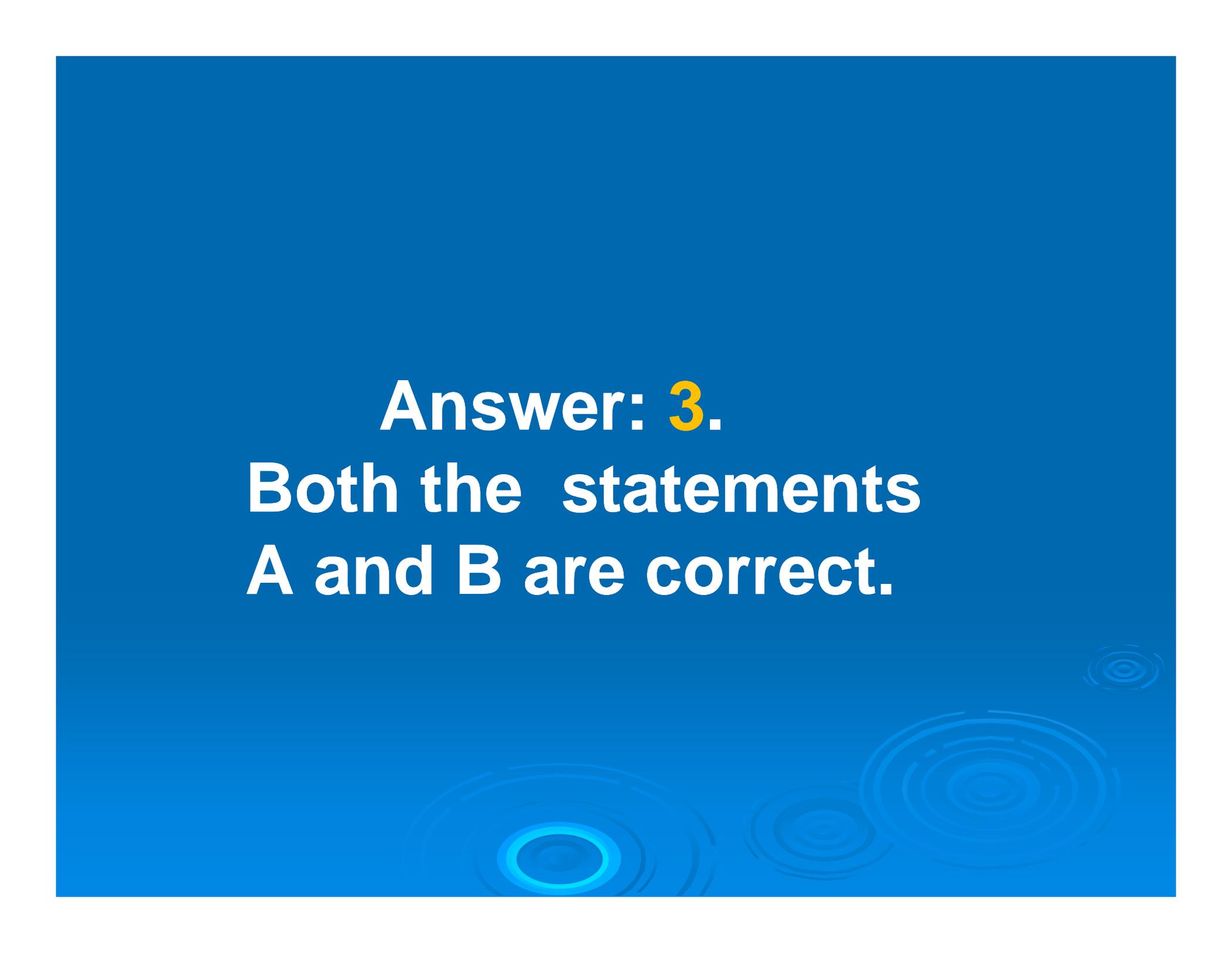
**6.** *Choose the correct answer with reference to the Statements A & B*

- **A.** Junk DNA portion contain some repeated sequences of base pairs
- **B.** VNTR is also one of the supporting factors of DNA finger printing technique

## Choose:

- **1.** Statement A is correct and B is wrong.
- **2.** Statement B is correct and A is wrong
- **3.** Both the statements A and B are correct
- **4.** Both the statements are incorrect.

**Answer: 3.**  
**Both the statements  
A and B are correct.**

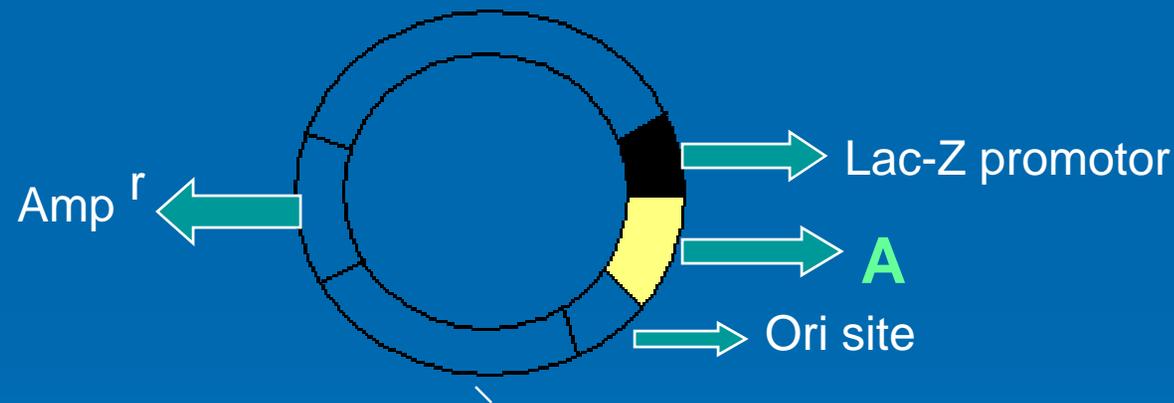


*7. Which following aspect is not connected to DNA finger printing technique*

- 1. Gel electrophoresis
- 2. Southern blotting
- 3. PCR
- 4. Reverse Transcription

**Answer: 4.**  
Reverse Transcription

8. The following diagram indicates the plasmid pUC-18. Identify the part labelled as A, choose the correct option



1. Regulator site
2. Operator site
3. Multiple cloning site
4. Inducer site

**Answer: 3.**

Multiple cloning site



**9.** *The genetic disease successfully treated through gene therapy for the first time in*

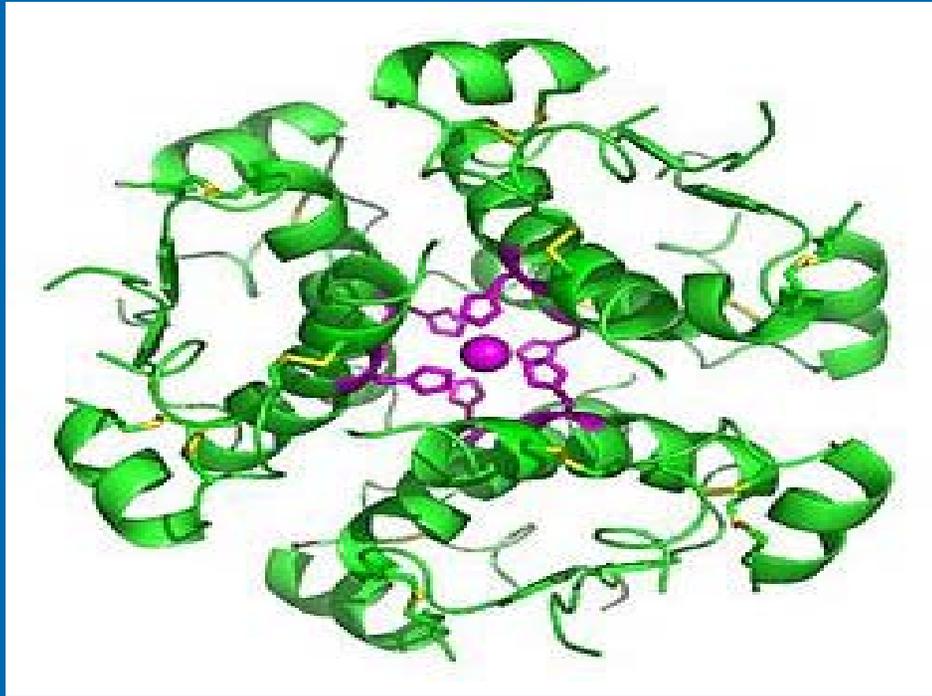
- **1.** Diabetes mellitus
- **2..** Cancer
- **3..** AIDS
- **4..** SCID

Answer: 3.. SCID



**10. Which one of the following statements true with 'Humulin'?**

- 1. A Protein consisting of 3 polypeptide chains of Alpha, Beta and Gamma.**
- 2. Alpha chain having 30 and Beta chain having 21 Amino acids**
- 3. Proinsulin has two extreme chains (Alpha, & Beta) There is a mid region in between. This mid region is denatured using trypsin**
- 4. The immediate precursor of insulin is called preproinsulin**



**Answer: 3.**

**Proinsulin has two extreme chains (Alpha, & Beta) There is a mid region in between. This mid region is denatured using trypsin**

***11. Restriction  
endonuclease cut DNA at  
a specific site called***

- **1 Ligation site**
- **2 Orisite**
- **3 Recognition site**
- **4 Replication site**

**Answer: 3.** Recognition site



**12.** *Which one of the following is a hybrid vector*

- **1 Prion**                      **2 Plasmid**
- **3 Cosmid**                      **4 Viroid**

**Answer: 3**

**Cosmid**



## **13.** *RFLP is*

- **1** Random fragment lytic polymorphism
  - **2** Random free length polymorphism
  - **3** Restriction fragment length polymorphism
  - **4** Restriction fragment lytic polymorphism
- 

**Answer: 3** Restriction fragment  
length polymorphism



**14. The Plasmid PBR-322  
is obtained from the  
bacterium**

- **1** *Saccharomyces cerevisiae*
- **2** *Escherichia coli*
- **3** *Agrobacterium tumefaciens*
- **4** *Pseudomonas putida*



Answer: **2** *Escherichia coli*

## **15.** *Satellite DNA refers to*

- **1** Experimental DNA introduced into other planets
- **2** DNA with balloon like projections
- **3** Traces of DNA seen on Mars
- **4** The part of the DNA, containing repeated sequences

**Answer: 4**

The part of the DNA,  
containing repeated sequences

**16.** *Transfer of recombinant plasmid into E.coli is done using*

- **1** Viruses
- **2** Gene injection
- **3** Microsyringes
- **4**  $\text{CaCl}_2$  treatment

**Answer: 4**  
**CaCl<sub>2</sub> treatment**

**17.** *The resulting hybrid cell after the fusion of myeloma cells with antibody producing WBC (B-lymphocytes) is*

- 1 Explant      2 C-DNA
- 3 Plasmid      4 Hybridoma

**Answer: 4 Hybridoma**



**18.** *Which one of the following statements is not correct with reference to HGP primary objectives*

- 1.** To identify all the approximate 30,000 genes in human DNA
- 2.** To determine the sequence of the 3 billion base pairs that make as human DNA
- 3.** To produce disease resistant human beings
- 4.** To address ethical, legal & social issues that may arise from the project

**Answer: 3.**

To produce disease resistant  
human beings



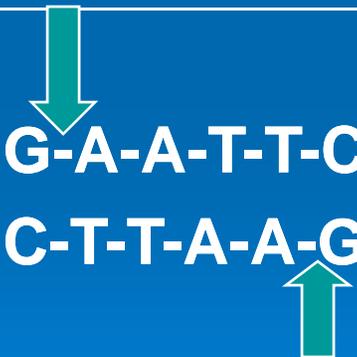
**19.** *Genetic engineering programme also involves the production of multiple & identical copies of the selected gene, hence it is also called*

- **1** *Biotechnology*
- **2** *Gene-cloning*
- **3** *Gene therapy*
- **4** *DNA typing*

Answer: **2** Gene-cloning



**20.** *Fill up the correct one in the following table*

Restriction Endonuclease	Source	Target site (cuts at arrow)	Recognises (No of base Pairs)	Product
Eco R1	E.Coli R-13	 G-A-A-T-T-C C-T-T-A-A-G	6	

# *Choose*

- 1 2- base- long sticky ends
- 2 blunt ends
- 3 4-base-long sticky ends
- 4 only one sticky end

**Answer: 3**  
**4-base-long sticky ends**

**21.** *The sequence on each DNA strand is the same when read in the same direction (5'  3' direction) is called*

**1** C-DNA

**2** Palindrome

**3** Plasmid

**4** r-DNA

**Answer: 2 Palindrome**



**22.** *p UC-18 has \_ Kilobases*

➤ **1** 2.69 kb

➤ **2** 3.69 kb

➤ **3** 4.69 kb

➤ **4** 1.69 kb

Answer: 1 2.69 kb

**23.** *Production of Nitrogen fixing organism by incorporating \_\_\_ genes through genetic engineering*

**1** Onco

**2** Carcino

**3** Nif

**4** Proinsulin

**Answer: 3 Nif Genes**



**24.** *Which chemical is used to separate B-galactosidase & Proinsulin in a culture of hybrid protein during Synthesis of humulin?*

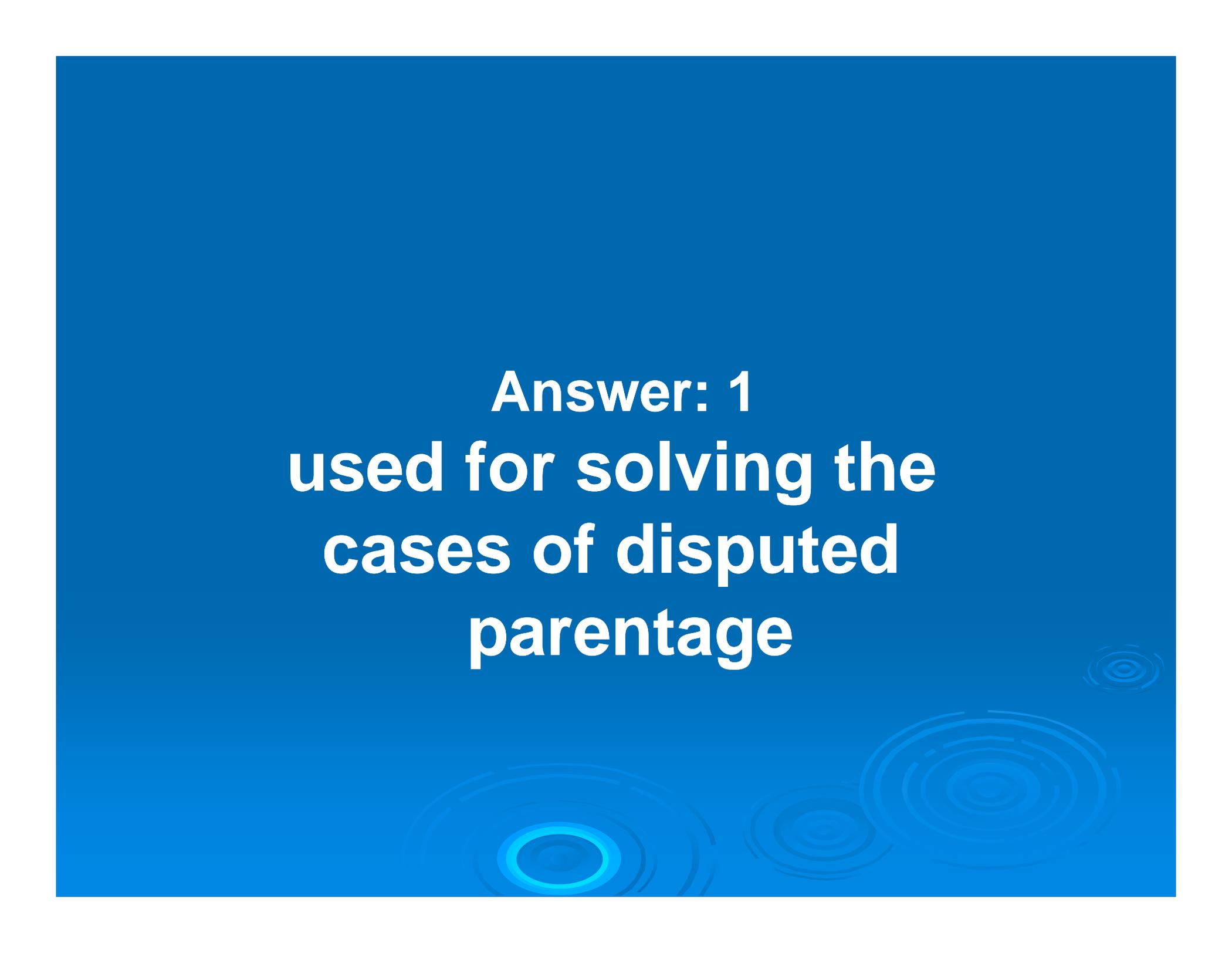
- 1** Trypsin
- 2** Carboxypeptidase
- 3** REN
- 4** Cyanogen bromide

**Answer: 4**  
**Cyanogen bromide**

**25** *Which one of the following statement is incorrect with reference to Monoclonal antibodies?*

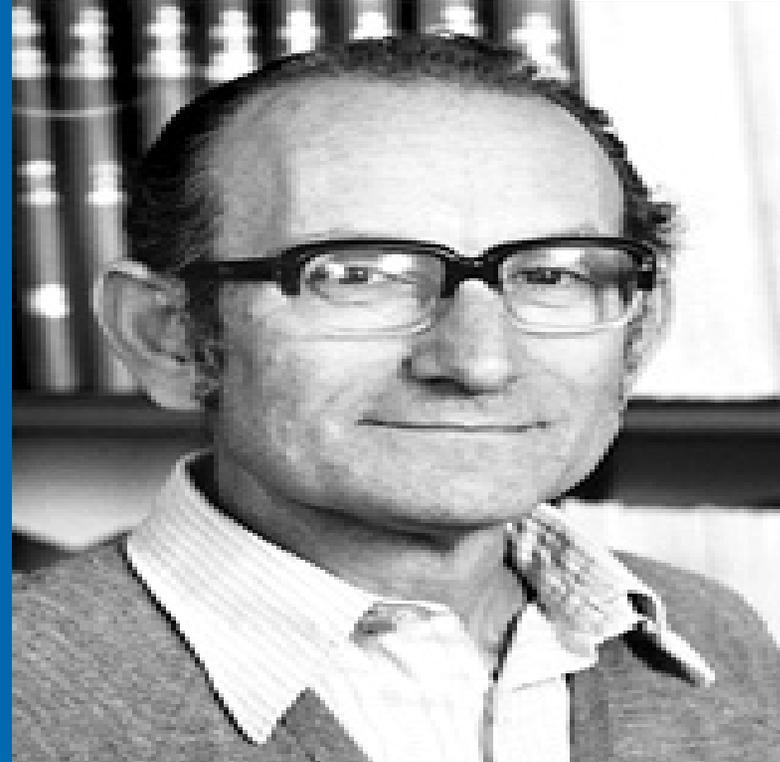
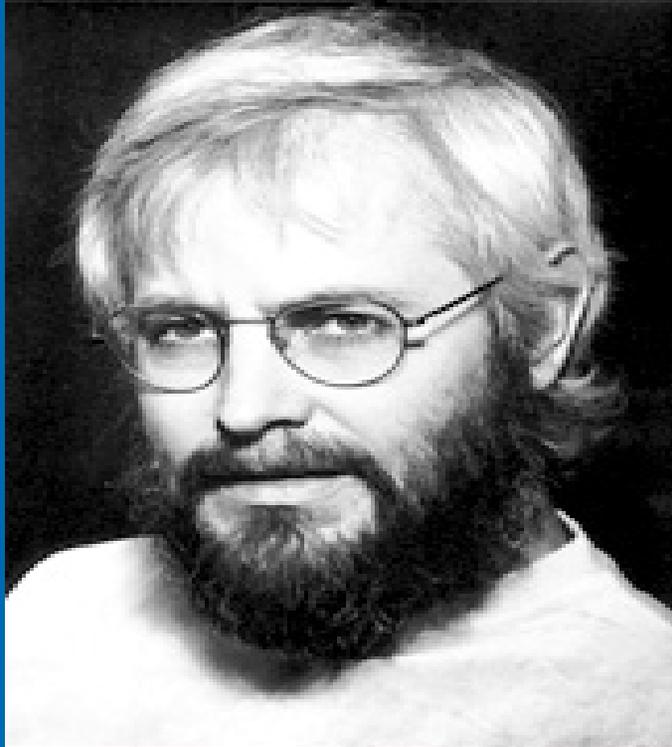
- 1** used for solving the cases of disputed parentage
- 2** used for detection of blood groups
- 3** used in ELISA test for diagnosing HIV infection
- 4** used in pregnancy test

**Answer: 1**  
**used for solving the**  
**cases of disputed**  
**parentage**



**26** *The hybridoma technique was developed by*

- **1** Watson & Crick
- **2** Kohler & Milstein
- **3** French Anderson
- **4** Alec Jeffreys



Answer: 2 Kohler & Milstein

**27** *The two DNA fragments obtained from two different sources by RENs are joined together by*

1. ptyalin
2. Amylopsin
3. Carboxypeptidase
4. DNA-Ligase

**Answer: 4 DNA-Ligase**



**28** *Identify the correct one  
with reference to  
result of Human genome project*

- 1** Genetic code is triplet
- 2** DNA is composed of 2 poly nucleotide chains
- 3** The back bone of the DNA Strand is made up of deoxyribose & phosphate groups
- 4** Chromosome-1 has maximum number of (2968) genes.

**Answer: 4**

Chromosome-1 has maximum  
number of (2968) genes

**29** *Which human chromosome has lowest number of genes?*

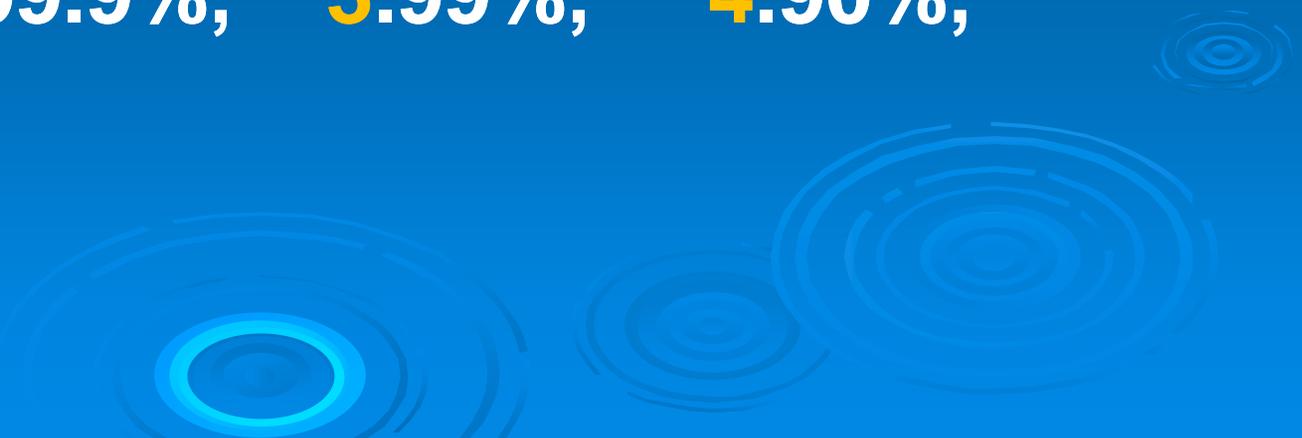
- **1** 22<sup>nd</sup> Chromosome
- **2** X- Chromosome
- **3** Y- Chromosome
- **4** 21<sup>st</sup> Chromosome

**Answer: 3 Y- Chromosome.**



**30** \_\_\_% of DNA does not differ from one to another with respect to humanbeings (according to HGPresult)

1.95% , 2.99.9%, 3.99%, 4.90%,



Answer: **2** 99.9%



**31** *E.coli* bacteria is a suitable host cell for gene cloning the reason for this is\_\_\_\_

- 1** They are easily available
- 2** They have self replicating property
- 3** They have plasmids
- 4** Its molecular biology is well understood & is non-pathogenic

**Answer: 4**

**Its molecular biology is well understood & non-pathogenic**



**32** *Myeloma cells cannot use thymidine in DNA synthesis, because*

- 1** They induce cytokinesis & morphogenesis
- 2** They lack thymidine kinase enzyme
- 3** They show uncontrolled growth
- 4** There is no cell differentiation(anaplasia)

**Answer: 2**

**They lack thymidine kinase enzyme**

**33** *Which one of the following biotechnological method you suggest to identify the victims of disaster like building collapse*

- 1** Gene cloning
  - 2** DNA typing
  - 3** Gene therapy
  - 4** R-DNA technology
- 

**Answer: 2 DNA typing**



## **34** *“Southern Blotting” technique is used for*

- 1** Transferring DNA fragments to nitro cellulose or nylon sheet
- 2** Separation of nucleic acids from a heterogeneous mixture
- 3** Synthesizing DNA from RNA template
- 4** Production of many genetic clones of the same plant

**Answer:1**

**Transferring DNA fragments  
to nitro cellulose or nylon  
sheet**

- **35** *The two cells are made to fuse under in vitro condition during McAb production in the presence of the chemical glue. This chemical glue is*

- 1** Ligase
- 2** REN
- 3** Polyethylene Glycol
- 4** Araldite

Answer: 3  
Polyethylene Glycol



**36** *Pick the correct answer with reference to statements A & B*

**A = *The human genome has about 3 billion base pairs but only 3% of this DNA function as genes***

**B = *VNTRs of a person are not inherited from the parents***

- 1 Statement A is wrong and B is correct.**
- 2 Statement A is correct and B is wrong.**
- 3 Both statements A and B are wrong.**
- 4 Both statements A and B are correct.**

**Answer: 2**

Statement A is correct  
and B is wrong

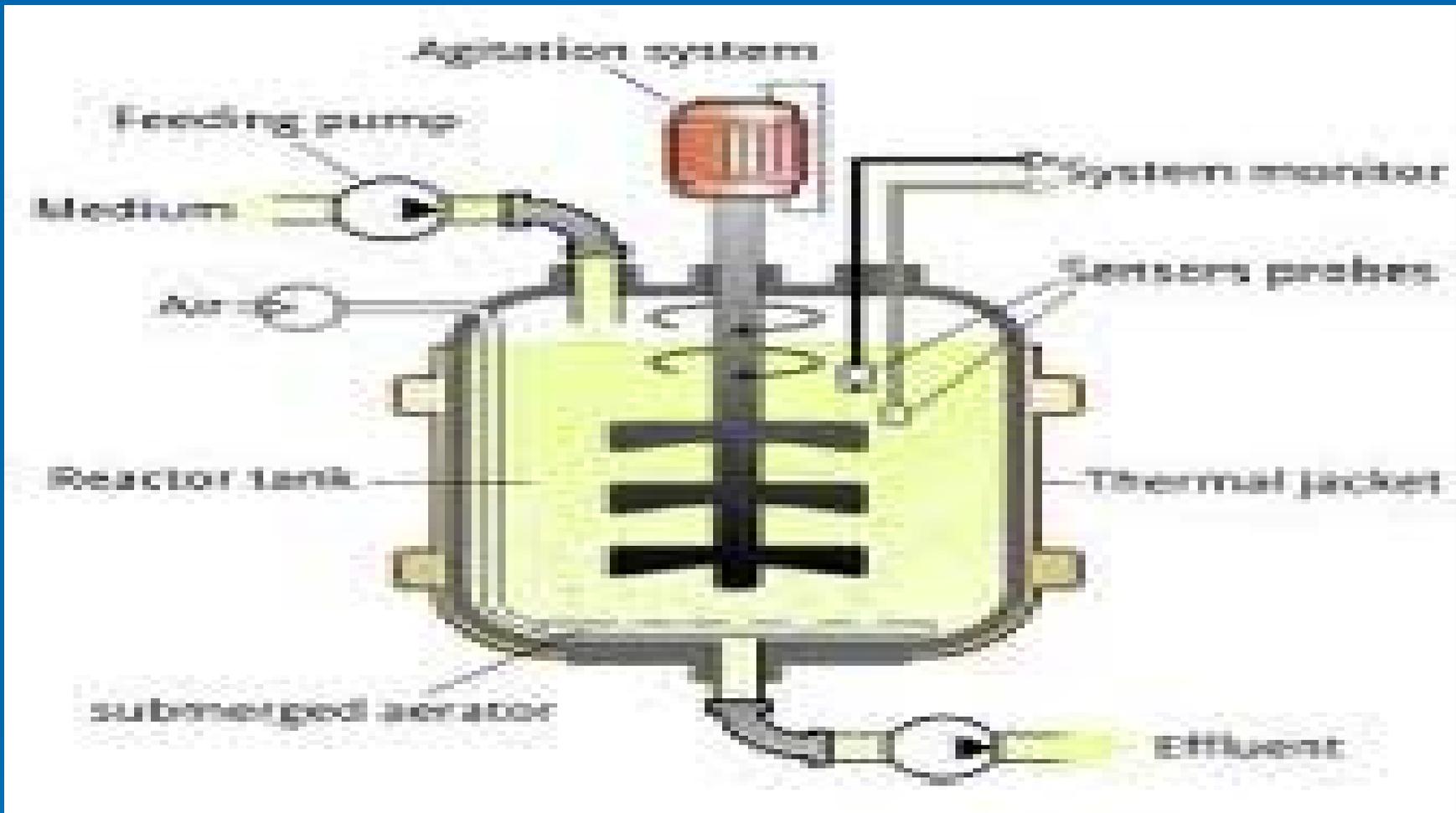
**37** *A Specially designed vessel or container to carryout biological reactions under controlled condition is called*

**1. Catalyser**

**2. vector**

**3. Molecular vehicles**

**4. bioreactor**



Answer: 4. bioreactor

**38** *Which one of the following is not a tool used in genetic engineering*

**1. Plasmid**

**2. Explant**

**3. REN**

**4. DNA-ligase**

**Answer: 2. Explant**



**39** *If the DNA of all Chromosomes in a single human cell is stretched, it would be about \_\_\_*

- **1.** More than 960 million km
- **2.** 2 meters
- **3.** 100 meters
- **4.** 10 meters

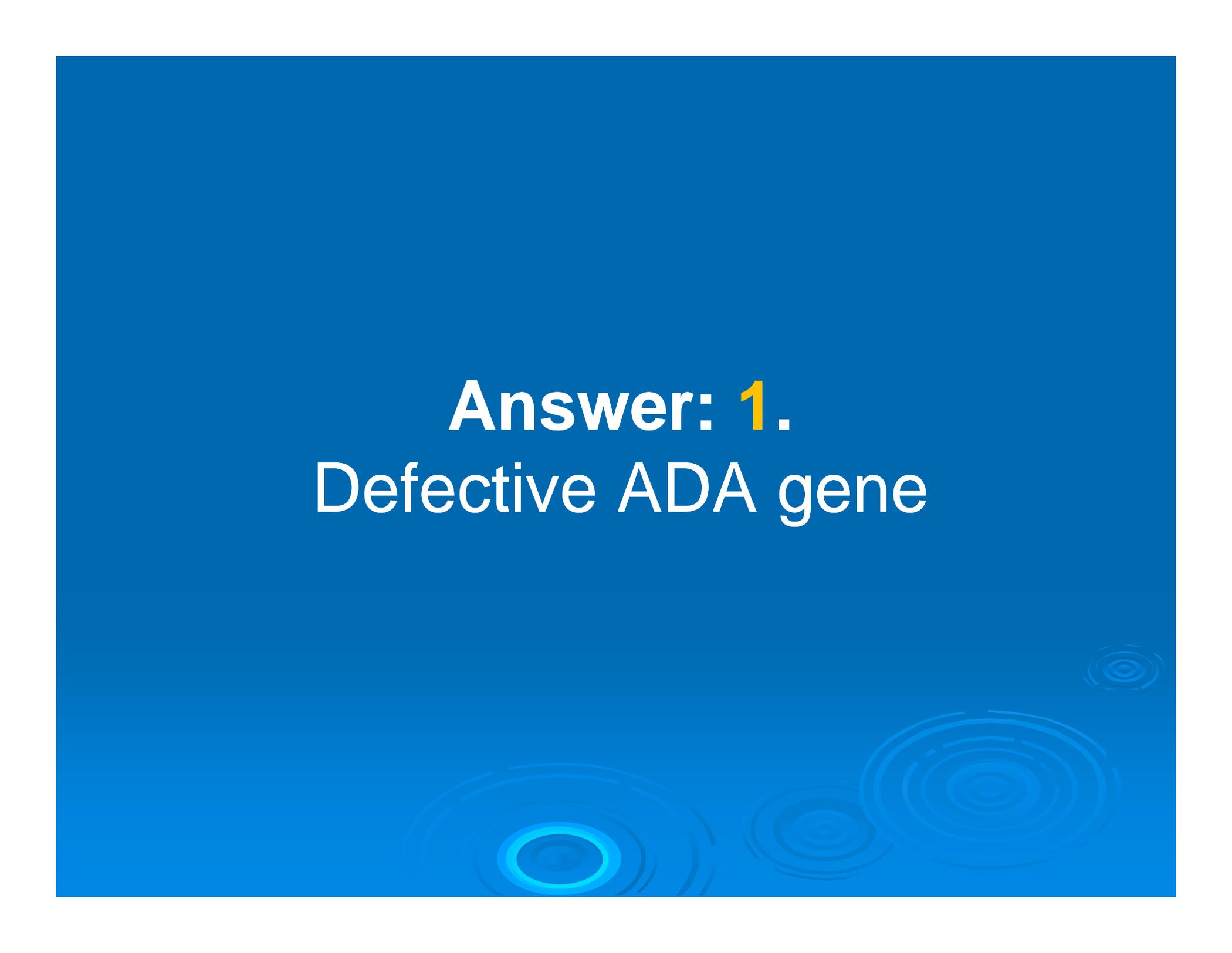
**Answer: 2**  
**2 meters**



**40** *Severe Combined Immuno  
Deficiency is caused by*

- **1.** Defective ADA gene
- **2.** ADH hormone
- **3.** Oxytocin hormone
- **4.** Insulin

**Answer: 1.**  
Defective ADA gene



**41** \_\_\_ *Company produced its first genetically engineered human insulin (humulin) in 1978.*

- 1. Genetec**
- 2. Biotech**
- 3. BARC**
- 4. CCMB**

**Answer: 1. Genetec**



**42.** *Gene for synthesizing proinsulin is obtained through*

- 1.** transformation
- 2.** transduction
- 3.** Conjugation
- 4.** Reverse transcription

**Answer: 4.**  
**Reverse transcription**

**THANK YOU**

