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QUIZZES

Practice Test-1 (Biotechnology)



10 Questions



7 min

Topics

Recombinant DNA technology, Polymerase Chain Reaction

SAEED MDCAT  
Start Quiz

SAEED MDCAT TEAM

f SAEEDMDCAT



1/10



7 min



Hint

Q : In biotechnology, cDNA is synthesized by:

A

Reverse transcriptase

B

Taq polymerase

C

Ligase

D

Restriction endonuclease

# SAEED MDCAT

## SAEED MDCAT TEAM



## SAEEDMDCAT

1

2

3

4

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7



Q

1/10



7 min



Hint

Q : In biotechnology, cDNA is synthesized by:

A

Reverse transcriptase

B

Taq polymerase

C

Ligase

D

Restriction endonuclease

# SAEED MDCAT

## SAEED MDCAT TEAM



## SAEEDMDCAT

1

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2/10



7 min



Hint

Q : A virus that can be used as vector for the insertion of gene into the bacterial cell is:

A

T phage

B

Retrovirus

C

Lambda phage

D

Tobacco mosaic virus

# SAEED MDCAT

## SAEED MDCAT TEAM



## SAEEDMDCAT

1

2

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4

5

6

7



Q

3/10



7 min



Hint

Q : These are natural extra-chromosomal circular DNA molecules present in bacteria:

A

Nucleoids

B

Plasmids

C

Chromatin bodies

D

Prophages

# SAEED MDCAT

## SAEED MDCAT TEAM



## SAEEDMDCAT

1

2

3

4

5

6

7



4/10



7 min



Hint

Q : Plasmids do not carry genes for:

A

Drug resistance

B

Fertility

C

Antibiotic resistance

D

Metabolism

# SAEED MDCAT

## SAEED MDCAT TEAM



## SAEEDMDCAT

1

2

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6

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Q

5/10



7 min



Hint

Q : All of the following constitute expression system for a foreign gene in biotechnology except:

A

Viruses

B

Bacteria

C

Plants

D

Animals

# SAEED MDCAT

## SAEED MDCAT TEAM



## SAEEDMDCAT

1

2

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7

06 : 37



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6/10



7 min



Hint

Q : Broken ends of two DNA strands are joined by:



Exonuclease



Endonuclease



DNA ligase



Gyrases

SAEED MDCAT

SAEED MDCAT TEAM



SAEEDMDCAT







7/10



7 min



Hint

Q : PCR requires primer sequence of about:

A

10 DNA bases

B

20 DNA bases

C

10 RNA bases

D

200 RNA bases

# SAEED MDCAT

## SAEED MDCAT TEAM



## SAEEDMDCAT

1

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8/10



7 min



Hint

Q : PCR can be used for all of the following EXCEPT:

A

Diagnosis

B

Phylogeny

C

Forensics

D

Chemotherapy

# SAEED MDCAT

## SAEED MDCAT TEAM



## SAEEDMDCAT

4

5

6

7

8

9

10



9/10



7 min



Hint

Q : Taq polymerase is used in:

A

Bacterial cloning

B

PCR

C

Gene sequencing

D

Recombinant DNA technology

# SAEED MDCAT

## SAEED MDCAT TEAM



## SAEEDMDCAT

4

5

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10



10/10



7 min



Hint

Q : All of the following are true regarding PCR except:

A

Taq polymerase is heat sensitive

B

Gene specific primers are required

C

Can create millions of DNA copies very quickly

D

Different steps involve different temperatures

# SAEED MDCAT

## SAEED MDCAT TEAM



## SAEEDMDCAT

4

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Correct



Unattempted



Incorrect



1/10

Q : In biotechnology, cDNA is synthesized by:



Reverse transcriptase



Taq polymerase



Ligase

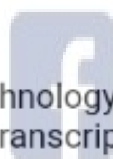


Restriction endonuclease

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Explanation

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SAEEDMDCAT

In biotechnology, the enzyme used for the synthesis of cDNA is reverse transcriptase.





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Correct



Unattempted



Incorrect



2/10

Q : A virus that can be used as vector for the insertion of gene into the bacterial cell is:



T phage



Retrovirus



Lambda phage



Tobacco mosaic virus

SAEED MDCAT TEAM

Explanation



SAEEDMDCAT

Bacteriophages are the viruses which insert their DNA into the bacterial host where it could integrate with the host genome and reside there without imposing any harm to the host. At this point viral DNA will be referred as prophage.



Correct



Unattempted



Incorrect



3/10

Q : These are natural extra-chromosomal circular DNA molecules present in bacteria:



Nucleoids



Plasmids



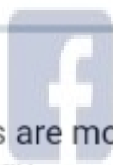
Chromatin bodies



Prophages

SAEED MDCAT TEAM

Explanation



SAEEDMDCAT

Plasmids are molecular vectors which are used in recombinant DNA technology.

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Correct



Unattempted



Incorrect



4/10

Q : Plasmids do not carry genes for:



A Drug resistance



B Fertility



C Antibiotic resistance



D Metabolism

SAEED MDCAT

Explanation

SAEED MDCAT TEAM



SAEEDMDCAT

Extra-chromosomal dsDNA and self-replicating

Contain antibiotic and drug resistant genes

Variable number (few to many)

Use as vectors in Recombinant DNA technology

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Correct



Unattempted



Incorrect



4/10

Q : Plasmids do not carry genes for:



A Drug resistance



B Fertility



C Antibiotic resistance



D Metabolism

# SAEED MDCAT

Explanation

## SAEED MDCAT TEAM

Extra-chromosomal dsDNA and self-replicating

Contain antibiotic and drug resistant genes

Variable number (few to many)

Use as vectors in Recombinant DNA technology



Correct



Unattempted



Incorrect



5/10

Q : All of the following constitute expression system for a foreign gene in biotechnology except:



Viruses



Bacteria



Plants



Animals

SAEED MDCAT TEAM

Explanation



SAEEDMDCAT

As viruses are obligate intracellular parasite and cannot make product from the genes in the laboratory that is why viruses cannot be used as an expression system in biotechnology.

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Correct



Unattempted



Incorrect



6/10

Q : Broken ends of two DNA strands are joined by:



Exonuclease



Endonuclease



DNA ligase



Gyrases

SAEED MDCAT

Explanation

SAEED MDCAT TEAM



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After the joining of gene of interest into the plasmid by complementary base pairing, they are permanently sealed by DNA ligase via making phosphodiester bond.

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Correct



Unattempted



Incorrect



7/10

Q : PCR requires primer sequence of about:



A 10 DNA bases



B 20 DNA bases



C 10 RNA bases



D 200 RNA bases

SAEED MDCAT

Explanation

SAEED MDCAT TEAM



SAEEDMDCAT

In-vivo primers: RNA nature, 10 Nucleotides and Synthesized by primase.

PCR primers: DNA nature, 20 Nucleotides and chemically synthesized.

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Correct



Unattempted



Incorrect



8/10

Q : PCR can be used for all of the following EXCEPT:



Diagnosis



Phylogeny



Forensics



Chemotherapy

SAEED MDCAT

Explanation

SAEED MDCAT TEAM



SAEEDMDCAT

PCR is a technique to amplify the DNA but in chemotherapy, drugs are used to treat a particular disease i.e. cancer.



Correct



Unattempted



Incorrect



9/10

Q : Taq polymerase is used in:



Bacterial cloning



PCR



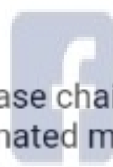
Gene sequencing



Recombinant DNA technology

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Explanation  
SAEED MDCAT TEAM



SAEEDMDCAT

Polymerase chain reaction is an in-vitro amplification of DNA inside an automated machine called thermocycler.



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Correct



Unattempted



Incorrect



10/10

Q : All of the following are true regarding PCR except:



Taq polymerase is heat sensitive



Gene specific primers are required



Can create millions of DNA copies very quickly

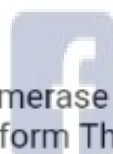


Different steps involve different temperatures

SAEED MDCAT

Explanation

SAEED MDCAT TEAM



SAEEDMDCAT

Taq polymerase (DNA polymerase) is a heat stable enzyme and is isolated from *Thermusaquaticus* (Archaeobacteria). It starts extension by adding nucleotides at the 3' end of specific primers.



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## QUIZZES

Practice Test-2 (Biotechnology)



10 Questions



7 min

Topics

Genomic Library, DNA Sequencing, DNA Analysis

**SAEED MDCAT**  
Start Quiz

SAEED MDCAT TEAM



SAEEDMDCAT





2/10



7 min



Hint

Q : Method for generation of different sized DNA fragments by using di-deoxyribonucleoside triphosphate is:



Maxam-Gilbert Method



Vortex-mixing method



Sanger's Method



Polymerase chain reaction

# SAEED MDCAT

## SAEED MDCAT TEAM



## SAEEDMDCAT

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1/10



7 min



Hint

Q : A genome is a full set of genes of a/an:



Population



Individual



Community



Species

# SAEED MDCAT

## SAEED MDCAT TEAM



## SAEEDMDCAT

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4/10



7 min



Hint

Q : Di-deoxyribonucleotides are used in Sanger's gene sequencing method because of \_\_\_\_\_ unique character.



A Presence of three phosphate group



B Absence of 2'-OH group



C Absence of 3'-OH group



D Presence of radioactive phosphorous

# SAEED MDCAT

## SAEED MDCAT TEAM



## SAEEDMDCAT

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3/10



7 min



Hint

Q : Di-deoxyribonucleoside triphosphates are used to terminate DNA synthesis at different site, which method involves this procedure?

A

Maxam-Gilbert's method

B

K.B Mullis's method

C

Sanger's method

D

Gottlieb's method

# SAEED MDCAT

## SAEED MDCAT TEAM



## SAEEDMDCAT

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6/10



7 min



Hint

Q : In Maxam-Gilbert method DNA threads are chemically cut into:



A Pieces of single nucleotides



B Pieces of oligonucleotides



C Pieces of different size fragments



D Pieces of polynucleotides

# SAEED MDCAT

## SAEED MDCAT TEAM



## SAEEDMDCAT

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5/10



7 min



Hint

Q : Chain terminating nucleotides are used in:

A

Recombinant method

B

Maxam-Gilbert method

C

Sanger method

D

Vortex method

# SAEED MDCAT

## SAEED MDCAT TEAM



## SAEEDMDCAT

1

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7/10



7 min



Hint

Q : DNA fragments are separated on \_\_\_\_\_ gel.



Agarose



Electrophoresis



Chitin



Wax

# SAEED MDCAT

## SAEED MDCAT TEAM



## SAEEDMDCAT

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06 : 47



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9/10



7 min



Hint

Q : DNA finger printing cannot apply on:



Sperm cell



Skin cell



Mature RBC



Hepatic cell

SAEED MDCAT

SAEED MDCAT TEAM



SAEEDMDCAT







8/10



7 min



Hint

Q : Choose the correct option regarding DNA analysis:



A Probes denature the DNA



B RFLPs are generated by Sanger's method



C Probes produce distinctive pattern



D Cloning of genes is performed by gel electrophoresis

# SAEED MDCAT

## SAEED MDCAT TEAM



## SAEEDMDCAT

4

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10/10



7 min



Hint

Q : DNA probe is used in:



A PCR technique



B Genetic engineering



C DNA fingerprinting



D Electrophoresis

# SAEED MDCAT

## SAEED MDCAT TEAM



## SAEEDMDCAT

4

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Correct



Unattempted



Incorrect



2/10

Q : Method for generation of different sized DNA fragments by using di-deoxyribonucleoside triphosphate is:



A Maxam-Gilbert Method



B Vortex-mixing method



C Sanger's Method



D Polymerase chain reaction

SAEED MDCAT TEAM

Explanation



SAEEDMDCAT

Di-deoxyribonucleoside triphosphates, with both OH- groups removed from 2' and 3' C, are used in chain termination or Sanger sequencing method.

1

2

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Correct



Unattempted



Incorrect



1/10

Q : A genome is a full set of genes of a/an:



Population



Individual



Community

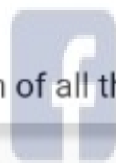


Species

SAEED MDCAT

Explanation

SAEED MDCAT TEAM



SAEEDMDCAT

The sum of all the genes in an individual is called genome.

1

2

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4

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7



Correct



Unattempted



Incorrect



4/10

Q : Di-deoxyribonucleotides are used in Sanger's gene sequencing method because of \_\_\_\_\_ unique character.



A Presence of three phosphate group



B Absence of 2'-OH group



C Absence of 3'-OH group



D Presence of radioactive phosphorous

SAEED MDCAT TEAM

Explanation



SAEEDMDCAT

Di-deoxyribonucleoside triphosphates (ddNTPs), with both OH- groups removed from 2' and 3'C, are used in chain termination or Sanger sequencing method.

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Correct



Unattempted



Incorrect



3/10

Q : Di-deoxyribonucleoside triphosphates are used to terminate DNA synthesis at different site, which method involves this procedure?



Maxam-Gilbert's method



K.B Mullis's method



Sanger's method



Gottlieb's method

SAEED MDCAT TEAM

Explanation



SAEEDMDCAT

Di-deoxyribonucleoside triphosphates, with both OH- groups removed from 2' and 3' C, are used in chain termination or Sanger sequencing method.

1

2

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Correct



Unattempted



Incorrect



6/10

Q : In Maxam-Gilbert method DNA threads are chemically cut into:



Pieces of single nucleotides



Pieces of oligonucleotides



Pieces of different size fragments



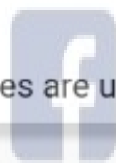
Pieces of polynucleotides

SAEED MDCAT

Explanation

SAEED MDCAT TEAM

Nucleases are used to cut DNA into small pieces/fragments.



SAEEDMDCAT

1

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Correct



Unattempted



Incorrect



5/10

Q : Chain terminating nucleotides are used in:



Recombinant method



Maxam-Gilbert method



Sanger method



Vortex method

SAEED MDCAT

Explanation

SAEED MDCAT TEAM

Di-deoxyribonucleoside triphosphates, with both OH- groups removed from 2' and 3' C, are used in chain termination or Sanger sequencing method.

1

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Correct



Unattempted



Incorrect



7/10

Q : DNA fragments are separated on \_\_\_\_\_ gel.



A

Agarose



B

Electrophoresis



C

Chitin



D

Wax

SAEED MDCAT

Explanation

SAEED MDCAT TEAM

After restriction digestion, fragments of different sizes are separated by applying an electric field on agarose gel. This separation is primarily depending upon the size of fragments.

1

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Correct



Unattempted



Incorrect



8/10

Q : Choose the correct option regarding DNA analysis:



A Probes denature the DNA



B RFLPs are generated by Sanger's method



C Probes produce distinctive pattern

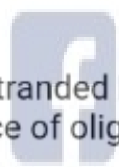


D Cloning of genes is performed by gel electrophoresis

SAEED MDCAT

Explanation

SAEED MDCAT TEAM



SAEEDMDCAT

Single stranded Radioactively or Fluorescently labeled Short sequence of oligonucleotides Complementary to the target region.



Correct



Unattempted



Incorrect



10/10

Q : DNA probe is used in:



A PCR technique



B Genetic engineering



C DNA fingerprinting



D Electrophoresis

SAEED MDCAT

Explanation

SAEED MDCAT TEAM

The technique of development of an individual's DNA pattern on gel by using radio-labeled probes is called DNA fingerprinting. DNA fingerprint of every individual is very unique and could be used to distinguish between different persons/species.



Correct



Unattempted



Incorrect



9/10

Q : DNA finger printing cannot apply on:



A Sperm cell



B Skin cell



C Mature RBC



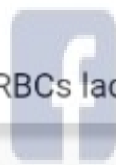
D Hepatic cell

SAEED MDCAT

Explanation

SAEED MDCAT TEAM

Mature RBCs lack nucleus.



SAEEDMDCAT

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## QUIZZES

Practice Test-3 (Biotechnology)



10 Questions



7 min

### Topics

Transgenic Organisms, Biotechnology and healthcare (Gene Therapy), Tissue Culture

**SAEED MDCAT**  
Start Quiz

SAEED MDCAT TEAM



SAEEDMDCAT



2/10



7 min



Hint

Q : A plant that has been engineered to produce biodegradable plastic is:

A

Tobacco plant

B

Eared cress

C

Arabidopsis

D

Soybean plant

# SAEED MDCAT

## SAEED MDCAT TEAM



## SAEEDMDCAT

1

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7

06 : 59



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1/10



7 min



Hint

Q : Which technology is not in use to produce insulin from E. coli?



Genetic engineering



Recombinant DNA technology



PCR



Centrifugation

**SAEED MDCAT**

SAEED MDCAT TEAM



SAEEDMDCAT





3/10



7 min



Hint

Q : A biotechnology product used to prevent blood clot during surgery is:



Prothrombin



Fibrinogen



Antithrombin



Heparin

# SAEED MDCAT

## SAEED MDCAT TEAM



## SAEEDMDCAT







5/10



7 min



Hint

Q : Artificial seed is the term that can be used for:



Totipotent cell



Somatic embryo



Fertilized egg



Somaclonal plant

# SAEED MDCAT

## SAEED MDCAT TEAM



## SAEEDMDCAT

1

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4

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7



4/10



7 min



Hint

Q : To prevent blood clotting during surgery \_\_\_\_\_ is used.



Prothrombin II



Prothrombin III



Anti-thrombin II



Anti-thrombin III

# SAEED MDCAT

## SAEED MDCAT TEAM



## SAEEDMDCAT

1

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7/10



7 min



Hint

Q : The cells which have the full potential to develop into a complete organism are:



Unipotent



Pluripotent



Bipotent



Totipotent

# SAEED MDCAT

## SAEED MDCAT TEAM



## SAEEDMDCAT

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6/10



7 min



Hint

Q : Cell suspension culture of *Cinchona ledgeriana* produces:

A

Antithrombin III

B

Digitoxin

C

Quinine

D

 $\alpha$ -galactosidase

# SAEED MDCAT

## SAEED MDCAT TEAM



## SAEEDMDCAT

1

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9/10



7 min



Hint

Q : SCID patients suffer from life threatening infections because they do not have:C



T cells



Phagocytic cells



B cells



Mature T and B cells

# SAEED MDCAT

## SAEED MDCAT TEAM



## SAEEDMDCAT

4

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8

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10



8/10



7 min



Hint

Q : Insertion of genetic material into the human cells to treat a particular disease is called:

A

Reverse transcription

B

Gene mutation

C

Nucleic acid hybridization

D

Gene therapy

# SAEED MDCAT

## SAEED MDCAT TEAM



## SAEEDMDCAT

4

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10/10



7 min



Hint

Q : Patient of familial hypercholesterolemia is subject to fatal:



Necrosis



Heart diseases



Infection



Liver disorders

# SAEED MDCAT

## SAEED MDCAT TEAM



## SAEEDMDCAT

4

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Correct



Unattempted



Incorrect



2/10

Q : A plant that has been engineered to produce biodegradable plastic is:



Tobacco plant



Eared cress



Arabidopsis



Soybean plant

SAEED MDCAT

Explanation

SAEED MDCAT TEAM

Biotechnology helped to synthesize such plastic which can be degraded by the action of microorganisms.

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Correct



Unattempted



Incorrect



1/10

Q : Which technology is not in use to produce insulin from E. coli?



Genetic engineering



Recombinant DNA technology



PCR



Centrifugation

SAEED MDCAT

Explanation

SAEED MDCAT TEAM

When a gene of interest is inserted into vector with the help of enzymes, resulting in recombinant DNA, which is transferred in the expression system afterwards.

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Correct



Unattempted



Incorrect



4/10

Q : To prevent blood clotting during surgery \_\_\_\_\_ is used.



Prothrombin II



Prothrombin III



Anti-thrombin II



Anti-thrombin III

SAEED MDCAT

Explanation

SAEED MDCAT TEAM

Antithrombin III prevent blood clotting.



SAEEDMDCAT

1

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Correct



Unattempted



Incorrect



3/10

Q : A biotechnology product used to prevent blood clot during surgery is:



Prothrombin



Fibrinogen



Antithrombin

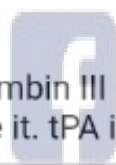


Heparin

SAEED MDCAT

Explanation

SAEED MDCAT TEAM



SAEEDMDCAT

Antithrombin III prevent blood clot formation while hemophilic factors promote it. tPA is use to dissolve blood clot during heart surgery.

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Correct



Unattempted



Incorrect



5/10

Q : Artificial seed is the term that can be used for:



Totipotent cell



Somatic embryo



Fertilized egg



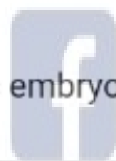
Somaclonal plant

SAEED MDCAT

Explanation

SAEED MDCAT TEAM

Somatic embryo is an encapsulated callus in a protective hydrated gel.



SAEEDMDCAT

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Correct



Unattempted



Incorrect



7/10

Q : The cells which have the full potential to develop into a complete organism are:



Unipotent



Pluripotent



Bipotent



Totipotent

SAEED MDCAT TEAM

Explanation



SAEEDMDCAT

Plant cells are totipotent which means that they have the full potential to develop into a complete organism, when they are cultured in an artificial media.

1

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Correct



Unattempted



Incorrect



6/10

Q : Cell suspension culture of *Cinchona ledgeriana* produces:



Antithrombin III



Digitoxin



Quinine

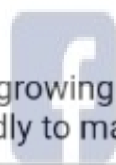


$\alpha$ -galactosidase

SAEED MDCAT

Explanation

SAEED MDCAT TEAM



SAEEDMDCAT

Rapidly growing culture in a liquid nutrient medium are shaken repeatedly to maintain the suspension of cells.

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Correct



Unattempted



Incorrect



8/10

Q : Insertion of genetic material into the human cells to treat a particular disease is called:



A Reverse transcription



B Gene mutation



C Nucleic acid hybridization



D Gene therapy

SAEED MDCAT TEAM

Explanation



SAEEDMDCAT

The replacement of defected gene with the healthy gene is called gene therapy.

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Correct



Unattempted



Incorrect



10/10

Q : Patient of familial hypercholesterolemia is subject to fatal:



Necrosis



Heart diseases



Infection



Liver disorders

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Explanation

SAEED MDCAT TEAM

Absence of cholesterol receptors on liver cells leads to the increased level of blood cholesterol which ultimately results in heart diseases

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Correct



Unattempted



Incorrect



9/10

Q : SCID patients suffer from life threatening infections because they do not have:C



T cells



Phagocytic cells



B cells



Mature T and B cells

SAEED MDCAT TEAM

Explanation



SAEEDMDCAT

B and T cells are the most important component of cell mediated and humoral immunity.

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