PRINT

Qn No. 1 *Chapter Name:6. Unravelling Genetic Mysteries*

Qn.
Analyse the illustration with the help of indicators and answer the questions.

a) Identify the molecules denotes X and Y?

b) What is the role of ribosome in the formation of the molecules Y?

c) Which molecule carries the amino acids necessary to form the molecule Y?

Hint.
a) X-mRNA , Y-Protein

b) Ribosome

c) tRNA

Marks :(3)

Hide Answer

Qn No. 2 *Chapter Name:6. Unravelling Genetic Mysteries*

Qn.
Complete the illustrations related to protein synthesis according to the indicators.

a) Molecules that carry tRNA to the ribosome

b) RNA, which is part of the ribosome.

c) RNA that carries the message to the ribosome.

Hint.
a) Amino acids

b) rRNA.

c) mRNA.

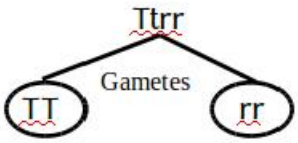
Marks :(3)

Hide Answer

Qn No. 3 *Chapter Name:6. Unravelling Genetic Mysteries*

Qn.
Depicts the formation of gametes from a tall, wrinkled seed plant.

Correct if there is any error in the illustration. Justify your answer.



Hint.
Gametes - Tr , tr

Marks :(1)

Hide Answer

Qn No. 4 ***Chapter Name:6. Unravelling Genetic Mysteries***

Qn.
The genetic constitution of some plants obtained by self pollination of the taller plant with yellow fruit

(TtYy) in a hybridisation experiment are given below.

Identify the taller plants with yellow fruit.

TTYy, Ttyy, TtYy, ttYY, Ttyy, TtYY

Hint.
TTYy, TtYy, TtYY

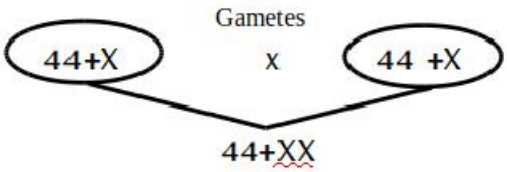
Marks :(3)

Hide Answer

Qn No. 5 ***Chapter Name:6. Unravelling Genetic Mysteries***

Qn.
The chromosomal fusion that makes up the genetic constitution of female is illustrated.

Correct mistakes If any in the illustration.



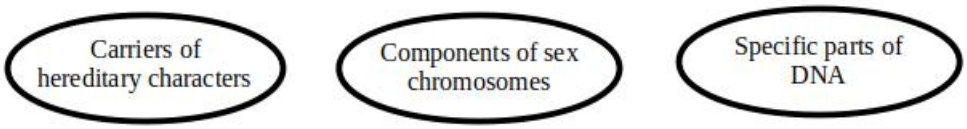
Hint.
22+X x 22+X

Marks :(1)

Hide Answer

Qn No. 6 ***Chapter Name:6. Unravelling Genetic Mysteries***

Qn.
Observe the statements given below and answer the question.



Select appropriate statements from the following and make a definition for gene.

Hint.
Genes are specific parts of DNA, which are the carriers of hereditary characters.

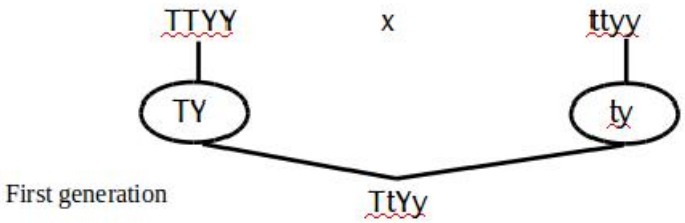
Marks :(1)

Hide Answer

Qn No. 7 ***Chapter Name:6. Unravelling Genetic Mysteries***

Qn.
A hybridisation by considering the height of the plant and colour of the cotyledon is given below.

(Dominant characters- Tall and Yellow, Recessive characters- Dwarf and green)



a) Which are the characters expressed in "TTYY"?

b)What indicates "TY", "ty" ?

c) Which character expressed in "TtYy"? Identify its recessive characters?

Hint.
a) "TTYY"-Tall with yellow cotyledon

b) "TY", "ty" Gametes

c) "TtYy" Tall with yellow cotyledon, Hight Dwarf and green cotyledon

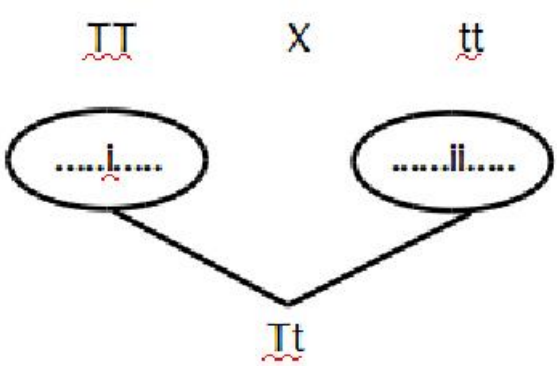
Marks :(3)

Hide Answer

Qn No. 8 ***Chapter Name:6. Unravelling Genetic Mysteries***

Qn.
Complete the illustration of the hybridisation experiment given below.

.



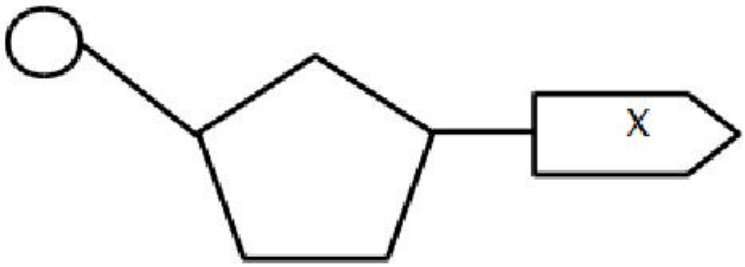
Hint.
i- T, ii-t

Marks :(2)

Hide Answer

Qn No. 9 ***Chapter Name:6. Unravelling Genetic Mysteries***

Qn.
Observe the illustration and answer the questions.



a) Identify the illustration?

b) What are the components of this molecule?

c) Name the different types of the molecule which indicates"X" in DNA?

Hint.
a) Nucleotide

b) Phosphate, Sugar molecule, Nitrogen base

c) “X” - Adenine, Thymine, Guanine, Cytocine

Marks :(3)

Hide Answer

Qn No. 10 ***Chapter Name:6. Unravelling Genetic Mysteries***

Qn.
The count of pea plants in second generation produced by the self-pollination of

Round Seed Pea plants (Rr) are given below.

Chaaracters	Count
Round seed	303
Wrinkled seed	101

a) What is the ratio of plants in the second generation?

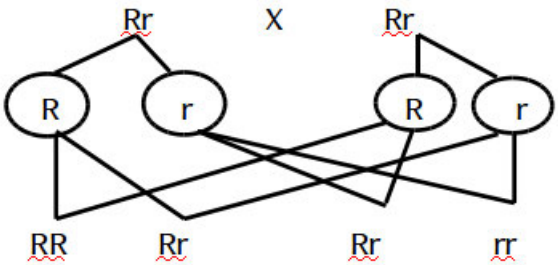
b) Illustrate the hybridisation that leads to the formation of First generation Rr.

c) Which is the character not expressed in first generation? Why this character is appeared in

the second generation?

Hint.
a) 3:1

b)



c) Wrinkled seed, some of the plants in second generation have both recessive factors.

Marks :(4)

Hide Answer

Qn No. 11 *Chapter Name:6. Unravelling Genetic Mysteries*

Qn.
Properly arrange the flowchart related to protein synthesis.

Protein is synthesised -----> mRNA reaches ribosome. -----> mRNA is formed from DNA-----> Different types of amino acids reach the ribosome. -----> Aminoacids are added according to messages in the mRNA. -----> mRNA reaches out side the nucleus.

Hint.
MRNA is formed from DNA. -----> mRNA reaches out side the nucleus. -----> mRNA reaches ribosome. -----> Different types of amino acids reach the ribosome. -----> Aminoacids are added according to messages in the mRNA. -----> Protein is synthesised.

Marks :(2)

Hide Answer

Qn No. 12 *Chapter Name:6. Unravelling Genetic Mysteries*

Qn.
Which of the following is most likely to be a RNA strand?

a) ATGCCCAT

b) ATCGTCAG

c) AGATAGAC

d) AUGGCCAG

Hint.
d) AUGGCCAG

Marks :(1)

.

Hide Answer

Qn No. 13 *Chapter Name:6. Unravelling Genetic Mysteries*

Qn.
Flowchart the statements given below related to the gene action.

-mRNA reaches the ribosome.

-mRNA is reaches out side the nucleus.

-The protein is synthesized by adding the amino acids.

- Various aminoacids reach the ribosome.

-mRNA is formed from DNA.

Hint.
mRNA is formed from DNA ------ mRNA reaches out side the nucleus ----- mRNA reaches the ribosome -------Various aminoacids reach the ribosome-----The protein is synthesized by combining the amino acids.

Marks :(3)

Hide Answer

Qn No. 14 *Chapter Name:6. Unravelling Genetic Mysteries*

Qn.
Write down the reason behind each of the statements given below.

A) mRNA is known to be the messenger of DNA.

b) Protein synthesis cannot be achieved without tRNA.

Hint.
A) The mRNA carries informations for protein synthesis from the DNA to the ribosomes and control protein synthesis.

b) Different amino acids for protein synthesis are brings to the ribosome by tRNA.

Marks :(2)

Hide Answer

Qn No. 15 *Chapter Name:6. Unravelling Genetic Mysteries*

Qn.
Make suitable pairs using the given nitrogen bases.

Adenine, thymine, guanine, cytosine

Hint.
Adenine - Thymine

Guanine - Cytosine

Marks :(2)

Hide Answer

.

Qn No. 16 *Chapter Name:6. Unravelling Genetic Mysteries*

Qn.
According to the double helical model of DNA molecule, choose the correct statements from the following.

a) The DNA molecule contains nitrogen bases.

b) Three types of nitrogen bases are found in the DNA.

c) All the nitrogen bases found in DNA are also found in RNA.

d) The rungs of DNA are made of nitrogen bases.

Hint.
A) The DNA molecule contains nitrogen bases.

d) The rungs of DNA are made of nitrogen bases.

Marks :(2)

Hide Answer

Qn No. 17 *Chapter Name:6. Unravelling Genetic Mysteries*

Qn.
Fertilization is the major process that causes variation in offsprings. Identify the most valid reasons for this statement.

A) Fertilization leads to mutation.

b) Fertilization causes the crossing over of chromosomes.

c) Fertilization causes changes in the allele combination.

Hint.
c) Fertilization causes changes in the allele combination.

Marks :(2)

Hide Answer

Qn No. 18 *Chapter Name:6. Unravelling Genetic Mysteries*

Qn.
The hybridisation experiments carried out by a scientist on garden pea plants have laid the foundation for a new branch of science, which has influenced almost every aspect of human life.

a) Who is this scientist?

b) Identify the branch mentioned?

c) Write down any two contributions of this branch to humanity.

Hint.
a) Gregor Mendel

b) Genetics

c) Diagnosis, Production of medicines, Food Production (any two contribution)

Marks :(3)

Hide Answer

Qn No. 19 *Chapter Name:6. Unravelling Genetic Mysteries*

Qn.
Choose only the facts that help Gregor Mendel to lay the foundation for genetics.

a) Hybridisation experiments

b) Discovery of the structure DNA

c) Formulation of hereditary laws

d) Discovery of chromosome Structure

Hint.
a) Hybridisation experiments

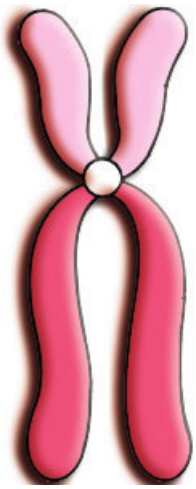
c) Formulation of hereditary laws

Marks :(2)

Hide Answer

Qn No. 20 *Chapter Name:6. Unravelling Genetic Mysteries*

Qn.
Observe the picture and answer the questions.



a) What does the picture indicate?

b) What is its relationship to genes?

Hint.
a) The chromosome

b) Genes are specific parts of DNA, in the chromosome

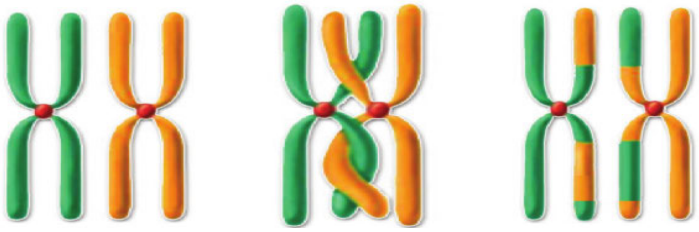
Marks :(2)

Hide Answer

Qn No. 21 *Chapter Name:6. Unravelling Genetic Mysteries*

Qn.
Analyze the illustration below and answer the questions.

.



a) What does theillustration indicate?

b) What is the significance of this process?

Hint.
a) crossing over of chromosomes

b) As a result of this, part of a DNA crosses over to become the part of another DNA. This causes a difference in the distribution of genes. When these chromosomes are transferred to the next generation, it causes the expression of new characters in offsprings.

Marks :(2)

Hide Answer

Qn No. 22 ***Chapter Name:6. Unravelling Genetic Mysteries***

Qn.
Sudden changes in the genetic makeup of the organism and the transfer of it to the next generation can lead to variation in characters.

a) By what name are these changes known?

b) Write any two reasons for such changes?

Hint.
a) Mutation

b) Defects in the duplication of DNA, Certain chemicals or radiations.

Marks :(2)

Hide Answer

Qn No. 23 ***Chapter Name:6. Unravelling Genetic Mysteries***

Qn.
Each species has a defenit number of chromosomes.

a) What is the number of chromosomes in humans?

b) What are the two types of chromosomes found in human?

c) How does the genetic constitution of a woman differ from that of a man?

Hint.
a) 46

b) 44 somatic chromosomes and 2 sex chromosomes.

c) The genetic make up of female is 44 + XX and that of male is 44 + XY. There are two X chromosomes in women, one X chromosome and one Y chromosome in male.

Marks :(3)

Hide Answer

.

Qn No. 24 *Chapter Name:6. Unravelling Genetic Mysteries*

Qn.
Identify the relationship in A and complete B.

A) Parental traits to offspring: inheritance

B) Characteristics different from parents to offspring: ……

Hint.
Variation

Marks :(1)

Hide Answer

Qn No. 25 *Chapter Name:6. Unravelling Genetic Mysteries*

Qn.
Find out the odd one? Write the common feature of others.

Adenine, thymine, uracil, cytosine

Hint.
ureasil, others are nitrogen bases present in DNA.

Marks :(1)

Hide Answer

Qn No. 26 *Chapter Name:6. Unravelling Genetic Mysteries*

Qn.
Find the correct statement from the following.

A) The number of somatic chromosomes in human is 22.

b) Thiamine nucleotide is found in RNA.

c) Metabolism is regulated by genes.

d) Protein is synthesized in the RNA.

Hint.
c) Metabolism is regulated by genes.

Marks :(1)

Hide Answer

Qn No. 27 *Chapter Name:6. Unravelling Genetic Mysteries*

Qn.
Find the correct statements from the following.

A) Thymine Nitrogen base is not found in RNA.

B) Uracil nitrogen base is found in DNA.

C) Guanine Nitrogen base is found in DNA.

a) A and B are correct

b) B and C are correct

c) A and C are correct

d) C is correct

Hint.
d) C is correct

Marks :(1)

Hide Answer

Qn No. 28 *Chapter Name:6. Unravelling Genetic Mysteries*

Qn.
Complete the table.

Nucleic acid	Number of threads	The type of sugar	Nitrogen bases found
A	2	B	Adenine, Cytosine, Guanine, C) .....
RNA	D.....	E	Adenine, Cytosine, Guanine, F) .....

Hint.A) DNA, B) deoxyribose sugar C) thymine D) one E) ribose sugar

Marks :(3)

Hide Answer

Qn No. 29 *Chapter Name:6. Unravelling Genetic Mysteries*

Qn.
Protein molecules are sinthesized by the collective action of a variety of RNAs.

A) What are the different types of RNAs that help protein synthesis?

b) Write the function of any two of these RNAs.

c) In which cell organelle does the protein molecule made?

Hint.
a) mRNA, tRNA, rRNA

b) tRNA, which brings the aminoacids into the ribosome, the rRNA that forms part of the ribosome, and the mRNA that carries the information for protein synthesis from DNA to the ribosome.

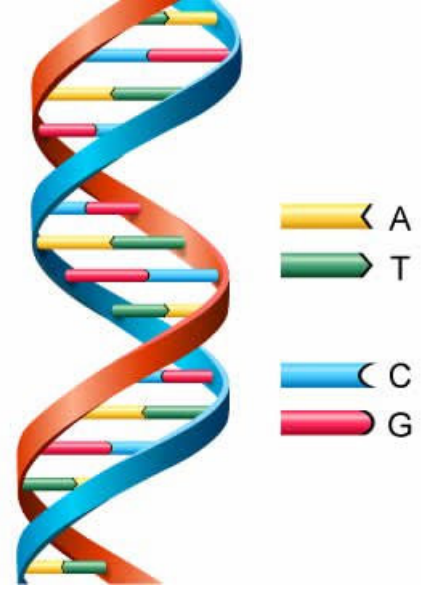
c) Ribosome

Marks :(4)

Hide Answer

Qn No. 30 *Chapter Name:6. Unravelling Genetic Mysteries*

Qn.
Observe the picture given below and answer the questions.



a) What does the picture indicate?

b) Which are the components of its long strands?

c) What are the components of rungs?

Hint.
A) DNA

b) Deoxyribose sugar and phosphate molecule.

c) Nitrogen bases

Marks :(4)

Hide Answer

Qn No. 31 ***Chapter Name:6. Unravelling Genetic Mysteries***

Qn.
When the hybridiasation of gray-seeded peas and white-seeded peas were performed, all the first-generation plants were gray-seeded.

a) What trait does the gray colour in this experiment indicate?

b) Why there are no white seeded plant in the first generation.?

c) If the first generation is self pollineted, what is the ratio of the offspring to the second generation?

d) What inference can be reached by observing the second generation?

Hint.
a) Dominent trait

b)Only one character is expressed in the first-generation offspring because it has both recessive factors.

c) 3: 1

d) Hidden traits are expressed in the second generation. The ratio of dominent and recessive traites in the second generation is 3: 1.

Marks :(4)

Hide Answer

Qn No. 32 ***Chapter Name:6. Unravelling Genetic Mysteries***

Qn.
The self pollination of first-generation plant tall, round-seeded (TtRr) pea plant is illustrated.Analyse it and answer the questions.

Recessive traits - Dwarf, wrinkled seed TR

Tr	A.....		.....	tr
TR	TTRR	TTRr	TtRR	TtRr
Tr	TTRr	C.....	TtRr	Ttrr
TR	D	TtRr	TtRR	E
.....				.....
B.....				TtRr Ttrr F
.....				ttrr

A) Write the gametes A and B

Hint.
a) A- tR, B- tr

b) C-TTrr, D-TtRR, E-ttRR, F-TtRr

c)Tall plant with wrinkled seed, Dwarf plant with round seed

Marks :(2)

Hide Answer

Qn No. 33 *Chapter Name:6. Unravelling Genetic Mysteries*

Qn.
Select the statements that are related to skin colour.

A) Differences in gene function

B) Racial difference

C) Fluctuations in sunlight

D) Presence of melanin, a color protein

a) A and B

b) B and C

c) B and D

d) A and D

Hint.
d) A and D

Marks :(1)

Hide Answer

Qn No. 34 *Chapter Name:6. Unravelling Genetic Mysteries*

Qn.
Correct mistakes if any in the underlined part.

A) Thiamine is a nitroge base not found in DNA

b) Adenine is a nitrogen base found in RNA

c) rRNA is a part of the ribosome

d) The amino acids are carried to the ribosome by mRNA.

Hint.

a) Uracil is a nitrogen base not found in DNA

d) The amino acids are carried to the ribosome by tRNA.

Marks :(2)

Hide Answer

Qn No. 35 ***Chapter Name:6. Unravelling Genetic Mysteries***

Qn.

Choose the correct statements from the followings.

a) Children do not exhibit traits that are not present in their parents.

b) The genes found in DNA are the carriers of hereditary factors.

c) The different forms of a gene are called alleles.

d) The ratio of dominent and recessive traits of the second generation is 1: 3.

Hint.

b) The genes found in DNA are the carriers of hereditary factors.

c) The different forms of a gene are called alleles.

Marks :(2)

Hide Answer

Qn No. 36 ***Chapter Name:6. Unravelling Genetic Mysteries***

Qn.

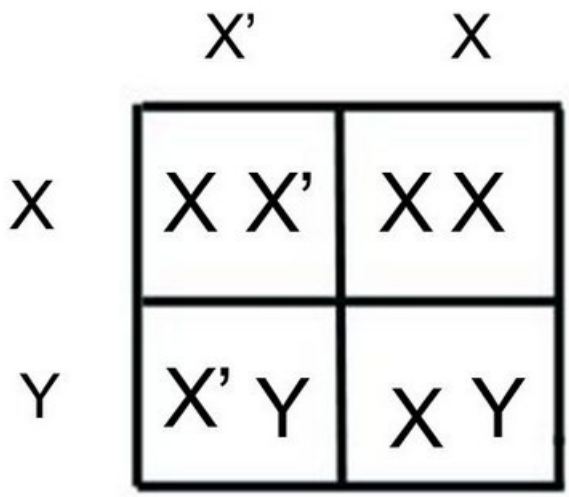
"There is nothing scientific in blaming mothers who only give birth to female child"

Do you agree with this statement?Why?

Hint.

Yes,

The genetic constitution of mother is 44+XX and that of father is 44+XY.In the determination of the sex of the child the sperms from the father have great significance.The XY chromosomes of father determine whether the child is male or female.Mother have only one type of ovum, ie with X chromosome.



Marks :(2)

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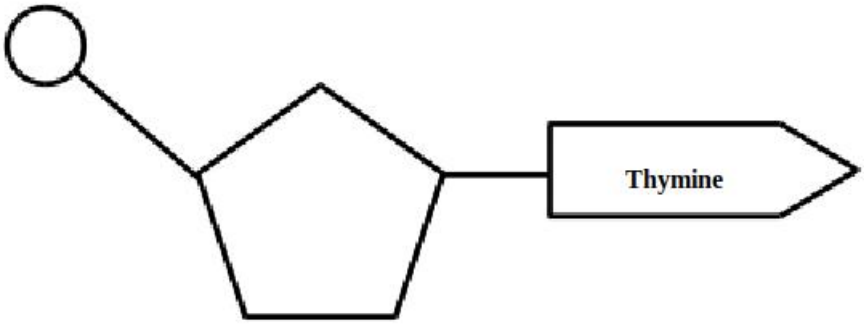
Hide Answer

Qn No. 37 *Chapter Name:6. Unravelling Genetic Mysteries*

Qn.
Which of the following is a nitrogen base complementary to the nitrogen base given in the illustration?



a) Uracil b) Cytosinec) guanine d) adenine

Hint.
d) Adenine

Marks :(1)

Hide Answer

Qn No. 38 *Chapter Name:6. Unravelling Genetic Mysteries*

Qn.
From the given chromosome makeup, find out the genetic makeup of males and females respectively.

a) 22+XY, 22+ XX

b) 22+X, 22+XX

c) 44+XY, 44+XX

d) 44+XX, 44+XY

Hint.
c) 44+XY, 44+XX

Marks :(2)

Hide Answer

Qn No. 39 *Chapter Name:6. Unravelling Genetic Mysteries*

Qn.
Alleles are different forms of a gene. Then identify which alleles are responsible for the characteristics listed below.

Character	Genetic structure	Alleles
Tall plant with round seed	TTRR	A)..... , ...
Dwarf plant with wrinkled seed	B).....	C) ..... , ...

Hint.

A- T, R

B- ttrr

C- t, r

Marks :(3)

Hide Answer

Qn No. 40 ***Chapter Name:6. Unravelling Genetic Mysteries***

Qn.
The number of plants in the second generation of a hybridisation of tall and dwarf pea plants are given below.Analyse it answer the questions.

Tall - 787

Tall - 277

a) What is the characteristic of first-generation offspring?

b) Identify the dominent and recessive characters?

b) What is the ratio of the characteristics of the second generation?

Hint.
a) Tall plant

b) Dominent - Tall, Recessive - Dwarf

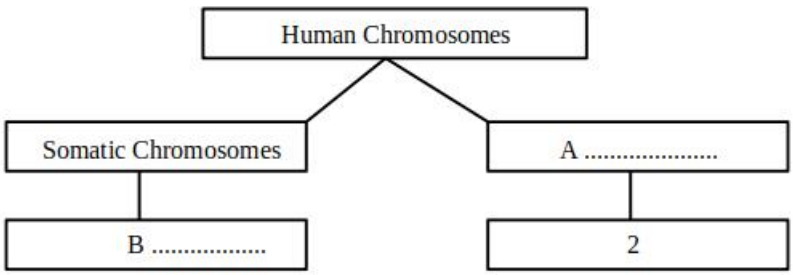
c) 3:1

Marks :(2)

Hide Answer

Qn No. 41 ***Chapter Name:6. Unravelling Genetic Mysteries***

Qn.
Complete the illustration.



Hint.
A) Sex chromosomes

B) 44 (22 pairs)

Marks :(2)

Hide Answer

Qn No. 42 **.** ***Chapter Name:6. Unravelling Genetic Mysteries***

Qn.
Which are the gametes formed from the tall plant having gray seed with genetic constitution TtGg.

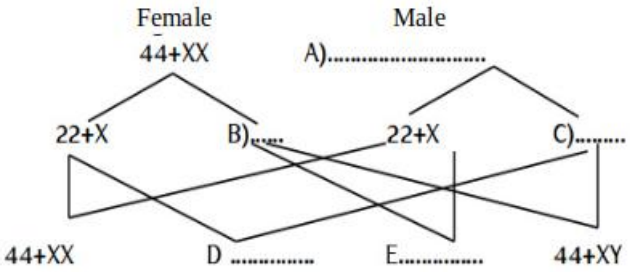
Hint.
TG, Tg, tG, tg

Marks :(3)

Hide Answer

Qn No. 43 ***Chapter Name:6. Unravelling Genetic Mysteries***

Qn.
Complete the illustration.



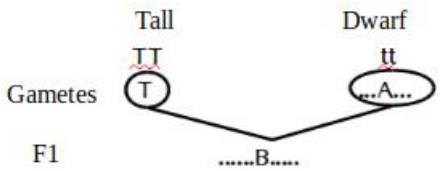
Hint.
A) 44+XY B) 22+X C) 22+Y D) 44+XY E) 44+XX

Marks :(2)

Hide Answer

Qn No. 44 ***Chapter Name:6. Unravelling Genetic Mysteries***

Qn.
Observe the illustration and answer the questions below.



A) Complete A and B.

b) What are the alleles in the tall parental plant?

c) What are the alleles in first generation plants?

d) What do you mean by alleles?

Hint.
a) A=t, B=Tt

b) TT

c) Tt

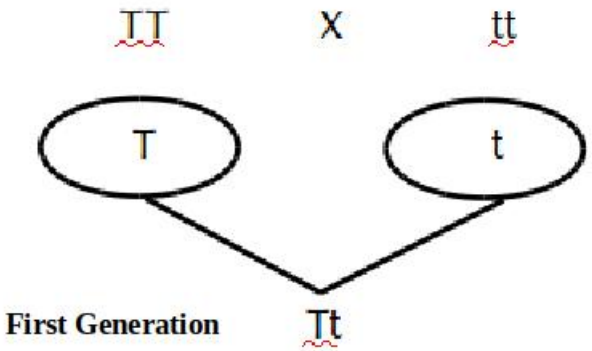
d) Different forms of a gene.

Marks :(4)

Hide Answer

Qn No. 45 *Chapter Name:6. Unravelling Genetic Mysteries*

Qn.
Observe the illustration and answer the questions.



a) Identify the dominent allele of the first generation plant in the given hybridisation experiment?

b) How many alleles are found in the illustration in relation to the height of the plant ? Which are they?

Hint.
a) T

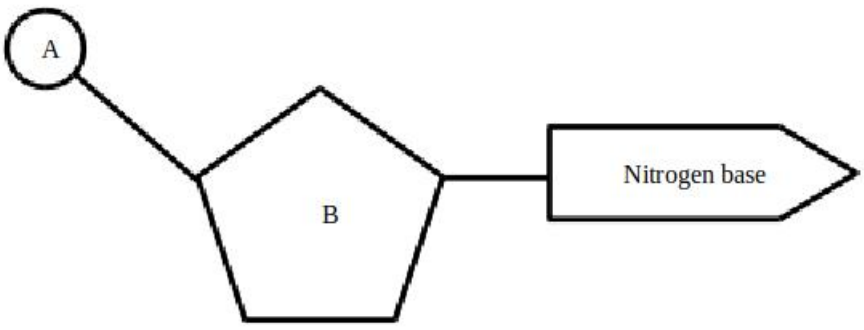
b)2, T and t.

Marks :(2)

Hide Answer

Qn No. 46 *Chapter Name:6. Unravelling Genetic Mysteries*

Qn.
Observe the illustration.



a) Identify the illustration?

b) Identify the molecules A and B in the illustration?

c) Which are the nitrogen bases present in DNA molecule?

Hint.
a) Nucleotide

b) A = Phosphate group, B = Sugar molecule

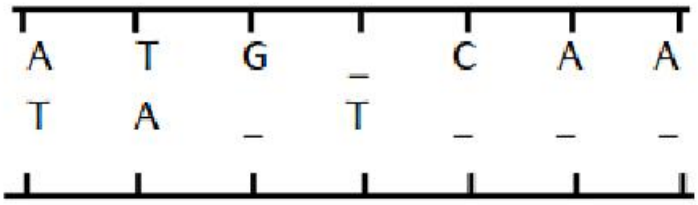
c) Adenine, Thymine, Cytosine and Guanine

Marks :(4)

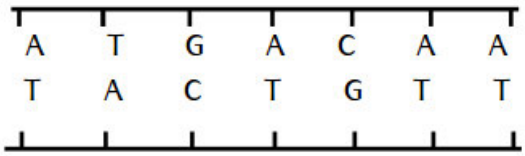
Hide Answer

Qn No. 47 ***Chapter Name:6. Unravelling Genetic Mysteries***

Qn.
Complete the illustration of DNA.



Hint.



Marks :(2)

Hide Answer

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