Science

Grade 10

Inheritance

Refer the lesson "Inheritance"" and answer the questions.

(Grade 10 part II   Pages 169 – 190)

Part I

01. <u>Not</u> a common inherited characterstic in human species is,

    1. Fused earlables   2. Ability to fold the tongue

    3. Syndactility   4. Straight or curved thumb

02. Who is the scientist that found the genes present in a chromosome do not segregate independently.

    1. Mendel   2. Mandalesh

    3. Morgon   4. Rutherferd

03. Genes of an organism present in

    1. cytoplasm   2. chromosomes

    3. vacuoles   4. mitochondria

04. <u>Not</u> a reason for selecting the garden pea plant for the experiment on inheritance by the early scientists is

    1. can obtain the yield within a short time period

    2. couldn't obtain pure breeding plants

    3. naturally self pollinating

    4. can be easily grown

05. Gene for round seed is **R** (prominent) and wrinkled seed is **r** (recessive) in garden pea plant. What is the homozygous phenotype for wrinkled seed pea plant,

    1. r   2. RR   3. rR   4. rr

06. What will be the F_1 generation when pure breeding tall garden pea plant (TT) and pure breeding short garden pea plant (tt) were pollinated?

    1. Genotype of all plants is Tt

    2. Phenotype of tall and short plants can be obtained

    3. Phenotype ratio is tall plants 3 : short plants 1

    4. TT and tt are the genotypes of the plants

07. The amount of Chromosomes in a human cell is,

    1. 23   2. 46   3. 22   4. 44

08. Haemophilia is a sex linked genetic disorder. What is the false statement about it?

   1. Present only in females

   2. Present only in males

   3. Females act as carriers for the disease

   4. Males act as carriers for the disease

09. <u>Not</u> a reason for occurance of gene mutation,

   1. Spontaneous without any external effect

   2. Due to radiations

   3. Due to food

   4. Due to chemicals

10. Commonly used oraganism in Recombinant DNA technology is

   1. Protozoa   2. Fungi

   3. Bacteria   4. Virus

(11) If the statement is correct mark (√) and if false mark (X) inside the bracket.

   1. The diversity can be seen only among plants and animals in the biosphere (   )

   2. Genetics is a study about inheritance   (   )

   3. All the features found in parents will be visible in their offsprings   (   )

   4. Albinism is a rare genetic feature   (   )

   5. The feature that externally appear is known as genotype   (   )

   6. Meiosis is important in production of gametes from gamete mother cells   (   )

   7. The genes that present in the same chromosome and are capable of segregating independently are known as linked genes   (   )

   8. Thalassemia is a condition that occurs due to a mutation in a gene responsible for the production of haemoglobin   (   )

   9. Developed virus particles can be used in production of antibiotics   (   )

   10. Genome is the whole genetic material of an organism.   (   )

Part II

(C) Define the following terms.

1. Heredity

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2. Inheritance

....

3. Prominant factor

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4. Recessive factor

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5. Homozygous genes

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6. Heterozygous genes

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7. Genotype

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8. Linked genes

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(D) The below punnet square represents the facts on the shape of the seed of a garden pae plant. Round shape of the seed is the dominant factor and the wrinkled seed is the reccersive factor.

F1 ♂

♀

F_1

	R	r
R	a............	Rr
r	b............	c............

i. Fill the a, b, c blanks in the punnet square.

ii. Mention the phenotypes that can be obtained by crossing F_1 X F_1

iii. Write the ratio of phenotypes that can be obtained after crossing F_1 X F_1

iv. Mention the genotypes that can be obtained by crossing F_1 X F_1

v. Write the ratio of the genotypes that can be obtained after crossing F_1 X F_1