

**BIOLOGI: TINGKATAN 5**  
**BIOLOGY: FORM 5**

**BAB 11: PEWARISAN**  
**CHAPTER 11: INHERITANCE**

**KERTAS 1 – SOALAN OBJEKTIF**  
**PAPER 1 – OBJECTIVE QUESTION**

- 1 Rajah menunjukkan dua ciri yang dikaji oleh Mendel.  
*Diagram shows two characteristics studied by Mendel.*

| Ciri<br><i>Characteristic</i>       | Trait<br><i>Traits</i>     |                             |
|-------------------------------------|----------------------------|-----------------------------|
|                                     | Dominan<br><i>Dominant</i> | Resesif<br><i>Recessive</i> |
| Warna pod<br><i>Pod colour</i>      | <b>P</b>                   | <b>Q</b>                    |
| Warna bunga<br><i>Flower colour</i> | <b>R</b>                   | <b>S</b>                    |

Antara trait-trait berikut, yang manakah mewakili P, Q, R dan S?  
*Which of the following traits represent P, Q, R and S?*

|          | <b>P</b>                | <b>Q</b>                | <b>R</b>              | <b>S</b>              |
|----------|-------------------------|-------------------------|-----------------------|-----------------------|
| <b>A</b> | Hijau<br><i>Green</i>   | Kuning<br><i>Yellow</i> | Ungu<br><i>Purple</i> | Putih<br><i>White</i> |
| <b>B</b> | Kuning<br><i>Yellow</i> | Hijau<br><i>Green</i>   | Putih<br><i>White</i> | Ungu<br><i>Purple</i> |
| <b>C</b> | Hijau<br><i>Green</i>   | Kuning<br><i>Yellow</i> | Putih<br><i>White</i> | Ungu<br><i>Purple</i> |
| <b>D</b> | Kuning<br><i>Yellow</i> | Hijau<br><i>Green</i>   | Ungu<br><i>Purple</i> | Putih<br><i>White</i> |

Konstruk: Mengingat

- 2 Antara istilah berikut, yang manakah ditakrifkan sebagai alel berbeza di lokus gen pada pasangan kromosom homolog?  
*Which of the following terms is defined as different alleles at loci gene of a pair of homologous chromosomes?*
- A** Homozigot dominan  
*Homozygous dominant*
- B** Homozigot resesif  
*Homozygous recessive*
- C** Heterozigot  
*Heterozygous*

Konstruk: Mengingat

- 3 Antara berikut, yang manakah adalah pasangan gamet manusia yang normal?  
Which of the following is a normal pair of human gametes?

|   | <b>Sperma<br/>Sperm</b> | <b>Ovum<br/>Ovum</b> |
|---|-------------------------|----------------------|
| A | 21 + XY                 | 21 + XX              |
| B | 22 + X                  | 22 + X               |
| C | 23 + Y                  | 23 + X               |
| D | 22 + XY                 | 22 + XX              |

Konstruk: Memahami

- 4 Rajah menunjukkan maklumat tentang kromosom dalam manusia.  
Diagram shows information about human chromosomes.

| Jenis kromosom<br>Type of chromosome | Persamaan<br>Similarity | Perbezaan<br>Differences |
|--------------------------------------|-------------------------|--------------------------|
| Autosom<br>Autosome                  | <b>K</b>                | <b>L</b>                 |
| Kromosom seks<br>Sex chromosome      |                         | <b>M</b>                 |

- Antara berikut, yang manakah mewakili K, L dan M?  
Which of the following represent K, L and M?

|          | <b>K</b>                                                                   | <b>L</b>                                                                                                     | <b>M</b>                                                                                                     |
|----------|----------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|
| <b>A</b> | Dijumpai dalam sel soma dan sel gamet<br>Found in somatic and gamete cells | Pasangan kromosom nombor 1 hingga 22 dalam kariotip<br>Chromosome pairs from number 1 to 22 in the karyotype | Pasangan kromosom nombor 23 dalam kariotip<br>Chromosome pair for number 23 in the karyotype                 |
| <b>B</b> | Dijumpai dalam sel soma sahaja<br>Found in somatic cells only              | Pasangan kromosom nombor 23 dalam kariotip<br>Chromosome pair for number 23 in the karyotype                 | Pasangan kromosom nombor 1 hingga 22 dalam kariotip<br>Chromosome pairs from number 1 to 22 in the karyotype |
| <b>C</b> | Dijumpai dalam sel gamet sahaja<br>Found in gamete cells only              | Mengandungi gen yang menentukan jenis jantina<br>Consists of genes which determine gender                    | Mengawal semua ciri sel soma<br>Controls all characteristics of somatic cells                                |
| <b>D</b> | Dijumpai dalam sel soma dan sel gamet<br>Found in somatic and gamete cells | Mengawal semua ciri sel soma<br>Controls all characteristics of somatic cells                                | Mengandungi gen yang menentukan jenis jantina<br>Consists of genes which determine gender                    |

Konstruk: Menganalisis

5 Antara berikut yang manakah disebabkan oleh gen terangkai seks?

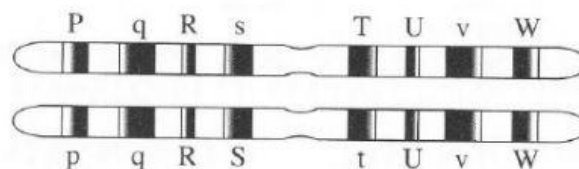
*Which of the following are caused by sex-linked genes?*

- I Hemofilia  
*Haemophilia*
  - II Talasemia  
*Thalassemia*
  - III Buta warna  
*Colour blindness*
  - IV Sindrom Turner  
*Turner syndrome*
- A I dan II  
*I and II*
  - B I dan III  
*I and III*
  - C II dan IV  
*II and IV*
  - D III dan IV  
*III and IV*

Konstruk: Mengingat

6 Rajah menunjukkan sepasang kromosom homolog. Abjad-abjad mewakili gen-gen pada kromosom.

*Diagram shows a pair of homologous chromosomes. The alphabets represent the genes in the chromosomes.*



Apakah yang diwakili oleh **S** dan **s**?

*What is represented by **S** and **s**?*

- A Alel  
*Alleles*
- B Alel resesif  
*Recessive alleles*
- C Alel dominan  
*Dominant alleles*

Konstruk: Mengingat

- 7 Sepasang suami isteri mempunyai faktor rhesus Rh yang berbeza. Anak pertama mereka adalah Rh+. Kehamilan seterusnya mengalami keguguran.

Tentukan faktor rhesus bagi ibu bapa dan fetus yang gugur.

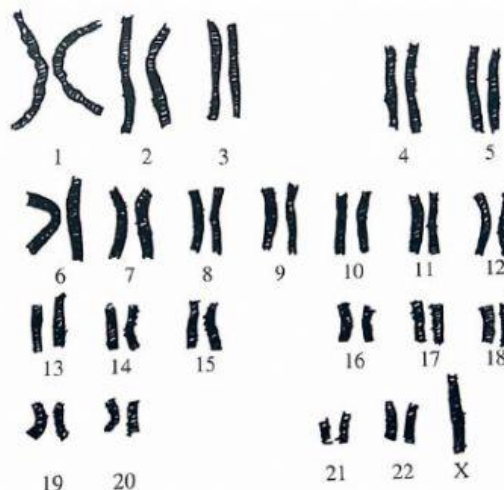
*A married couple has different Rh rhesus factors. Their first child is Rh+. All the subsequent pregnancies end with miscarriages.*

*Determine the rhesus factors for the parents and the miscarriage fetus.*

|   | Bapa<br><i>Father</i> | Ibu<br><i>Mother</i> | Fetus yang gugur<br><i>Miscarriage fetus</i> |
|---|-----------------------|----------------------|----------------------------------------------|
| A | Rh+                   | Rh-                  | Rh-                                          |
| B | Rh+                   | Rh-                  | Rh+                                          |
| C | Rh-                   | Rh+                  | Rh+                                          |
| D | Rh-                   | Rh+                  | Rh-                                          |

Konstruk: Mengaplikasi

- 8 Rajah menunjukkan kariotip penyakit genetik pada seorang individu.  
*Diagram shows a karyotype of a genetic disease in an individual.*



Antara berikut, gamet abnormal yang manakah terlibat dalam pembentukan individu tersebut?

*Which of the following abnormal gamete involved in the formation of the individual?*

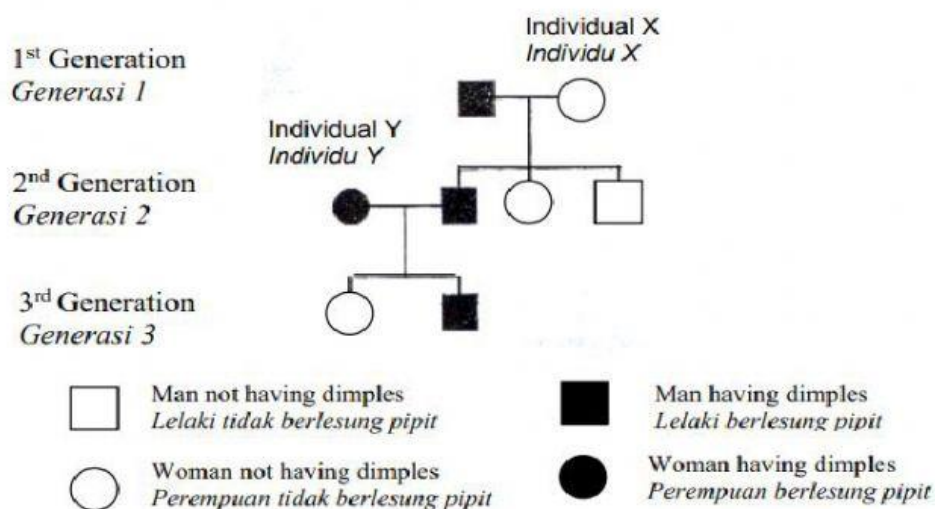
- A Ovum dengan bilangan kromosom 22 + XX  
*Ovum with number of chromosomes 22 + XX*
- B Ovum dengan bilangan kromosom 22 + O  
*Ovum with number of chromosomes 22 + O*
- C Sperma dengan bilangan kromosom 22 + XY  
*Sperm with number of chromosomes 22 + XY*

Konstruk: Memahami

- 9 Satu kacukan dilakukan antara seekor *Drosophila melanogaster* (lalat buah) bermata putih dengan seekor *Drosophila melanogaster* (lalat buah) yang heterozigot. Warna mata merah adalah dominan ke atas warna mata putih. Apakah nisbah fenotip bagi warna mata dalam kalangan anak yang terhasil?  
*A cross was carried out between a white eye Drosophila melanogaster (fruit fly) and a heterozygous Drosophila melanogaster (fruit fly). Red eye is dominant over white eye. What is the phenotypic ratio for eye colour among the offspring produced?*
- A Semua bermata putih  
*All white eye*
- B Semua bermata merah  
*All red eye*
- C 3 bermata merah : 1 bermata putih  
*3 red eye : 1 white eye*
- D 1 bermata merah : 1 bermata putih  
*1 red eye : 1 white eye*

Konstruk: Mengaplikasi

- 10 Rajah menunjukkan satu pedigri keluarga bagi pewarisan lesung pipit.  
*Diagram shows a family pedigree for dimples inheritance.*

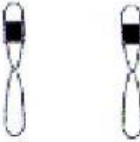
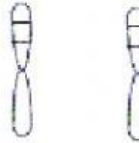


Berlesung pipit adalah trait dominan dan diwakili oleh H manakala tidak berlesung pipit diwakili oleh h.

Antara berikut yang manakah genotip individu X dan Y?

*Having dimples is a dominant trait and is represented by H whereas not having dimples is represented by h.*

*Which of the following are genotypes for individual X and Y?*

|   | Individu X                                                                        | Individu Y                                                                        |
|---|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| A |  |  |
| B |  |  |
| C |  |  |
| D |  |  |

Konstruk: Mengaplikasi