Province of the

EASTERN CAPE

EDUCATION

DIRECTORATE SENIOR CURRICULUM MANAGEMENT (SEN-FET)

GRADE 12 LIFE SCIENCES HOME SCHOOLING SELF-STUDY WORKSHEET 1 ANSWER SHEET

SUBJECT	LIFE SCIENCES	**GRADE**	12	**DATE**	09/04/2020
TOPIC	SEX DETERMINATION AND SEX-LINKED INHERITANCE	**TERM 1 REVISION**		**TERM 2 CONTENT**	✓

1 1.1 (a) 46✓ (1)

(b) 44✓ (1)

(c) 2✓ (1)

1.2 23✓ (1)

1.3 Male✓ (1)

(5)

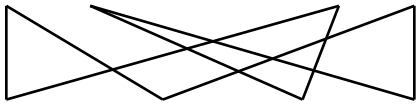
2

P_1	Phenotype	Haemophiliac female	x	Normal male✓
	Genotype	X^hX^h	x	X^HY✓

Meiosis

G/gametes X^h, X^h x X^H, Y ✓

Fertilisation



F_1 Genotype X^HX^h; X^hY ; X^HX^h ; X^hY✓*****

Phenotype 1 normal female : 1haemophiliac male ✓*****

P_1 and F_1✓

Meiosis and fertilisation✓ **2 Compulsory** + Any 4

OR

P_1	Phenotype	Haemophiliac female	x	Normal male✓
	Genotype	X^hX^h	x	X^HY✓

Meiosis

Fertilisation

Gametes	X^h	X^h
X^H	X^H X^h	X^H X^h
Y	X^h Y	X^h Y

1 mark for correct gametes

1 mark for correct genotypes*****

F_1 Phenotype 1 normal female : 1haemophiliac male ✓*****

P_1 and F_1✓

Meiosis and fertilisation✓ **2 Compulsory** + Any 4 **(6)**

3
- An individual inherits one allele from each parent✓
- The Y chromosome was inherited from the father✓
- And the recessive allele/ X^h was inherited from the mother✓
- since the other has two recessive alleles✓/ $X^h X^h$
- A son only needs to get one recessive allele to be a haemophiliac ✓since the
- Y-chromosome does not carry any allele to mask the haemophilia✓ Any 4 **(4)**

2

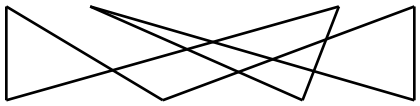
P_1 Phenotype: Normal vision female x Normal vision male✓

Genotype: X^HX^h x X^HY✓

Meiosis

G/gametes: X^H, X^h x X^H, Y ✓

Fertilisation



F_1 Genotype: X^HX^H; X^HY ; X^HX^h ; X^hY✓*****

Phenotype: 2 normal females , 1 normal male : 1 colour blind male✓*****

P_1 and F_1✓

Meiosis and fertilisation✓ **2 Compulsory** + Any 4

OR

P_1 Phenotype: Haemophiliac female x Normal male✓

Genotype: X^HX^h x X^HY✓

Meiosis

Fertilisation

Gametes	X^H	X^h
X^H	$X^H X^H$	$X^H X^h$
Y	$X^H Y$	$X^h Y$

1 mark for correct gametes

1 mark for correct genotypes*****

F_1 Phenotype: 2 normal females , 1 normal male : 1 colour blind male✓*****

P_1 and F_1✓

Meiosis and fertilisation✓ **2 Compulsory** + Any 4 **(6)**

5

- Males only have one X-chromosome✓
- If this chromosome carries the recessive allele✓/ X^d
- The male will be colour blind✓
- Females have 2 X-chromosomes✓
- They need to have two recessive alleles✓/ X^dX^d to be affected
- A dominant allele on the other X-chromosome will mask the effect✓ Any 4 **(4)**

[25]