

Question 4

Maximum mark

- (a) (i) (Gene) induction / activation ; 1 mark
- (ii) Reference to DNA {supercoiling / unwinding / eq} ;
(DNA) transcription factors / correct reference to hormone /
removal of repressor / removal of gene inhibitor / eq ; 2 marks
- (b) (i) RNA / mRNA / nucleotides / RNA polymerase ;
[do not credit reference to tRNA or rRNA] 1 mark
- (ii) {Hormone / ecdysone} {switches on gene / induces gene / activates gene /
initiates transcription / causes (DNA) uncoiling / eq} ;
Causing another (unknown) {substance / protein / enzyme} to be produced which
{starts off skin shedding / causes uncoiling of DNA / causes unzipping of DNA} ; 2 marks
- (c) Not enough males / change in sex ratio ;
A {reduction / collapse} in population in context /
increase in population justified ;

Alternative answer:
Appropriate reference to {increase in enzyme activity / decrease in enzyme
activity due to denaturing / growth effects} ;
Appropriate consequences leading to {increase / decrease} in crocodile population
; 2 marks
- Total 8 marks