

Question Number	Answer
*7 (a)	<p>Answers will be credited according to candidate's deployment of knowledge and understanding of the material in relation to the qualities and skills outlined in the generic mark scheme. The indicative content below is not prescriptive and candidates are not required to include all the material indicated as relevant. Additional content included in the response must be scientific and relevant.</p> <ul style="list-style-type: none"> • hermaphrodites can self-fertilise / reproduce without the need to find a mate • fertilising own egg cells using their own sperm cells • produce fewer nematode offspring • all offspring likely to be hermaphrodites • as all gametes will contain a sex chromosome • hermaphrodites can reproduce with a {mate / male nematode} / need to find a male to mate with • males have only one chromosome • if hermaphrodite mates with a male then (700) more egg cells are fertilised • half of the offspring will be {hermaphrodites / male} • if sperm cells without a sex chromosome fertilise an egg cell then the offspring will be male • if sperm cells with a sex chromosome fertilise an egg cell then the offspring will be hermaphrodites • half of the male sperm cells will not contain a sex chromosome • consideration of advantages of {reproducing without the need to find a mate/ all offspring being hermaphrodites} on chance of survival (of nematodes) • consideration of disadvantages of fewer offspring on chance of survival (of nematodes) • consideration of disadvantages of needing to find a mate reproducing on chance of survival of nematodes • consideration of advantages of more offspring on {increased reproductive success /chance of survival/ increased future sexual reproduction} of nematode {population/species/offspring} • self-fertilisation leads to limited genetic variation (in offspring) / {decrease/no change} in gene pool • {sexual reproduction / mating with male nematode} results in increased genetic variation of offspring • consideration of disadvantages of limited genetic variation on chance of survival (of nematodes) • consideration of advantages of increased genetic variation on chance of survival (of nematodes) • consideration of benefits of more offspring with increased genetic variation <p style="text-align: right;">(6)</p>

			Additional guidance
Level 0	0	No awardable content	
Level 1	1-2	<p>An explanation may be attempted but with limited interpretation or analysis of the scientific information and with a focus on mainly just one piece of scientific information.</p> <p>The explanation will contain basic information, with some attempt made to link knowledge and understanding to the given context.</p>	<p>consideration of both types of reproductive behaviour from given information only</p> <p>or</p> <p>more detailed consideration of one type of reproductive behaviour</p>
Level 2	3-4	<p>An explanation will be given, with occasional evidence of analysis, interpretation and/or evaluation of both pieces of scientific information.</p> <p>The explanation shows some linkages and lines of scientific reasoning, with some structure.</p>	<p>all level 1 info plus consideration of two of</p> <ul style="list-style-type: none"> -explanation of adv/disadv of asexual on survival of nematodes (not GD) -explanation of adv/disadv of sexual on survival of nematodes (not GD) -effect of reproductive behaviour on genetic diversity of offspring -explanation of impact of genetic diversity on survival of nematodes
Level 3	5-6	<p>An explanation is made that is supported throughout by sustained application of relevant evidence of analysis, interpretation and/or evaluation of both pieces of scientific information.</p> <p>The explanation shows a well-developed and sustained line of scientific reasoning, which is clear and logically structured.</p>	<p>all level 2 info plus consideration of all of</p> <ul style="list-style-type: none"> -explanation of adv/disadv of asexual on survival of nematodes (not GD) -explanation of adv/disadv of sexual on survival of nematodes (not GD) -effect of reproductive behaviour on genetic diversity of offspring -explanation of impact of genetic diversity on survival of nematodes