

Mark Scheme (Results)

June 2011

360Science

GCSE Biology
Structured Paper B3 (5029/01)

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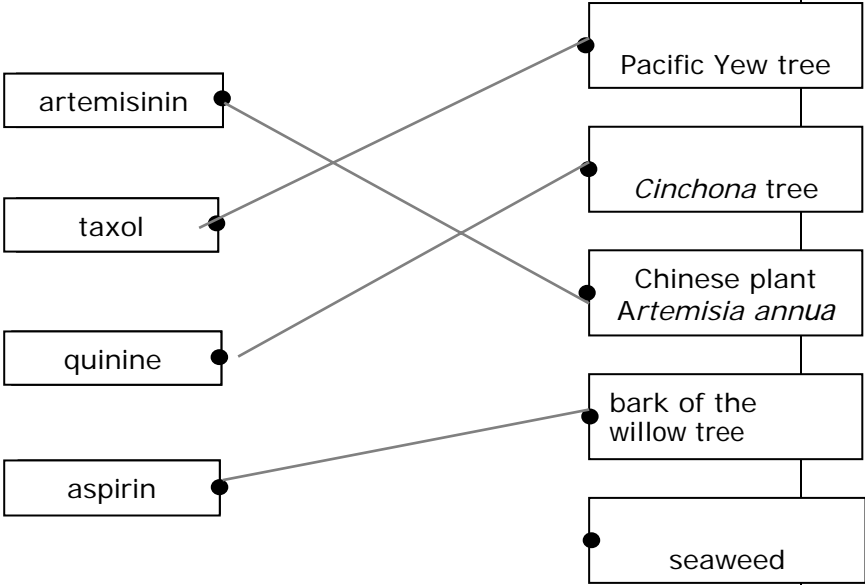
**5029 Mark Scheme
June 2011**

Question Number	Answer	Additional guidance	Mark
1(a)	Any two from: 1. pointed/sharp (canine) teeth ; 2. eyes on front of head /binocular vision; 3. strong jaws ;	Ignore: Large powerful/ muscular ignore large	(2)

Question Number	Answer	Additional guidance	Mark
1(b)	Any two from: 1. eyes on side of head / wide field of view / peripheral vision; 2. camouflaged ; 3. run fast / have long / strong legs (for running) 4. good sense of {hearing / smell} ; 5. antlers (for defence) ; 6. tough / thick skin ; 7. live in herds;	stamina Horns Ignore: tusks tough hide	(2)

Question Number	Answer	Additional guidance	Mark
2	1. pheromones ; 2. hand gestures (and) facial expressions ; 3. facial expression ; 4. body posture;	colour/sound accept reverse order body posture body posture	(4)

Question Number	Answer	Additional guidance	Mark
3	Any two from: 1. heart disease; 2. shorter life expectancy / earlier death ; 3. breathing problems; 4. circulation problems/ stroke/ high blood pressure; 5. fertility problems ; 6. diabetes ; 7. arthritis; 8. cancer;	heart attack / failure Ignore: heart problems out of breath (easily)/not able to exercise for long, accept: varicose veins/clog up arteries Joint problems If a cancer is named then must be one of the following: colon, breast, uterine, kidney, oesophagus gallbladder , ovaries, and pancreas	(2)

Question Number	Answer	Mark
4	<p data-bbox="403 264 687 324">drug it can be extracted</p> <p data-bbox="952 264 1211 293">plant from which</p>  <p data-bbox="403 976 925 1070">Note: 1 mark for each correct line; reject if two lines from same drug box</p>	<p data-bbox="1267 1037 1316 1070">(4)</p>

Question Number	Answer	Additional guidance	Mark
5(a)	1. more in the dark/move into the dark/ stay in the dark / ORA ; 2. more in the wet (area)/move into the wet (area)/ stay in the wet (area)/ORA;	Accept: prefer / liked for move into Accept: prefer / liked for move into	(2)

Question Number	Answer	Additional guidance	Mark
5(b)	1. water; 2. light;	humidity Ignore all references to wet/wetness/ dryness /dampness Ignore all references to dark/darkness tactile / forming groups	(2)

Question Number	Answer	Additional guidance	Mark
5(c)	instinctive / innate / inherited (behaviour) ;	(negative) photokinesis / phototaxis (positive) hydrokinesis / hydrotaxis	(1)

Question Number	Answer	Additional guidance	Mark
6(a)(i)	plant stanol ester ;	plant ester sterol sterol ester stanol stanol ester	(1)

Question Number	Answer	Additional guidance	Mark
6(a)(ii)	Any two from: <ul style="list-style-type: none"> 1. (less cholesterol) less (risk of) blocked arteries ; 2. reduces risk of heart disease / heart attack ; 3. reduces blood pressure ; 4. reduces risk of blood clots / (deep vein) thrombosis / strokes; 5. reduces risk of /size of gallstones 	blood flows more easily / less arteriosclerosis / less atheromas Ignore references to fat	(2)

Question Number	Answer	Additional guidance	Mark
7(a)	<i>Aspergillus</i> ;	Accept: koji	(1)

Question Number	Answer	Additional guidance	Mark
7(b)	bacteria ;		(1)

Question Number	Answer	Additional guidance	Mark
7(c)	stops it secreting enzymes / reduces /stops its action;	Ignore kills it / breaks it down / digests it	(1)

Question Number	Answer	Additional guidance	Mark
7(d)	to stop any further fermentation / destroys / kills microorganisms / kills bacteria / kills fungus /extends shelf life of (product) ;	Ignore sterilise Ignore germs Reject remove / get rid of (bacteria)	(1)

Question Number	Answer	Additional guidance	Mark
8(a)	attracting a female / mate / courtship;	scaring away /feels threatened	(1)

Question Number	Answer	Additional guidance	Mark
8(b)	<p>Any three from:</p> <ol style="list-style-type: none"> 1. (female) selects the fittest / healthiest /best genes / attractive features (of male) e.g. big tail ; 2. increases the chances of mating /reproduction; 3. young inherit 'best / good' genes ; 4. young have good characteristics / named characteristic 5. idea of survival of the fittest (referred to individual / or species) ; 6. appears larger ; 7. predator / male competitors scared away ; 8. young protected / peacock less likely to be eaten ; 		(3)

Question Number	Answer	Additional guidance	Mark
9(a)	<p>Any two from:</p> <ol style="list-style-type: none"> 1. more chance of finding prey / make a kill /getting food; 2. attack larger animals ; 3. can surround prey ; 4. can share task of hunting/some rest while others continue chase / less energy used by any one wolf; 5. one can distract prey (while others attack) / chasing away scavengers; 	<p>Ignore just 'protection'!</p> <p>Accept: can spot larger predators and warn pack of danger (while hunting) ;</p>	(2)

Question Number	Answer	Additional guidance	Mark
9(b)	<p>Any two from:</p> <p>ideas/descriptions of</p> <ol style="list-style-type: none"> 1. hunting / detecting prey / retrieving prey; 2. guarding / warning / protection 3. herding e.g. sheep ; 4. eaten for food / skins used for clothes; 5. pulling loads 	<p>companionship (company)</p>	(2)

Question Number	Answer	Additional guidance	Mark
9(c)(i)	(% of domesticated animals) increase /credit manipulated figures ;	Reject if manipulated figures are wrong	(1)

Question Number	Answer	Additional guidance	Mark
9(c)(ii)	Less cattle and pigs /number of deer increased / habitat changed which suited wild deer rather than pigs / food preference for venison / better hunting weapons /techniques	Ignore vague answers referring to shortage of food, Ignore just quoted figures.	(1)

Question Number	Answer	Additional guidance	Mark
10(a)	bacteria / <i>Lactobacillus (bulgaricus /acidophilus /sp)/</i> <i>Streptococcus (thermophilus/lactis/cremoris/sp);</i>	Credit other correctly named species Reject virus/fungi/yeast/mould	(1)

Question Number	Answer	Additional guidance	Mark
10(b)	Any three from: 1. bacteria multiply ; 2. produce lactic acid ; 3. lowers pH/ makes more acidic; 4. milk thickens / coagulates / clots / solidifies/ sets ; 5. <i>Streptococcus</i> and <i>lactobacillus</i> work together ; 6. both produce other chemicals /acetaldehydes that give yoghurt its distinctive flavour/ taste ;	<i>Streptococcus sp</i> grows first / stimulate <i>lactobacillus / lactobacillus</i> grows (second); Accept: casein / proteins Ignore: curds	(3)

Question Number	Answer	Additional guidance	Mark
10(c)	Any two from: 1. contain oligosaccharides ; 2. we can't digest oligosaccharides ; 3. (the oligosaccharides) can be used by (beneficial) bacteria (to multiply) ; 4. (that) outcompete the harmful bacteria ;	ignore refs to probiotics	(2)

Question Number	Answer			Mark	
11					
	(a)	<p align="center">term</p> <p>conditioned behaviour</p>	<p align="center">what it means</p> <p>a behaviour shown more often due to repeated stimulus</p> <p>OR</p> <p>to train an animal to display a specific behaviour (more often) by rewards/punishments</p>		<p align="center">example</p> <p>Pavlov's dogs / dog training / parrots talking /eq</p>
	(b)	<p>habituation</p>	<p>getting used to/learning not to react to, non harmful stimuli</p>		<p>birds becoming used to traffic noises /eq</p>
	(c)	<p>anthropomorphism</p>	<p>attributing human qualities/characteristics to non human objects / animals</p>		<p>cartoons of dogs talking / cartoons of dogs dressed in clothes/ saying "my cat loves me"</p> <p>ignore e.g. just dressing dogs in clothes</p>
	<p>One mark for each correct box</p>				<p align="right">(6)</p>

Question Number	Answer	Additional guidance	Mark
12 (a)	(more likely to be attacked because they) spend more time at surface ;	Ignore refs to speed Accept figures if show comparison – e.g. loggerheads spend 54s more at surface / greens only spend 2s at surface	(1)

Question Number	Answer	Additional guidance	Mark
12 (b)	Any two from: 1. as time spent with young after hatching increases number of eggs laid decreases ; 2. (with fewer young) more parental care can be shown; 3. which increases the % of young that survive 4. (because) less likely to be lost to predators / more food can be supplied to each young;	Idea of: If too many young to look after the parents would not have enough time for all of them Ignore just 'protect'	(2)

Question Number	Answer	Additional guidance	Mark
13 (a) (i)	imprinting ; maternal /paternal/parental		(1)

Question Number	Answer	Additional guidance	Mark
13(a) (ii)	Any three from: 1. stays near parent ; 2. less likely to be preyed on ; 3. taken to a food supply ; 4. learn (species specific) behaviour from parent; 5. credit one example of MP4 e.g. how to fly / attract mate;	Ignore: given food copies parent's behaviour	(3)

Question Number	Answer	Additional guidance	Mark
14.	<p>1. to make crops herbicide /pest resistant / drought resistant/eq ;</p> <p><i>Agrobacterium tumefaciens:</i> Maximum of 3 marks</p> <p>2. <i>Agrobacterium tumefaciens</i> is used as a vector / to transport genes into (crop) plant;</p> <p>3. gene for desired characteristic / named characteristic e.g. herbicide resistance / gene for larger fruit identified / cut out;</p> <p>4. gene put into plasmid/ <i>Agrobacterium (tumefaciens)</i> ;</p> <p>5. which infects/put into plant ;</p> <p>6. plant produces crown gall ;</p> <p>7. (crown gall) is used /tissue culture used to grow new plants (with desired characteristic);</p> <p><i>Bacillus thuringiensis:</i> Maximum of 3 marks</p> <p>8. <i>Bacillus thuringiensis</i> produces toxin/pesticide/ is a source of the gene for producing toxins / pesticides ;</p> <p>9. gene cut out of bacterium / <i>B. thuringiensis</i> ; ONLY CREDIT THIS POINT ONCE ref mp3</p> <p>10. gene put into plasmid /vector that takes the wanted gene into plant cells ; ONLY CREDIT THIS POINT ONCE ref mp4</p> <p>11. gene (for toxins) incorporated into DNA/genome/eq of crop plant /plant produces pesticide so less eaten/insects killed;</p>	<p>Accept 'tumour' for crown gall</p>	(5)

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