



Mark Scheme (Results)

Summer 2025

Pearson Edexcel International GCSE
In Science Single Award (4SS0) Paper 1B

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Question Number	Answer	additional guidance	Mark
1(a)(i)	• P fallopian tube / oviduct (1) • Q ovary (1) • R uterus / uterus wall/ uterine wall / eq (1)	endometrium	3

Question Number	Answer	Mark
1(a)(ii)	A description answer that makes reference to two of the following points: • penis inserted (during copulation) / where sperm is deposited / eq (1) • allows baby to pass through during labour / birth / eq (1) • allows exit of menstrual blood / eq (1)	2

Question Number	Answer	additional guidance	Mark
1(b)	An answer that makes reference to three of the following: • (parents) XX and XY (1) • gametes X from female and X or Y from male (1) • offspring genotype shown (in correct ratio) (1) • male (indicated) determines sex (1)	Allow mp 1 2 3 from Punnet square No ECF For gametes either circled or clear separation of X Y No credit for other letters	3

Question Number	Answer	additional guidance	Mark
1(c)(i)	Calculation steps not mark points Correct answer alone scores 2 marks number at 1910 103.9 number at 2020 105.1 percentage change = $(105.1 - 103.9) \div 103.9 \times 100$ $= 1.2 \div 103.9 \times 100$ = 1.2 or 1.15 or 1.155 or 1.1549 (2) Or allow percentage difference = $1.2 \div ((105.1 + 103.9) \div 2) \times 100$ = 1.1. or 1.2 or 1.15 or 1.148 (2)	Allow 1 mark for correct readings 103.9 and 105.1 Or one mark for dividing by 103.9 Or dividing by $((105.1 + 103.9) \div 2)$ or by 104.5	2

Question Number	Answer	additional guidance	Mark
1(c)(ii)	Calculation steps not mark points Correct answer alone scores 2 marks maximum value = 106.7 minimum value = 103.55 allow 103.5 - 103.6 allow any value between 3.1 – 3.2 (2)	Allow 2 marks for correct difference Allow 1 mark for max and min correct within range Or for correct subtraction of any values	2

Question Number	Answer	Mark
1(c)(iii)	random / due to chance / more or less X or Y sperm produced / testosterone/ hormonal levels / age of parent / age of mother / age of father / diet / disease / illness /eq	1

(Total for question 1 = 13 marks)

Question Number	Answer	Mark
2(a)(i)	B (grass) <i>A is not correct as the goat is not the producer</i> <i>C is not correct as the mouse is not the producer</i> <i>D is not correct as owl is not the producer</i>	1

Question Number	Answer	Additional guidance	Mark
2(a)(ii)	grass → mouse → snake → eagle (2)	one for the 4 correct organisms in order	2

Question Number	Answer	Mark
2(a)(iii)	primary consumer / 2nd trophic level 2 / trophic level 2 (1)	1

Question Number	Answer	Additional Guidance	Mark
2(b)	An answer that makes reference to five of the following points: 1. producer has more energy available / energy available decreases as you move up pyramid / along food chain / eq (1) 2. less of (%) (energy available) stored / in biomass / in producer / eq (1) 3. some energy that falls on leaves is reflected / not absorbed / eq (1) 4. less (%) energy lost / in respiration / by producer / eq (1) 5. as animals move / more active /eq (1) 6. more (%) energy lost / in respiration in primary consumer than secondary / tertiary / same (%) energy lost / in respiration in secondary and tertiary eq(1) 7. less (%) energy (transferred from producer) to primary consumer biomass / stored than (from primary) to secondary / eq (1) 8. as plant material harder to digest / more egested/ eq(1) 9. same (%) (transferred from primary) to secondary and from secondary to tertiary biomass / stored / eq (1) 10. no information data on excretion / not eaten / not digested / decay / decomposition / eq (1)	No credit for data just quoted alone but allow eg only 1% more energy stored/ in biomass in consumers as you go up food chain more energy lost in respiration in primary consumer than producer plants /producers don't move less (%) energy lost / in respiration in secondary / tertiary than primary more % energy (transfer) in biomass / stored (from primary) to secondary than (from producer) to primary	5

(Total for question 2 = 9 marks)

Question Number	Answer	Additional guidance	Mark
3(a)	$6\text{CO}_2 + 6\text{H}_2\text{O} \rightarrow \text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2$ (2)	allow 1 for correct unbalanced equation	2

Question Number	Answer	Additional guidance	Mark
3(b)(i)	Calculation steps not mark points Correct answer alone scores 2 marks $(42 + 40 + 41) \div 3$ 41 (2)	allow 1 mark for 123 or $42 + 40 + 41$	2

Question Number	Answer	Mark
3(b)(ii)	distance / light intensity / eq (1)	1

Question Number	Answer	additional guidance	Mark
3(b)(iii)	An answer that includes - Scales linear and at least 3 big squares on y and 3 on x (1) - Lines straight and through all points (1) - Axis correct way round (distance on x and bubbles per min on y) (1) - Units labelled with distance in cm mean number of bubbles releases in one minute / per minute / eq (1) - Points correctly plotted within a small square (1)	allow truncated y if scale not linear lose S and P Bar chart max 4 no L even if unlabelled Ignore point at 5 cm if extrapolated No P	5

Question Number	Answer	Mark
3(b)(iv)	A description answer that makes reference to two of the following points: • as distance increases mean / number of bubbles decreases /as distance decreases number of bubbles increases/ eq (1) • negative correlation (1) • levels off / decline slows / eq (1)	2

(Total for question 3 = 12 marks)

Question Number	Answer	Mark
4	• restriction / endonuclease (1) • plasmid (1) • ligase (1) • recombinant (1) • virus / vector (1) • transgenic (1) • insulin / growth hormone / testosterone / oestrogen / melatonin / eq (1)	7

(Total for question 4 = 7 marks)

Question Number	Answer	Mark
5(a)(i)	B (Q) <i>A is not correct as P is the oesophagus</i> <i>C is not correct as R is the small intestine</i> <i>D is not correct as S is the large intestine</i>	1

Question Number	Answer	Mark
5(a)(ii)	C (R) <i>A is not correct as P is the oesophagus</i> <i>B is not correct as Q is the stomach</i> <i>D is not correct T is the liver</i>	1

Question Number	Answer	Mark
5(a)(iii)	B (R) <i>A is not correct as Q does not contain villi</i> <i>C is not correct as S does not contain villi</i> <i>D is not correct as T does not contain villi</i>	1

Question Number	Answer	Additional guidance	Mark
5(b)	A description answer that makes reference to four of the following points: 1. enzymes breakdown (large molecules) into smaller molecules / insoluble into soluble / eq (1) 2. amylase digest starch into maltose /eq (1) 3. maltase digests maltose into glucose/ eq (1) 4. protease /peptidase digests protein into amino acids / peptides / peptides into amino acids / eq (1) 5. lipase digests lipid into fatty acids / glycerol / eq (1) 6. so (smaller molecules) nutrients can be absorbed / enter blood / lymph / lacteal / eq (1) 7. by villi / microvilli/ eq (1)	allow from example eg starch into glucose / smaller molecules allow amylase and maltase break down starch into glucose for 1 mark for mp2 mp3 mp4 mp5 need enzyme substrate and product	4

Question Number	Answer	Mark
5(c) (i)	An answer that includes • control group has no probiotic / doesn't have the drink / eq (1)	1

Question Number	Answer	Additional guidance	Mark
5(c)(ii)	An answer that makes reference to five of the following points: 1. small study / not repeated / eq (1) 2. similar numbers in each group /eq (1) 3. fewer patients in probiotic group with diarrhoea/ eq / (1) 4. half as many / 40% fewer / % comparison quantitative comparison of diarrhoea vs control/ eq (1) 5. zero / 0 / no patients with <i>Clostridium</i> in faeces in probiotic group / eq (1) 6. correlation / relationship between diarrhoea and <i>Clostridium</i> / <i>Clostridium</i> often causing diarrhoea (in control) eq(1) 7. some patients in probiotic still have diarrhoea (but not <i>Clostridium</i>) / eq(1) 8. other bacteria causing diarrhoea / eq (1) 9. probiotic (bacteria) kill / compete with <i>Clostridium</i> / eq (1) 10.no other information about patient age / original infection / sex / other diet / eq(1)	allow converse for control group Not just reduces number	5

(Total for question 5 = 13 marks)

Question number	Answer	Additional guidance	Mark
6	An answer that makes reference to six of the following points • C use salt and no salt or different mass / volume of salt / eq (1) • O use same powder / same enzymes in powder / eq (1) • R repeat (with each salt mass) / eq (1) • M1 measure diameter / colour / visibility / faintness colorimetry / size of stain / eq (1) • M2 after stated time (in machine in solution) /eq (1) • S1 same powder / same mass / volume of powder / same temperature of wash /eq (1) • S2 same stain / named stain / blood / blackcurrant / same fabric / same type of cloth / same brand /same material / eq (1)	allow different amounts of salt Some measure not just which removes stain not amount same wash cycle/programme	6

(Total for question 6 = 6 marks)

