

Unit Code J257/02

Qual Name GCSE Biology B (Twenty First Century Science)

Qual Title Depth in biology (Foundation)

Tier Foundation

Question Set	Q. No	Total Marks	AO	Spec Ref.	Topic	Question Subject, If required	Additional Notes/Comments	Maths Skills	Practical Assessment Skills
1	1a	4	1	B5.6.3	When organs and systems stop working.	This question is about type 1 and type 2 diabetes.			
1	1b	3	2	B2.5.4, B2.5.1a	Factors affecting health.	This question is about type 2 diabetes and cardiovascular disease risk..			
1	1ci	2	2	B2.5.1b	Factors affecting health.	This question is assessing practical skills in the context of an investigation into exercise and fitness levels.			Y
1	1cii	3	3	B2.5.1b	Factors affecting health.	This question is assessing practical skills in the context of an investigation into exercise and fitness levels.			Y
1	1ciii	1	1	B2.5.1b	Factors affecting health.	This question tests maths skills in the context of an investigation into exercise and fitness levels.			Y
1	1civ	1	1	B2.5.1b	Factors affecting health.	This question tests maths skills in the context of an investigation into exercise and fitness levels.	This question relies on the data and graph to generate an answer.		Y
1	1cv	1	3	B2.5.1b, B2.5.3a,b	Factors affecting health.	This question is testing data analysis in the context of an investigation into exercise and fitness levels.	This question relies on the data and graph to generate an answer.	Y	Y
1	1cvi	2	3	B2.5.1b, B2.5.3b	Factors affecting health.	This question is testing data analysis in the context of an investigation into exercise and fitness levels.	This question relies on the data and graph to generate an answer.		Y
1	1cvii	3	2 and 3	B2.5.1b, B2.5.3b	Factors affecting health.	This question is testing data analysis in the context of an investigation into exercise and fitness levels.	This question relies on the data and graph to generate an answer.		Y
2	1a	3	1 and 2	B5.2.2	Factors affecting health.	This question is about the effect of a chemical on a synapse.			
2	1b	2	1	B2.1.3, B6.4.3	Causes of disease.	This question is about preventing problems caused by pests such as disease transmission and crop yield reduction..	This question is synoptic and links the prevention of disease in crops with food security.		
2	1ci	2	2	B3.3.7	Interdependence in ecosystems.	This question is about pyramids of biomass.			
2	1cii	2	2	B3.3.8	Interdependence in ecosystems.	This question tests maths skills: efficiency calculation.		Y	
2	1di	1	2	B3.3.5	Interdependence in ecosystems.	This question is about pollination.			

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2	1dii	2	2	B3.4.1	Populations in ecosystems.	This question is about bioaccumulation and feeding relationships.			
2	1diii	3	3	B3.4.1, B3.3.5	Populations in ecosystems.	This question is about bioaccumulation, pollinators and interdependence.			
3	1a	2	1	B2.1.5	Causes of disease.	This question is about disease in plants.			
3	1bi	3	3	B2.4.2	Identifying the cause of infections.	This question is about aseptic techniques.			Y
3	1bii	3	2	B2.4.3, B2.6.2	Identifying and treating the cause of infections.	This question tests maths and practical skills in the context of the effect of antibiotics on bacterial cultures.	Y	Y	
3	1biii	2	3	B2.4.3, B2.6.2	Identifying and treating the cause of infections.	This question tests practical skills in the context of the effect of antibiotics on bacterial cultures.			Y
3	1c	3	1	B2.2.6, B3.3.2, B3.3.5, B3.3.9	Interdependence in ecosystems.	This question is about antimicrobial substances produced by plants.	This question is synoptic, it links the impact of disease in one species to the indirect effect it can have on other species and the importance of interdependence.		
3	1di	1	2	B4.2.2a	Electron microscopy.	This question test maths skills: standard form.	Y		
3	1dii	1	2	B4.2.2a	Electron microscopy.	This question test maths skills: interconverting units.	Y		
3	1diii	2	3	B4.2.2a	Electron microscopy.	This questions is about the limitations of light microscopes.	Y		
3	1div	2	2 and 1	B4.2.1	Electron microscopy.	This question is about electron microscopes.			
3	1e	3	2	B2.2.6, B2.3.2	Treating disease.	This question ia about the human immune system.			
4	1ai	1	1	B3.1.3a	Photosynthesis.	This question is about enzymes.			
4	1aii	1	2	B3.1.3a	Photosynthesis.	This question is about enzymes.			
4	1bi	3	2	B2.6.1	Treating disease.	This question is about risk.			
4	1bii	2	1 and 2	B1.3.1	Gene technology.	This question is about the genetic differences between individuals.			
4	1biii	2	1 and 2	B1.3.1, B1.3.4	Gene technology.	This question is about genetic testing.			
4	1c	6	2	B6.1.9, B6.1.1, B6.1.2, B6.1.3, B6.1.4	Theory of evolution.	This question is about the process of natural selection.			
5	1a	2	1	B3.2.1, B1.1.6	Producer needs.	This question is about the importance of nitrate ions for plant growth.	This question is synoptic and links nitrate to its importance in the formation of amino acids and proteins.		

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5	1bi	2	2	B3.2.3, B3.2.4, B4.1.3, B5.1.2	Producer needs.	This question is about cell structure.			
5	1bii	2	1	B3.2.3, B3.2.4, B4.1.3, B5.1.2	Producer needs.	This question is about the role of the mitochondria and cell membrane in transporting substances into a cell.			
5	1biii	2	1	B3.2.4, B5.1.7	Producer needs.	This question is about the adaptations of root hairs.	This question is synoptic, it links the importance of a large surface area to increase uptake of ions.		
5	1c	4	1	B3.2.2a, B3.2.4, B3.2.6a	Producer needs.	This question is about the movement of water through the xylem and transpiration.			
5	1d	6	2 and 3	B3.2.6c, B3.2.7b	Producer needs.	This question is about the use of a potometer to measure water uptake by a plant.			Y
6	1a	4	1	B5.4.2a	Homeostasis.	This question is about the skin's role in cooling.			
6	1bi	2	1	B5.4.2a	Homeostasis.	This question is about the role of hairs in raising temperature.			
6	1bii	2	2	B5.4.2a, B4.1.4, B4.1.2	Homeostasis.	This question is about the role of shivering in raising temperature.	This question has synoptic links to cellular respiration.		
7	1a	4	3	B1.1.1b	The genome.	This question tests practical skills; how to produce a biological drawing.	This question requires the drawing to generate an answer.		Y
7	1bi	4	1 and 3	B3.3.1b	Interdependence in ecosystems.	This question tests practical skills, identifying hazards and suggesting ways to reduce risk.	This question requires the information relating to the method to generate an answer.		Y
7	1bii	1	1	B3.3.1b	Interdependence in ecosystems.	This question tests knowledge of the starch test.			Y
7	1ci	1	2	B4.4.1b	Controlling plant growth	This question tests knowledge of plant growth movements.			Y
7	1cii	4	1	B4.4.1a	Controlling plant growth	This question tests knowledge of plant growth movements.			
7	1d	2	3	B3.1.1a, B3.1.2, B3.3.1a	Photosynthesis.	This question tests knowledge of plant growth movements and photosynthesis.			
8	1ai	2	3	B6.4.1, B6.4.5	Biodiversity.	This question tests ability to analyse data.		Y	
8	1aai	1	3	B6.4.1, B6.4.5	Biodiversity.	This question tests ability to analyse data.		Y	
8	1bi	2	2	B3.3.5	Interdependence in ecosystems	This question is about food webs.			
8	1bii	3	2	B3.3.4	Interdependence in ecosystems.	This question is about parts of an ecosystem.			

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8	1biii	3	1	B3.3.6, B3.3.2, B3.3.5	Interdependence in ecosystems.	This question is about producers and consumers.			
8	1biv	4	2	B6.4.1, B3.4.1, B3.1.3a	Interdependence in ecosystems.	This question is about the role of enzymes in digestion.	This question has synoptic links to enzymes.		
8	1bv	2	2	B6.4.1, B3.4.1	Populations in ecosystems.	This question is about bioaccumulation.	This question has synoptic links to biodiversity.		
8	1c	3	3 and 2	B6.4.1, B3.4.1	Populations in ecosystems.		This question has synoptic links to biodiversity.		
9	1ai	1	2	B6.1.7	Theory of evolution.	This question is about how fossils provide evidence for evolution.			
9	1aai	2	2	B6.1.2, B6.1.3	Theory of evolution.	This question is the causes of variation observed within a species.			
9	1bi	5	2	B6.1.1, B6.1.2, B6.1.3, B6.1.4, B6.1.5	Theory of evolution.	This question is about natural selection.			
9	1bii	2	2	B6.1.5, B6.3.1	Classification	This question is about classification of species.			
10	1a	4	1	B1.1.3, B1.1.7	The genome.	This question is about the structure of DNA.			
10	1bi	1	2	B1.1.5, B1.2.1	The genome.	This question is about phenotypes.			
10	1bii	1	2	B1.1.5, B1.2.1	The genome.	This question is about phenotypes.			
10	1biii	1	2	B1.1.5, B1.2.1	The genome.	This question is about genotypes.			
10	1ci	1	1	B1.2.3, B1.2.4	Inheritance of genetic information.	This question is about interpreting a genetic cross to determine proportion.	The Punnett square in part c) is required to generate an answer to this question.		
10	1cii	2	1	B1.2.3	Inheritance of genetic information.	This question is about interpreting a genetic cross to determine percentage.	The Punnett square in part c) is required to generate an answer to this question.	Y	
10	1ciii	2	1	B1.2.3, B1.2.5	Inheritance of genetic information.	This question is about interpreting a genetic cross to determine probability.	The Punnett square in part c) is required to generate an answer to this question.	Y	
10	1d	6	2	B1.2.2, B1.3.1, B1.3.4	Inheritance of genetic information.	This question is about the using genotypes to predict the outcomes of genetic crosses, the implications and decisions that can result from this information.			
11	1a	1	1	B3.1.2, B3.2.5a	Producers needs.	This question is about the function of the chloroplast, xylem and phloem.			
11	1b	2	3	B3.1.4a,b	Photosynthesis.	This question tests practical skills in the context of a photosynthesis practical.	Fig 6.1 is needed to generate an answer to this question.		Y

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11	1ci	2	3	B3.1.4b, B3.1.7d	Photosynthesis.	This question tests practical skills in the context of a photosynthesis practical.	Fig 6.2 is needed to generate an answer to this question.		Y
11	1cii	2	2	B3.1.4b, B3.1.7b,c	Photosynthesis.	This question tests math skills in the context of a photosynthesis practical.	Fig 6.3 is needed to generate an answer to this question.	Y	Y
11	1d	3	3	B3.1.4b, B3.1.7b,d	Photosynthesis.	This question test the ability to analyse data.	Fig 6.3 is needed to generate an answer to this question.	Y	Y
11	1e	2	2 and 3	B3.1.4b, B3.1.7a,b,d	Photosynthesis.	This question tests math skills in the context of a photosynthesis practical.	Fig 6.3 is needed to generate an answer to this question.	Y	Y
12	1	6	1 and 2	B2.1.3, B2.1.2, B2.2.1	Causes of disease.	This question is about ways in which disease can be spread and the benefits of some microorganisms to human health.			
13	1a	2	1	B1.1.3	The genome.	This question is about the structure of DNA.			
13	1b	1	1	B1.1.7	The genome.	This question is about the components of a nucleotide.			
13	1c	4	1	B1.1.1, B1.1.3, B1.1.5	The genome.	This question is about structures and their relative size.			
13	1d	1	2	B1.1.1	The genome.	This question is about the structure of bacterial cells.			
14	1a	1	1	B1.2.1	The genome	This question is about sperm cells.			
14	1b	1	1	B1.2.1, B4.3.3	Growth and development.	This question is about sexual reproduction..			
14	1c	2	2	B1.2.8, B4.3.3	The genome	This question is about sex determination.			
14	1d	2	2	B5.5.3	Hormones in human reproduction.	This question is about contraception.			
14	1e	2	2	B4.3.3	Growth and development.	This question is about meiosis.			
15	1a	2	3	B6.4.1, B6.4.5	Biodiversity.	This question tests ability to process data in the context of food production.		Y	
15	1b	2	2	B6.4.1	Biodiversity.	This question tests maths skills in the context of food production.		Y	
15	1ci	3	3	B6.4.1, B6.4.5	Biodiversity.	This question tests ability to process data in the context of food production.			
15	1cii	2	2	B6.4.1, B6.4.3	Biodiversity.	This question tests understanding of the need to communicate scientific findings with the public.			
15	1d	4	2	B6.4.1, B6.4.3, B3.4.1, B3.3.5, B6.4.4	Biodiversity.	This question tests student understanding the need for food security and the impacts of this on biodiversity.	This question has synoptic links to interdependence in ecosystems.		
16	1a	3	1	B2.1.1, B2.1.2	Causes of disease.	This question tests the understanding of the relationship between health and disease.			
16	1b	4	1	B2.1.3, B2.1.4	Causes of disease.	This question tests the cause and transmission of common human diseases.			

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16	1c	6	1 and 2	B2.2.4, B2.2.5, B2.1.3, B2.1.4	Protection against pathogens.	This question tests understanding of transmission of disease and the role of the immune system in protecting against disease.			
17	1ai	1	2	B3.2.5a	Producers needs.	This question is about the phloem.	This questions relies on Fig 5.2 to generate an answer.		
17	1aaii	1	1	B3.2.6a, B3.2.2a	Producers needs.	This question is about translocation.	This questions relies on Fig 5.2 to generate an answer.		
17	1aaiii	1	1	B3.2.6a, B3.2.2a	Producers needs.	This question is about the osmosis.	This questions relies on Fig 5.2 to generate an answer.		
17	1bi	1	2	B3.2.5a	Producers needs.	This question is about the xylem.	This questions relies on Fig 5.1 and Fig 5.3 to generate an answer.		
17	1bii	4	1	B3.2.5a, B3.2.6a	Producers needs.	This question is about the movement of water from the root to the leaves (transpiration stream).	This questions relies on Fig 5.3 to generate an answer.		
17	1ci	2	1 and 3	B2.4.1b, B2.4.1a	Identifying the cause of infection.	This question is about how to use a light microscope safely.			Y
17	1cii	2	1 and 3	B2.4.1b, B2.4.1a	Identifying the cause of infection	This question is about how to use a light microscope safely.			Y
17	1d	2	2	B2.4.1b, B2.4.1a	Identifying the cause of infection	This question is about calculating magnification.	This questions relies on Fig 5.5 to generate an answer. Please note: Fig 5.5 not to scale. It may vary in colour, density and size when reproduced using different printers and photocopiers.	Y	
17	1e	2	2 and 3	B2.4.1b, B2.4.1a	Identifying the cause of infection	This question is about calculating magnification.	This questions relies on Fig 5.5 to generate an answer. Please note: Fig 5.5 not to scale. It may vary in colour, density and size when reproduced	Y	
18	1a	1	2	B6.1.1	Theory of evolution.	This question is about variation.			
18	1b	2	2	B6.1.3	Theory of evolution.	This question is about variation and survival advantage.			
18	1c	1	2	B6.1.3, B6.1.4	Theory of evolution.	This question is about variation and ability to compete.			
18	1d	1	2	B6.1.5	Theory of evolution.	This question is about the theory of natural selection.			
18	1ei	1	2	B6.1.5	Theory of evolution.	This question is about the theory of natural selection.			
18	1eii	2	2	B6.1.5, B3.3.5	Theory of evolution.	This question is about the theory of natural selection.	This question has synoptic links to interdependence.		
19	1	6	1 and 2	B5.2.3a, B5.2.1	Nervous system.	This question is about the structures involved in a reflex arc.			
20	1a	1	3	B4.1.5a	Cellular respiration.	This question tests practical skills required when measuring the volume of a solution.	This questions relies on Fig 8.1 to generate an answer.		Y

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20	1b	3	3	B4.1.5a	Cellular respiration.	This questions tests practical skills used when investigating cellular respiration.	This questions relies on Fig 8.2 to generate an answer.		Y
20	1c	2	2 and 3	B4.1.5a, B4.1.1	Cellular respiration.	This questions tests practical skills used when investigating cellular respiration.			Y
20	1d	1	2	B4.1.5a, B4.1.4	Cellular respiration.	This question is about cellular respiration as an exothermic process.	This questions relies on Fig 8.2.		Y
20	1e	2	3	B4.1.5a	Cellular respiration.	This questions tests practical skills used when investigating cellular respiration.	This questions relies on Fig 8.3 to generate an answer.		Y
20	1f	1	2	B4.1.5a	Cellular respiration.	This question tests ability to plot results on a graph.	This questions relies on Fig 8.4 to generate an answer and table 8.2.	Y	Y
20	1g	1	3	B4.1.5a	Cellular respiration.	This question tests ability to read from a graph.	This questions relies on Fig 8.4 to generate an answer.	Y	Y
20	1h	2	3	B4.1.5a	Cellular respiration.	This question tests ability to analyse data in a graph.	This questions relies on Fig 8.4 to generate an answer.	Y	Y
20	1i	3	2 and 3	B4.1.5a, B4.1.5b	Cellular respiration.	This question tests rate of reaction calculations.	This questions relies on Fig 8.4 to generate an answer.	Y	Y
20	1j	2	3	B4.1.5a	Cellular respiration.	This question tests ability to analyse data in a graph to form a conclusion.	This questions relies on Fig 8.4 to generate an answer.		Y