Unit Code: H422/01
Qual Name: A level Biology B
Qual Title: Fundamentals of biology

Question Set	Q. No	Total Marks	AO	Spec Ref.	Topic	Question Subject, If required	Additional Notes/Comments
1	1a	1	AO1	5.1.1b	Patterns of inheritance	This question is about the genetics of sickle cell anaemia	Types of DNA mutation
1	1bi	2	AO2	5.1.1g	Patterns of inheritance	This question is about the genetics of sickle cell anaemia	Sickle cell and genetic counselling
1	1bii	2	AO2	5.1.1g	Patterns of inheritance	This question is about the genetics of sickle cell anaemia	Ethical concerns associated with genetic testing
1	1c	6	AO2	5.1.2a	Patterns of inheritance	This question is about the genetics of sickle cell anaemia	LoR question including data analysis of survival rates linking sickle cell anaemia and malaria
2	1a	4	AO1	5.3.2b	The hormonal control of blood glucose and the management of diabetes	This question is about the control of blood glucose and diabetes	Role of insulin in homeostasis. Gap fill style question
2	1bi	1	AO3	5.3.2c, 1.1.3a	The hormonal control of blood glucose and the management of diabetes	This question is about the control of blood glucose and diabetes	Data analysis of blood glucose measurements and diabetes
2	1bii	2	AO2	1.1.3b, 2.1.2ci	Water and its importance in plants and animals	This question is about the control of blood glucose and diabetes	Calculation of percentage increase in glucose concentration. Includes Maths skills M0.3 and M1.1.
2	1c	6	AO1 + AO2	5.1.3b	Gene technologies	This question is about the control of blood glucose and diabetes	LoR question on recombinant DNA technology in insulin production
3	Q1ai	1	AO1	2.2.4eii, 1.1.1a	Transport systems in plants	This question is about transport of water in plants	Effect of wind speed on rate of transpiration
3	Q1aii	2	AO2	1.1.3b,c	Practical skills	This question is about transport of water in plants	Calculating standard deviation from data. Maths skills M1.1, M1.10.
3	Q1aiii	3	AO2	2.2.4ei	Transport systems in plants	This question is about transport of water in plants	Explaining trends in transpiration data
3	Q1aiv	2	AO3	2.2.4ei, 1.1.1b	Transport systems in plants	This question is about transport of water in plants	Control variables in transpiration investigations
3	Q1av	2	AO2	2.2.4ei, 2.2.3fi,4 .3.1b	Transport systems in plants	This question is about transport of water in plants	Use of potometer
3	Q1b	3	AO1	2.2.4d	Transport systems in plants	This question is about transport of water in plants	Water transport pathways through plants
4	Q1ai	2	AO1	3.2.2c	The immune system	This question is about the immune system and vaccination programmes.	Stages in immune response
4	Q1aii	1	AO1	3.2.2c	The immune system	This question is about the immune system and vaccination programmes.	Role of T killer cells

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4	Q1bi	4	AO3	3.2.3c, 1.1.3a	Controlling communicable diseases	This question is about the immune system and vaccination programmes.	Evaluation of data from vaccination programme
4	Q1bii	3	AO2	3.2.2b, 3.2.3c	The immune system	This question is about the immune system and vaccination programmes.	Antibody levels following vaccination
5	Q1ai	2	AO1	3.1.3h	The development of species: evolution and classification	This question is about species diversity including use of Simpson's Index and conflict in conservation.	Species diversity
5	Q1aii	2	AO3	1.1.1b, 4.3.1mii	Photosynthesis, food production and management of the environment	This question is about species diversity including use of Simpson's Index and conflict in conservation.	Control variables in sampling
5	Q1bi	3	AO2	4.3.2c	The impact of population increase	This question is about species diversity including use of Simpson's Index and conflict in conservation.	Using Simpson's Index of Diversity. Assesses maths skills M1.5, M2.3.
5	Q1bii	1	AO3	4.3.2c, 1.1.1a	The impact of population increase	This question is about species diversity including use of Simpson's Index and conflict in conservation.	Using Simpson's Index of Diversity
5	Q1c	3	AO1 & AO2	4.3.2b	The impact of population increase	This question is about species diversity including use of Simpson's Index and conflict in conservation.	Effect of land management on species
6	Q1ai	2	AO1	4.2.1.di	Fertility and assisted reproduction	This question is about aerobic fitness and training programmes.	F.I.T.T. factors
6	Q1aii	1	AO2	4.2.1dii 1.1.1a	Fertility and assisted reproduction	This question is about aerobic fitness and training programmes.	Safety precautions in exercise investigations
6	Q1bi	2	AO2	4.1.2dii 1.1.3b	Cellular respiration	This question is about aerobic fitness and training programmes.	Statistical tests for analysing recovery time data
6	Q1bii	2	AO3	4.1.2c,4.1.2dii 1.1.4a	Cellular respiration	This question is about aerobic fitness and training programmes.	Training programmes and aerobic fitness
6	Q1biii	2	AO3	4.1.2a, 4.1.2d	Cellular respiration	This question is about aerobic fitness and training programmes.	Training programmes and aerobic fitness
7	Q1ai	2	AO2	5.3.3g,2.1.1l	Kidney functions and malfunctions	This question is about kidney failure and treatments e.g. dialysis. It also includes details of blood groups and transfusions.	Haemodialysis
7	Q1aii	3	AO2	5.3.3g, 2.1.1l	Kidney functions and malfunctions	This question is about kidney failure and treatments e.g. dialysis. It also includes details of blood groups and transfusions.	Haemodialysis
7	Q1b	2	AO2	5.3.3g	Kidney functions and malfunctions	This question is about kidney failure and treatments e.g. dialysis. It also includes details of blood groups and transfusions.	Advantages and disadvantages of peritoneal dialysis

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7	Q1ci	1	AO2	2.1.3g	Proteins and enzymes	This question is about kidney failure and treatments e.g. dialysis. It also includes details of blood groups and transfusions.	Blood products and transfusion
7	Q1cii	2	AO1, AO3	2.1.3g	Proteins and enzymes	This question is about kidney failure and treatments e.g. dialysis. It also includes details of blood groups and transfusions.	Blood group analysis
7	Q1d	3	AO3	5.3.3g,h	Kidney functions and malfunctions	This question is about kidney failure and treatments e.g. dialysis. It also includes details of blood groups and transfusions.	Treatments for kidney failure
8	Q1ai	1	AO2	5.1.1f	Patterns of inheritance	This question is about genetic mutations, disorders and karyotyping.	Chromosome mutations, translocation and Down's syndrome
8	Q1aii	4	AO2	5.1.1f,4.2.1c	Patterns of inheritance	This question is about genetic mutations, disorders and karyotyping.	Arrangement of chromosomes in Down's syndrome
8	Q1b	3	AO2	5.1.1f	Patterns of inheritance	This question is about genetic mutations, disorders and karyotyping.	Chromosome mutations
8	Q1ci	1	AO1	3.1.2h	The developing individual: meiosis, growth and development	This question is about genetic mutations, disorders and karyotyping.	Testing for fetal disorders
8	Q1cii	1	AO2	3.1.2i, 5.1.1b	The developing individual: meiosis, growth and development	This question is about genetic mutations, disorders and karyotyping.	Karyotyping and fetal disorders
9	Q1a	1	AO2	5.3.1d	The principles and importance of homeostasis	This question is about homeostasis and thermoregulation.	Role of thyroxine.
9	Q1bi	2	AO1	5.3.1d	The principles and importance of homeostasis	This question is about homeostasis and thermoregulation.	Hormones associated with thyroxine
9	Q1bii	3	AO1	5.3.1a	The principles and importance of homeostasis	This question is about homeostasis and thermoregulation.	Negative feedback mechanism
9	Q1c	2	AO1	5.3.1c	The principles and importance of homeostasis	This question is about homeostasis and thermoregulation.	Thermoregulation
9	Q1d	2	AO2	5.3.1e	The principles and importance of homeostasis	This question is about homeostasis and thermoregulation.	Methods for measuring core temperature
10	Q1a	3	AO1	4.3.1mi	Photosynthesis, food production and management of the environment	This question is about ecosystems, biodiversity and role of ruminants in food chains. Maths skills are assessed through energy efficiency calculations and an LoR is included	Ecosystems and succession. Gap fill style question
10	Q1b	1	AO1	4.3.1mi	Photosynthesis, food production and management of the environment	This question is about ecosystems, biodiversity and role of ruminants in food chains. Maths skills are assessed through energy efficiency calculations and an LoR is included	Pioneer species and succession

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10	Q1c	3	AO3	4.3.1mii	Photosynthesis, food production and management of the environment	This question is about ecosystems, biodiversity and role of ruminants in food chains. Maths skills are assessed through energy efficiency calculations and an LoR is included	Sampling methods for investigating succession
10	Q1di	2	AO2	4.3.1i	Photosynthesis, food production and management of the environment	This question is about ecosystems, biodiversity and role of ruminants in food chains. Maths skills are assessed through energy efficiency calculations and an LoR is included	Calculating efficiency of energy transfer. Maths skills M0.3, M1.1.
10	Q1dii	1	AO2	4.3.1j	Photosynthesis, food production and management of the environment	This question is about ecosystems, biodiversity and role of ruminants in food chains. Maths skills are assessed through energy efficiency calculations and an LoR is included	Efficiency of energy transfer
10	Q1e*	6	AO2	4.3.1k	Photosynthesis, food production and management of the environment	This question is about ecosystems, biodiversity and role of ruminants in food chains. Maths skills are assessed through energy efficiency calculations and an LoR is included	LoR question about role of ruminants in producing important molecules
11	Q1a	1	AO1	4.1.1a,b ,c	Cellular respiration	This question is about aerobic respiration and respiratory quotients (RQs).	Reaction types in aerobic respiration
11	Q1bi	1	AO2	4.1.1f	Cellular respiration	This question is about aerobic respiration and respiratory quotients (RQs).	Equation for aerobic respiration of substrate
11	Q1bii	2	AO2	4.1.1f	Cellular respiration	This question is about aerobic respiration and respiratory quotients (RQs).	Calculation of RQ. Maths skills M0.3, M2.3 M2.4.
11	Q1biii	1	AO1	4.1.1f	Cellular respiration	This question is about aerobic respiration and respiratory quotients (RQs).	Respiratory substrate RQs
11	Q1c*	6	AO3	4.1.1gi 1.1.1a,b	Cellular respiration	This question is about aerobic respiration and respiratory quotients (RQs).	LoR question on use of respirometer to calculate RQ
12	Q1aii	1	AO1	3.3.2c	Respiratory disease and treatment	This question is about development of medicines and clinical trials.	Features of chronic disease
12	Q1aii	1	AO1	3.3.2e	Respiratory disease and treatment	This question is about development of medicines and clinical trials.	Medicines from plants
12	Q1bi	1	AO2	3.3.2f	Respiratory disease and treatment	This question is about development of medicines and clinical trials.	Clinical trials

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12	Q1bii	2	AO2	3.3.2f	Respiratory disease and treatment	This question is about development of medicines and clinical trials.	Clinical trials and use of placebo
12	Q1biii	3	AO3	3.3.2f 1.1.3a	Respiratory disease and treatment	This question is about development of medicines and clinical trials.	Clinical trials and use of placebo
12	Q1biv	2	AO3	3.3.2f 1.1.3a, 1.1.4b	Respiratory disease and treatment	This question is about development of medicines and clinical trials.	Clinical trials and data analysis
13	Q1a	3	AO2	2.1.2a	Water and its importance in plants and animals	This question is about water and hydrolysis reactions	Water and hydrogen bonding
13	Q1bi	1	AO1	2.1.2fi	Water and its importance in plants and animals	This question is about water and hydrolysis reactions	Investigation into bacterial amylase and starch hydrolysis
13	Q1bii	1	AO1	2.1.2fii	Water and its importance in plants and animals	This question is about water and hydrolysis reactions	Investigation into bacterial amylase and starch hydrolysis
13	Q1biii	2	AO2	1.1.3b	Practical skills	This question is about water and hydrolysis reactions	Calculation of standard deviation. Maths skills M1.10
13	Q1biv	2	AO3	2.1.2fii,1.1.4e	Water and its importance in plants and animals	This question is about water and hydrolysis reactions	Investigation into bacterial amylase and starch hydrolysis. Assesses knowledge of control variables
13	Q1bv	1	AO3	2.1.2fii,1.1.4e,1.1.1a	Water and its importance in plants and animals	This question is about water and hydrolysis reactions	Investigation into bacterial amylase and starch hydrolysis. Assesses knowledge of how to improve methodology
14	Q1a	4	AO1 AO2	2.2.3ai, b	Gas exchange in mammals and plants	This question is about gas exchange and effects of cigarette smoke. Includes assessment of EAR.	Structure of components of respiratory system
14	Q1bi	3	AO3	2.2.3c 1.1.3a 1.1.4a	Gas exchange in mammals and plants	This question is about gas exchange and effects of cigarette smoke. Includes assessment of EAR.	Lung function FEV1 and effects of smoking
14	Q1bii	2	AO3	2.2.3c,1.1.4c	Gas exchange in mammals and plants	This question is about gas exchange and effects of cigarette smoke. Includes assessment of EAR.	Lung function FEV1 and effects of smoking
14	Q1c	3	AO1	2.2.3d	Gas exchange in mammals and plants	This question is about gas exchange and effects of cigarette smoke. Includes assessment of EAR.	Expired air resuscitation
15	Q1ai	2	AO2	3.2.1f	Pathogenic microorganisms	This question is about disease control and epidemiology with reference to HIV, TB, vaccination and antibiotics.	Estimation of mortality rate from epidemiology data for AIDs. Maths skills M0.3
15	Q1aii	4	AO3	3.2.1g,1.1.4a	Pathogenic microorganisms	This question is about disease control and epidemiology with reference to HIV, TB, vaccination and antibiotics.	Data analysis of HAART treatment for AIDs
15	Q1b	2	AO2	3.2.1i	Pathogenic microorganisms	This question is about disease control and epidemiology with reference to HIV, TB, vaccination and antibiotics.	Ethics of testing

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15	Q1c	3	AO1	3.2.3c	Controlling communicable diseases	This question is about disease control and epidemiology with reference to HIV, TB, vaccination and antibiotics.	Problems associated with vaccine production
15	Q1di	1	AO1	3.2.3a	Controlling communicable diseases	This question is about disease control and epidemiology with reference to HIV, TB, vaccination and antibiotics.	Use of vaccines
15	Q1dii	2	AO3	3.2.3c,1.1.4a	Controlling communicable diseases	This question is about disease control and epidemiology with reference to HIV, TB, vaccination and antibiotics.	Data analysis of vaccination programme
15	Q1ei	2	AO1	3.2.1h	Pathogenic microorganisms	This question is about disease control and epidemiology with reference to HIV, TB, vaccination and antibiotics.	Notifiable diseases
15	Q1eii	1	AO1	3.2.3e	Controlling communicable diseases	This question is about disease control and epidemiology with reference to HIV, TB, vaccination and antibiotics.	Action of antibiotic
15	Q1eiii	3	AO1	3.2.3f	Controlling communicable diseases	This question is about disease control and epidemiology with reference to HIV, TB, vaccination and antibiotics.	Antibiotic resistance
16	Q1ai	2	AO1	2.2.4d	Transport system in plants	This question is about transport systems and gas exchange in plants.	Apoplast pathway in plants
16	Q1aii	1	AO2	2.2.4b,cii	Transport system in plants	This question is about transport systems and gas exchange in plants.	Structure of stem tissue seen in micrograph
16	Q1aiii	3	AO1	2.2.4b	Transport system in plants	This question is about transport systems and gas exchange in plants.	Adaptations of phloem tissue
16	Q1b	2	AO2	2.1.2g, 2.2.3fi	Water and its importance in plants and animals	This question is about transport systems and gas exchange in plants.	Mechanism of stomatal closure
16	Q1c	3	AO3	2.2.3f,2.2.4ei, 1.1.4a	Gas exchange in mammals and plants	This question is about transport systems and gas exchange in plants.	Data analysis of plants in different soil conditions
17	Q1ai	2	AO2	2.1.2h	Water and its importance in plants and animals	This question is an investigation using the context of osmosis, assessing practical and maths skills.	Calculating standard deviation from osmosis data. Maths skills M1.10
17	Q1aii	2	AO2	2.1.2h	Water and its importance in plants and animals	This question is an investigation using the context of osmosis, assessing practical and maths skills.	Plotting error bars on a graph
17	Q1aiii	3	AO2 AO3	2.1.2g,h	Water and its importance in plants and animals	This question is an investigation using the context of osmosis, assessing practical and maths skills.	Analysing osmosis data
17	Q1aiv	2	AO3	2.1.2g,h, 1.1.4c	Water and its importance in plants and animals	This question is an investigation using the context of osmosis, assessing practical and maths skills.	Errors in methodology associated with osmosis investigation

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17	Q1b	2	AO2	2.1.1i	Cells and microscopy	This question is an investigation using the context of osmosis, assessing practical and maths skills.	Calculating field of view of microscope using stage micrometer. Maths skills M0.3, M1.1, M4.1
18	Q1ai	1	AO1	4.1.2f	Metabolism and exercise	This question is about aerobic fitness, muscle structure and function.	VO2 max
18	Q1aii	1	AO2	4.1.2f	Metabolism and exercise	This question is about aerobic fitness, muscle structure and function.	VO2 max
18	Q1b*	6	AO3	4.1.2f,1.1.1a,1.1.1b, 1.1.2c	Metabolism and exercise	This question is about aerobic fitness, muscle structure and function.	LoR question about the effect of fitness programme on VO2 max
18	Q1ci	2	AO2	4.1.2g	Metabolism and exercise	This question is about aerobic fitness, muscle structure and function.	Effect of altitude on VO2 max
18	Q1cii	1	AO2	4.1.2i	Metabolism and exercise	This question is about aerobic fitness, muscle structure and function.	Effect of temperature on VO2 max
18	Q1d	2	AO1	4.1.2j	Metabolism and exercise	This question is about aerobic fitness, muscle structure and function.	EPOC
18	Q1e	2	AO3	4.1.2i,k	Metabolism and exercise	This question is about aerobic fitness, muscle structure and function.	Structure of sarcomere in skeletal muscle
18	Q1f	2	AO1	4.1.2l	Metabolism and exercise	This question is about aerobic fitness, muscle structure and function.	Slding filament mechanism of muscle contraction
19	Q1a	1	AO1	5.1.3b	Gene technologies	This question is about principles of genetic modification, genetic engineering and RNA interference.	DNA palindromes
19	Q1bi	1	AO1	5.1.3b	Gene technologies	This question is about principles of genetic modification, genetic engineering and RNA interference.	Types of endonuclease enzymes
19	Q1bii	2	AO2	5.1.3b	Gene technologies	This question is about principles of genetic modification, genetic engineering and RNA interference.	Comparison of endonuclease enzymes
19	Q1c	4	AO2 AO3	5.1.3f,h	Gene technologies	This question is about principles of genetic modification, genetic engineering and RNA interference.	Advantages and disadvantages of genetic engineering techniques
19	Q1d	3	AO1	5.1.3a	Gene technologies	This question is about principles of genetic modification, genetic engineering and RNA interference.	Post-editing of mRNA. Gap fill style question
20	Q1ai	1	AO2	5.3.2a	The hormonal control of blood glucose and the management of diabetes	This question is about the pancreas, control of blood glucose and diabetes.	Structure of the pancreas
20	Q1aii*	6	AO1	5.3.1a,5.3.2b	The principles and importance of homeostasis	This question is about the pancreas, control of blood glucose and diabetes.	LoR about cells and reactions involved in homeostatic control of blood glucose
20	Q1bi	2	AO2	5.3.2c	The hormonal control of blood glucose and the management of diabetes	This question is about the pancreas, control of blood glucose and diabetes.	Types of diabetes and treatment

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20	Q1bii	1	AO2	5.3.2d	The hormonal control of blood glucose and the management of diabetes	This question is about the pancreas, control of blood glucose and diabetes.	Tests for blood glucose
21	1	1	AO2	1.1.3b	Practical skills	Appropriate use of statistical tests for analysing data	Investigation into growth of tomato plants with different fertilisers.
22	Q1	1	AO1	2.1.1j	Cells and microscopy	Properties of groups in phospholipids	
22	Q2	1	AO2	2.1.1ci,ii	Cells and microscopy	Identifying cells in blood smear	Same micrograph as in Q3.
22	Q3	1	AO2	2.1.1d	Cells and microscopy	Calculation of magnification using blood smear micrograph	Same micrograph as in Q2. Maths skills assessed M1.8
22	Q4	1	AO2	2.1.1d	Cells and microscopy	Calculation of cell diameter using blood smear micrograph	Maths skills assessed M1.8
22	Q5	1	AO2	2.1.1e	Cells and microscopy	Counting cells using haemocytometer	
22	Q6	1	AO2	2.1.1f	Cells and microscopy	Interpretation of flow cytometry results	Links with apoptosis spec. ref 3.1.1c
22	Q7	1	AO2	2.1.1g	Cells and microscopy	Ultrastructure of a leucocyte and microscopy	
22	Q8	1	AO1	2.1.1l	Cells and microscopy	Examples of facilitated diffusion	Examples link to spec. refs 2.2.4b, 4.1.1d and 5.2.1d.
22	Q9	1	AO2	2.1.2cii, fii	Water and its importance in plants and animals	Tests for biochemicals	
22	Q10	1	AO1	2.1.2d	Water and its importance in plants and animals	Types of reaction in forming, breaking down phospholipids	
22	Q11	1	AO1	2.1.3ai, b	Proteins and enzymes	Protein structure and bonding	
22	Q12	1	AO1	2.1.3b	Proteins and enzymes	Protein structure and bonding	
22	Q13	1	AO2	2.1.3di	Proteins and enzymes	Enzyme activity. Interpretation of graph	Statement style MCQ
22	Q14	1	AO2	2.1.3ei	Proteins and enzymes	Blood clotting reaction and role of ions	
22	Q15	1	AO1	2.1.3ei	Proteins and enzymes	Blood clotting reaction and role of proteins and ions	
22	Q16	1	AO2	2.1.4a	Nucleic acids	Structure of nucleotides	Statement style MCQ
22	Q17	1	AO1	2.1.4cii	Nucleic acids	DNA purification process	
22	Q18	1	AO1	2.1.4d	Nucleic acids	DNA replication	Statement style MCQ
22	Q19	1	AO2	2.1.4g	Nucleic acids	Transcription, translation and gene mutation	Links to spec. ref. 5.1.3a
22	Q20	1	AO2	2.2.1c	The heart and monitoring heart function	Interpreting graph showing pressure changes in the heart	
22	Q21	1	AO1	2.2.1d	The heart and monitoring heart function	Heart action related to structure	
22	Q22	1	AO2	2.2.2a, bi	Transport systems in mammals	Interpreting graph of blood pressure changes in circulatory system.	
22	Q23	1	AO2	2.2.2c	Transport systems in mammals	Interpreting diagram of pressures during tissue fluid formation	

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22	Q24	1	AO2	2.2.2di, e	Transport systems in mammals	Interpreting blood pressure measurements	Statement style MCQ
22	Q25	1	AO1	2.2.4a	Transport systems in plants	Need for transport system in plants	
22	Q26	1	AO2	2.2.4ei	Transport systems in mammals	Factors influencing transpiration	
22	Q27	1	AO1	2.2.4f	Transport systems in mammals	Mechanism of translocation	
23	Q1	1	AO2	3.1.1a,b i	The developing cell: cell division and cell differentiation	Stages in cell cycle (calculation)	Maths skills assessed M0.3
23	Q2	1	AO2	3.1.1bii	The developing cell: cell division and cell differentiation	Interpretation of micrograph of cell in stage of mitosis	
23	Q3	1	AO2	3.1.2b	The developing individual: meiosis, growth and development	Stages in meiosis associated with fertilisation of oocyte	Some knowledge of oogenesis required. Link to spec. ref. 4.2.1c
23	Q4	1	AO2	3.1.2g	The developing individual: meiosis, growth and development	Fetal growth measurements and calculation of percentage uncertainty	Maths skills requiring percentage uncertainty calculation. M1.11
23	Q5	1	AO2	3.1.2i	The developing individual: meiosis, growth and development	Interpretation of karyotype	Statement style MCQ. Includes spec.refs 3.1.2h and 3.1.1a.
23	Q6	1	AO1	3.1.2i	The developing individual: meiosis, growth and development	Interpretation of karyotype	
23	Q7	1	AO2	3.1.3f	The development of species: evolution and classification	Evolution of language	Statement style MCQ.
23	Q8	1	AO2	3.1.3i	The development of species: evolution and classification	Uses data to calculate proportion of polymorphic genes of population.	Maths skills assessed M0.3, M1.8, M2.4
23	Q9	1	AO2	3.2.1f	Pathogenic microorganisms	Uses graphical data to calculate incidence rate	Maths skills M0.3
23	Q10	1	AO1	3.2.2e	The immune system	Structure of an antibody	
23	Q11	1	AO1	3.2.2h	The immune system	Response to allergens. Sensitisation.	
23	Q12	1	AO2	3.2.3c	Controlling communicable diseases	Development of vaccines	Some knowledge of bacterial cell structure required (for antigens) from spec ref 2.1.1hi
23	Q13	1	AO1	3.2.3g	Controlling communicable diseases	Targets for bacteriostatic antibiotics	
23	Q14	1	AO1	3.3.1d,e	Controlling communicable diseases	BRCA 1 gene	Link to cell cycle spec. ref. 3.1.1a also. Statement style MCQ.
23	Q15	1	AO1	3.3.1d	The cellular basis of cancer and treatment	Gene mutation and cancer	
23	Q16	1	AO1	3.3.1h	The cellular basis of cancer and treatment	Cancer treatments	
23	Q17	1	AO1	3.3.2b	Respiratory diseases and treatment	Cause and effects of emphysema	Statement style MCQ.
23	Q18	1	AO1	3.1.2e	The developing individual: meiosis, growth and development	Roles of dietary molecules i.e. vitamin C	Links with spec. refs 2.1.3b and 5.2.2bi
24	Q1	1	AO1	4.1.1a	Cellular respiration	Glycolysis, glucose and number of ATP molecules	
24	Q2	1	AO1	4.1.1d	Cellular respiration	Reduced NAD and number of ATP molecules	

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24	Q3	1	AO1	4.1.1e	Cellular respiration	Products of anaerobic respiration in yeast cells	
24	Q4	1	AO2	4.1.1e	Cellular respiration	Graph analysis of molecules involved in cell respiration	Requires knowledge of both aerobic and anaerobic respiration. Statement style MCQ.
24	Q5	1	AO2	4.1.1f	Cellular respiration	Calculation of RQs and relative values of respiratory substrates	Maths skills M0.3
24	Q6	1	AO1	4.1.2a	Metabolism and exercise	Consequences of exercise and cause of increased stroke volume	
24	Q7	1	AO2	4.1.2f,j	Metabolism and exercise	Effects of aerobic training, EPOC and VO2 max	
24	Q8	1	AO1	4.1.2i	Metabolism and exercise	Binding of chemicals to haemoglobin	
24	Q9	1	AO1	4.1.2l	Metabolism and exercise	Role of ATP in skeletal muscle contraction	
24	Q10	1	AO2	4.1.2l	Metabolism and exercise	Interpretation of diagram of sarcomere in skeletal muscle	Statement style MCQ.
24	Q11	1	AO1	4.2.1c	Fertility and assisted reporoduction	Spermatogenesis	Requires knowledge of stages in meiosis spec.ref.3.1.2c
24	Q12	1	AO1	4.2.1d	Fertility and assisted reporoduction	Components that generate movement in sperm cells	Some knowledge of proteins required in distractors.
24	Q13	1	AO1	4.2.1e	Fertility and assisted reporoduction	Hormones of male reproductive system including spermatogenesis	
24	Q14	1	AO2	4.2.1f	Fertility and assisted reporoduction	Contraceptive pill and how it prevents pregnancy	
24	Q15	1	AO1	4.3.1ai	Photosynthesis, food production and management of the environment	Chloroplast structure and ATP synthase	
24	Q16	1	AO2	4.3.1aii	Photosynthesis, food production and management of the environment	Chromatography of photosynthetic pigments inc. calculation of Rf values	M0.3 maths skills
24	Q17	1	AO1	4.3.1ai, b	Photosynthesis, food production and management of the environment	Chloroplast structure and ATP production	
24	Q18	1	AO1	4.3.1b	Photosynthesis, food production and management of the environment	Source of electrons in photosynthesis	
24	Q19	1	AO2	4.3.1b,dii	Photosynthesis, food production and management of the environment	Role of DCPIP in Hill reaction	
24	Q20	1	AO1	4.3.1b	Photosynthesis, food production and management of the environment	Photolysis and chloroplast structure	
24	Q21	1	AO2	4.3.1c	Photosynthesis, food production and management of the environment	Calvin cycle	Statement style MCQ
24	Q22	1	AO2	4.3.1c	Photosynthesis, food production and management of the environment	Molecules involved in glucose formation	
24	Q23	1	AO2	4.3.1lii	Photosynthesis, food production and management of the environment	Calculation of productivity in ecosystem	

Question Set	Q. No	Total Marks	AO	Spec Ref.	Topic	Question Subject, If required	Additional Notes/Comments
24	Q24	1	AO2	4.3.2c	The impact of population increase	Interpretation of data using Simpson's diversity index	Statement style MCQ. Maths skills M1.5, M2.3
24	Q25	1	AO1	4.4.1a	Plant reproduction	Flowering in short-day plants	
24	Q26	1	AO1	4.4.1c	Plant reproduction	Fertilisation and seed structure	
24	Q27	1	AO1	4.4.1di	Plant reproduction	Seed structure and starch storage	
25	Q1	1	AO1	5.1.1a,b,g	Patterns of inheritance	Genetic disease and probability	
25	Q2	1	AO1	5.1.1b	Patterns of inheritance	Gene mutations	
25	Q3	1	AO2	5.1.1e	Patterns of inheritance	Patterns of inheritance use of chi-squared	Includes interpretation of chi-squared tables. Maths skills M1.9
25	Q4	1	AO1	5.1.2f	Population genetics and epigenetics	Epigenetics	Statement style MCQ
25	Q5	1	AO1	5.1.2f	Population genetics and epigenetics	Epigenetics	
25	Q6	1	AO1	5.1.3c	Gene technologies	PCR and DNA amplification	Includes some elements of DNA barcoding from spec. ref. 3.1.3c
25	Q7	1	AO1	5.1.3c	Gene technologies	polymerase chain reaction (PCR)	
25	Q8	1	AO2	5.1.3d,e	Gene technologies	Gene technology and SNPs	
25	Q9	1	AO1	5.2.1ai	The nervous system and the identification and consequences of damage	Autonomic nervous system	Statement style MCQ
25	Q10	1	AO1	5.2.1e	The nervous system and the identification and consequences of damage	Features of postsynaptic potentials	
25	Q11	1	AO1	5.2.2bi	Monitoring visual function	Photoreceptor cells in the retina	Statement style MCQ
25	Q12	1	AO2	5.2.3a	The effect of ageing on the nervous system	Statistical analysis of brain in alzheimer paitients	Includes 1.1.3b and requires knowledge of use of appropriate statistical tests. Maths skills M1.9
25	Q13	1	AO1	5.2.3a	The effect of ageing on the nervous system	Changes in brain tissue associated with Alzheimer's disease.	
25	Q14	1	AO1	5.2.3bi	The effect of ageing on the nervous system	Symptoms associated with glaucoma	
25	Q15	1	AO2	5.3.1b	The principles and importance of homeostasis	Nervous control of heart rate	
25	Q16	1	AO1	5.3.2c	The hormonal control of blood glucose and the management of diabetes	Features of Type 2 diabetes	
25	Q17	1	AO1	5.3.3d	Kidney functions and malfunctions	Osmoregulation and ADH	