Unit Code: H022/01
Qual Name: AS Level Biology B
Qual Title: Foundations of biology

Question Set	Q. No	Total Marks	AO	Spec Ref.	Topic	Question Subject, If required	Additional Notes/Comments
1	1ai	1	1	2.1.4a	Nucleic acids	Features of RNA and DNA	Nucleotides
1	1aii	1	2	2.1.4a,b	Nucleic acids	Features of RNA and DNA	Nucleotides
1	1aiii	1	1	2.1.4a	Nucleic acids	Features of RNA and DNA	Nucleotides
1	1b	1	2	2.1.4a,f	Nucleic acids	Features of RNA and DNA	Nucleotides
1	1c	4	1	2.1.4e	Nucleic acids	Features of RNA and DNA	Genetic code
1	1di	1	1	2.1.4ci	Nucleic acids	Features of RNA and DNA	DNA structure
1	1dii	1	2	2.1.4f	Nucleic acids	Features of RNA and DNA	RNA
2	1a	1	1	2.1.1hi	Cells and microscopy	Practical questions about betanin pigment, including colorimetry.	Organelles (tonoplast)
2	1bi	2	3	2.1.1m, 1.1.1b	Cells and microscopy	Practical questions about betanin pigment, including colorimetry.	Investigation into diffusion rates
2	1bii	4	2 and 3	2.1.1j, 1.1.3d,1.1.4a	Cells and microscopy	Practical questions about betanin pigment, including colorimetry.	Plasma membranes (data interpretation)
2	1c	2	2	2.1.1j,n	Cells and microscopy	Practical questions about betanin pigment, including colorimetry.	Plasma membranes (data interpretation)
2	1di	3	1	3.2.2a,	The immune system	Practical questions about betanin pigment, including colorimetry.	Inflammatory response
2	1dii	1	2	3.2.2a,3.2.2b 3.3.2e	The immune system	Practical questions about betanin pigment, including colorimetry.	Cytokines
3	1ai	3	1AO1 and 2AO2	3.1.2gi	The developing individual: meiosis, growth and development	Fetal development	Fetal measurements
3	1aii	2	2	3.1.2gi	The developing individual: meiosis, growth and development	Fetal development	Fetal measurements.Also covers M1.1, M1.8
3	1aiii	1	3	3.1.2gii, 1.1.3d	The developing individual: meiosis, growth and development	Fetal development	Growth charts. Also covers M3.4
3	1aiv	2	3	3.1.2gii, 1.1.3d	The developing individual: meiosis, growth and development	Fetal development	Growth charts
3	1b	5	1	3.1.2b,c	The developing individual: meiosis, growth and development	Fetal development	Meiosis
4	1a	2	1	2.2.3c	Gas exchange in mammals and plants	Measuring pulmonary ventilation	PEFR and FEV1

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4	1b	3	2AO2 and 1AO3	2.2.3c	Gas exchange in mammals and plants	Measuring pulmonary ventilation	FEV1 calculation. Also covers M0.2 and M0.3
4	1c	1	1	2.2.3d	Gas exchange in mammals and plants	Measuring pulmonary ventilation	PEFR and FEV1
5	1a	3	2	3.2.3a	Controlling communicable diseases	Evaluation of vaccination trials	Vaccination
5	1bi	1	3	3.3.2g	Controlling communicable diseases	Evaluation of vaccination trials	Control groups
5	1bii	2	2	3.2.3d	Controlling communicable diseases	Evaluation of vaccination trials	Vaccination (ethical issues)
5	1biii	2	3	3.2.3b	Controlling communicable diseases	Evaluation of vaccination trials	Vaccination (evaluation of data)
6	1ai	2	1	3.1.3h	The development of species: evolution and classification	Biodiversity, including data analysis	Definition of biodiversity
6	1aii	4	2AO2 and 2AO3	3.1.3h	The development of species: evolution and classification	Biodiversity, including data analysis	Measurement of biodiversity (data analysis). Also covers M0.3
6	1b	2	2	3.1.3eii	The development of species: evolution and classification	Biodiversity, including data analysis	Plant adaptations
6	1ci	1	2	3.3.2e	Respiratory diseases and treatment	Biodiversity, including data analysis	Importance of plants as sources of medicine
6	1cii	1	1	3.1.1a	The developing cell: cell division and cell differentiation	Biodiversity, including data analysis	Mitosis
6	1d	2	2	3.1.3i	The development of species: evolution and classification	Biodiversity, including data analysis	Genetic diversity calculation. Also covers M0.3 and M0.2
7	1ai	3	2	2.1.3f, 2.1.3di	Proteins and enzymes	Enzyme activity, nucleotides and aspirin in the context of pregnancy.	Enzyme inhibitors
7	1aii	1	1	2.1.4a	Nucleic acids	Enzyme activity, nucleotides and aspirin in the context of pregnancy.	Nucleotides
7	1aiii	2	2	2.1.4a, 2.1.3di	Nucleic acids	Enzyme activity, nucleotides and aspirin in the context of pregnancy.	Rate of enzyme-catalysed reactions
7	1b	1	1	2.1.3f	Proteins and enzymes	Enzyme activity, nucleotides and aspirin in the context of pregnancy.	Enzyme inhibitors
8	1a	4	1	2.1.2a	Water and its importance in plants and animals	Water properties, microscopy, and disease, in the context of C.jejuni.	Properties of water
8	1bi	1	1	2.1.2d, 2.1.1j	Water and its importance in plants and animals	Water properties, microscopy, and disease, in the context of C.jejuni.	Hydrolysis and condensation of molecules
8	1bii	1	1	2.1.2d, 2.1.1j	Water and its importance in plants and animals	Water properties, microscopy, and disease, in the context of C.jejuni.	Hydrolysis and condensation of molecules
8	1biii	1	1	2.1.1j	Cells and microscopy	Water properties, microscopy, and disease, in the context of C.jejuni.	Triglyceride structure
8	1ci	2	3	3.2.1e	Pathogenic microorganisms	Water properties, microscopy, and disease, in the context of C.jejuni.	Communicable disease
8	1cii	2	3	3.2.1e	Pathogenic microorganisms	Water properties, microscopy, and disease, in the context of C.jejuni.	Communicable disease

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8	1di	2	2	2.1.1d	Cells and microscopy	Water properties, microscopy, and disease, in the context of C.jejuni.	Magnification calculation. Also covers M0.2 and M1.8. NB mark scheme may need adjusting due to scale
8	1dii	3	2AO2 and 1AO3	3.2.1di, 2.1.1h	Pathogenic microorganisms	Water properties, microscopy, and disease, in the context of C.jejuni.	Gram staining
9	1ai	1	2	2.2.2di	Transport systems in mammals	Monitoring blood pressure	Measuring blood pressure
9	1aii	2	3	2.2.2di	Transport systems in mammals	Monitoring blood pressure	Measuring blood pressure
9	1aiii	2	3	2.2.2dii	Transport systems in mammals	Monitoring blood pressure	Measuring blood pressure
9	1bi	2	2	2.2.2c	Transport systems in mammals	Monitoring blood pressure	Tissue fluid
9	1bii	2	2	2.2.2c	Transport systems in mammals	Monitoring blood pressure	Tissue fluid
10	1a	4	1	3.3.2a,3.3.2h	Respiratory diseases and treatment	Allergies	Allergens
10	1b	2	1	3.3.2d	Respiratory diseases and treatment	Allergies	Asthma
11	1a	2	1	2.2.3e	Gas exchange in mammals and plants	Lenticel investigation: analysis and evaluation	Lenticels
11	1bi	1	3	3.1.3eii	The development of species: evolution and classification	Lenticel investigation: analysis and evaluation	Practical investigation into plant adaptations
11	1bii	2	3	3.1.3eii	The development of species: evolution and classification	Lenticel investigation: analysis and evaluation	Practical investigation into plant adaptations
11	1ci	1	3	2.2.3e 3.1.3eii	Gas exchange in mammals and plants	Lenticel investigation: analysis and evaluation	Lenticels
11	1cii	2	3	2.2.3e 3.1.3eii	Gas exchange in mammals and plants	Lenticel investigation: analysis and evaluation	Lenticels
11	1di	1	2	3.1.1d	The development of species: evolution and classification	Lenticel investigation: analysis and evaluation	Mitosis
11	1dii	2	2	2.1.1l	Cells and microscopy	Lenticel investigation: analysis and evaluation	Plasma membranes
12	1a	2	1AO1 and 1AO2	3.1.3ei	The development of species: evolution and classification	Hominid evolution	Anatomical adaptation
12	1b	3	2	3.1.3b 3.1.3f	The development of species: evolution and classification	Hominid evolution	Language evolution
12	1c	5	1	2.1.4a 2.1.4ci	Nucleic acids	Hominid evolution	DNA
13	1ai	3	1	2.1.3di 2.1.3ei 2.1.3f	Proteins and enzymes	Blood clotting, including data analysis	Competitive inhibitors
13	1aii	1	2	2.1.3dii	Proteins and enzymes	Blood clotting, including data analysis	Enzyme practical investigations
13	1aiii	2	2	2.1.3dii	Proteins and enzymes	Blood clotting, including data analysis	Enzyme practical investigations
13	1b	2	2	2.1.1k 2.1.1n	Cells and microscopy	Blood clotting, including data analysis	Phospholipids
14	1ai	1	1	3.2.1b	Pathogenic microorganisms	Pathogens and microscopy in the context of 1Aspergillus fumigatus	Fungi as pathogens (opportunistic infections)
14	1aii	2	1	3.2.1a	Pathogenic microorganisms	Pathogens and microscopy in the context of 1Aspergillus fumigatus	Fungi as pathogens

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14	1bi	2	2	2.1.1b	Cells and microscopy	Pathogens and microscopy in the context of 1Aspergillus fumigatus	Differential staining
14	1bii	2	2	2.1.1d	Cells and microscopy	Pathogens and microscopy in the context of 1Aspergillus fumigatus	Magnification calculation
14	1c	4	1	2.1.1ai	Cells and microscopy	Pathogens and microscopy in the context of 1Aspergillus fumigatus	Microscopy principles
15	1ai	1	3	3.2.1g	Pathogenic microorganisms	Vaccines, clinical trials, and immunity in the context of HPV	Analysis of epidemiological data
15	1aii	2	3	3.2.3d	Controllling communicable diseases	Vaccines, clinical trials, and immunity in the context of HPV	Vaccines (ethical issues)
15	1bi	3	1	3.2.2g	The immune system	Vaccines, clinical trials, and immunity in the context of HPV	Immunity
15	1bii	3	1	3.2.2d	The immune system	Vaccines, clinical trials, and immunity in the context of HPV	Memory cells
15	1c	1	3	3.3.1g	The cellular basis of cancer and treatment	Vaccines, clinical trials, and immunity in the context of HPV	Methods used to detect cancer
16	1	1	2	1.1.3b	Analysis	Analysis of quantitative data	Also covers 2.2.3fi, M1.1, and M4.1
17	1	1	1	2.1.1k	Cells and microscopy	Plasma membranes	
17	2	1	1	2.2.4ei	Transport systems in plants	Transpiration	Also covers 1.1.1b
17	3	1	2	2.2.2e	Transport systems in mammals	Blood pressure and hypotension	Also covers 1.1.3a
17	4	1	1	2.1.3ei	Proteins and enzymes	Blood clotting	
17	5	1	1	2.2.4b	Transport systems in plants	Phloem tissue	Also covers 1.1.3a
17	6	1	1	2.1.3g	Proteins and enzymes	Blood groups and antigens	Also covers 1.1.3a
17	7	1	2	2.1.1f	Cells and microscopy	Flow cytometry	
17	8	1	1	2.2.1h	The heart and monitoring heart function	ECGs and irregular heart beats	
17	9	1	1	2.2.2bi	Transport systems in mammals	Blood vessel structure	
17	10	1	2	2.1.2e	Water and its importance in plants and animals	Monosaccharide structures	Also covers 2.1.4a
17	11	1	1	2.1.2b	Water and its importance in plants and animals	Types of biofluid	
17	12	1	2	2.1.2g	Water and its importance in plants and animals	Water potential	Also covers 2.1.2h
17	13	1	2	2.1.1i	Cells and microscopy	Magnification and graticule calculation	Also covers M0.1, M0.3, and M1.8
17	14	1	1	2.1.4d	Nucleic acids	DNA replication: enzyme roles	
17	15	1	1	2.2.4ei	Transport systems in plants	Transpiration	
17	16	1	2	2.2.1e	The heart and monitoring heart function	T-test analysis	Also covers M1.9

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17	17	1	1	2.2.3b	Gas exchange in mammals and plants	Blood vessel structure	
17	18	1	1	2.2.4f	Transport systems in plants	Phloem: sucrose transport	
17	19	1	1	2.1.3b	Proteins and enzymes	Levels of protein structure	
17	20	1	2	2.2.2a	Transport systems in mammals	Blood vessel structure (veins)	Also covers 2.2.2b
17	21	1	1	2.2.1b	The heart and monitoring heart function	Heart structure	
17	22	1	1	2.1.3g	Proteins and enzymes	Blood transfusions (platelets)	
17	23	1	1	2.1.1ci	Cells and microscopy	Blood cell ultrastructure and organelles	
17	24	1	1	2.1.1g	Cells and microscopy	Cell ultrastructure and organelles	
17	25	1	1	2.1.1hii	Cells and microscopy	Prokaryotic and eukaryotic cells	
17	26	1	2	2.1.1l	Cells and microscopy	Membrane transport	Also covers M0.3
17	27	1	2	2.1.1j	Cells and microscopy	Triglyceride structure	
17	28	1	1	2.1.2e	Water and its importance in plants and animals	Monosaccharide and lactose structures	
17	29	1	2	2.1.3g	Proteins and enzymes	Blood transfusions: mortality rate calculation	
17	30	1	2	2.2.1f	The heart and monitoring heart function	Stroke volume calculation	Also covers M2.4
17	31	1	2	2.2.2c	Transport systems in mammals	Mammalian transport system (tissue fluid)	
17	32	1	2	2.2.4cii	Transport systems in plants	Examination of plant vascular tissue	Also covers M0.3
17	33	1	2	2.1.3aii	Proteins and enzymes	Chromatography (amino acids)	
17	34	1	1	2.1.3b	Proteins and enzymes	Levels of protein structure	
17	35	1	1	2.2.1bi	The heart and monitoring heart function	Heart structure	
17	36	1	2	2.2.3c	Gas exchange in mammals and plants	Tidal volume	
18	1	1	1	3.1.2e	The developing individual: meiosis, growth and development	Diet in pregnancy	
18	2	1	1	3.1.3c	The development of species: evolution and classification	DNA barcodes	
18	3	1	1	3.3.2f	Respiratory disease and treatment	Clinical trials (double-blind trials)	
18	4	1	2	3.3.2b	Respiratory disease and treatment	Asthma (calculation from data)	Also covers 3.3.1e, M0.3, and M1.1
18	5	1	2	3.3.1d	The cellular basis of cancer and treatment	Proto-oncogenes	Also covers 3.3.1e
18	6	1	2	3.2.3g	Controlling communicable diseases	Antibiotics investigation	Also covers 1.1.3b, M1.1, and M4.1
18	7	1	1	3.1.1ei	The developing cell: cell division and cell differentiation	Stem cells	

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18	8	1	1	3.1.1bi	The developing cell: cell division and cell differentiation	Mitosis	Also covers 3.1.2b
18	9	1	2	3.1.2i	The developing individual: meiosis, growth and development	Karyotypes	
18	10	1	2	3.2.2a	The immune system	Primary defences	
18	11	1	1	3.1.2i	The developing individual: meiosis, growth and development	Karyotypes	
18	12	1	1	3.2.2c	The immune system	Lymphocyte roles	Also covers 2.1.1c
18	13	1	2	3.1.1a	The developing cell: cell division and cell differentiation	The cell cycle	Also covers 3.1.2a
18	14	1	2	3.1.3d	The development of species: evolution and classification	Phylogenetic trees	
18	15	1	1	3.2.1c	Pathogenic microorganisms	HIV pathogenicity	Also covers 3.2.1a
18	16	1	1	3.3.1g	The cellular basis of cancer and treatment	Methods used to detect cancer	
18	17	1	1	3.2.3f	Controlling communicable diseases	Antibiotic resistance	
18	18	1	2	3.1.2e	The developing individual: meiosis, growth and development	Diet in pregnancy	Also covers M0.3
18	19	1	2	3.1.1a	The developing cell: cell division and cell differentiation	The cell cycle	
18	20	1	1	3.1.3a	The development of species: evolution and classification	Classification	
18	21	1	1	3.2.2b	The immune system	Phagocytosis	
18	22	1	2	3.2.3a	Controlling communicable diseases	Vaccination	
18	23	1	1	3.3.2d	Respiratory disease and treatment	Asthma treatment	