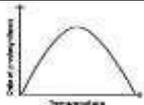


Paper 1

No.	Question	Answer
1	What are the two types of eukaryotic cells?	Plant and animal
2	What is the function of the nucleus?	Controls the activity of the cell.
3	Name one structure found in a plant cell but not in an animal cell.	Chloroplast or cell wall or vacuole
4	How would you calculate image size?	Size of image = magnification x size of real object
5	Give one advantage of using an electron microscope instead of a light microscope.	Greater resolution or magnification
6	Name the four types of pathogen.	Bacteria, fungi, protist and virus
7	How does the human body prevent pathogens entering?	Skin, cilia and mucus in the nose, trachea and bronchi, and stomach acid
8	How does the human body defend itself against pathogens inside the body?	White blood cells, antibodies, phagocytosis, anti-toxins
9	What does a vaccine contain?	Small quantities of dead or inactive forms of a pathogen
10	What is herd immunity?	When most of a population is vaccinated against a disease, meaning it's less likely to spread.
11	What three functions do white blood cells have?	<ol style="list-style-type: none"> 1. Phagocytosis 2. Producing antibodies 3. Producing antitoxins
12	What is an antibiotic?	A drug that kills bacteria but not viruses
13	Name a common antibiotic	Penicillin
14	What is the word equation for photosynthesis?	carbon dioxide + water → glucose + oxygen
15	Sketch a graph which shows the effect of temperature on rate of photosynthesis.	
16	How is water loss from leaves controlled?	The closing of the stomata by the guard cells
17	Which vessel transports water through the plant?	Xylem
18	What is transpiration?	Water loss (evaporation) from leaves
19	Name four factors that affect the rate of transpiration	Temperature, light intensity, humidity and wind speed
20	Where are most stomata found?	On the underside of leaves
21	Why does aerobic respiration release more energy per glucose molecule than anaerobic respiration?	Oxidation of glucose is complete in aerobic respiration and incomplete in anaerobic respiration
22	Define the term limiting factor	Anything that limits the rate of a reaction when it is in short supply
23	Give the limiting factors for photosynthesis	<ol style="list-style-type: none"> 1. Temperature 2. Carbon dioxide concentration 3. Light intensity 4. Amount of chlorophyll

24	What do organisms need energy for?	Chemical reactions to build larger molecules Muscle contraction for movement Keeping warm
25	What chemical is used to test for lipids?	Ethanol
26	What chemical is used to test for glucose (sugars)	Benedicts
27	What chemical is used to test for starch?	Iodine
28	What chemical is used to test for protein?	Biuret reagent
29	What colour does iodine go if starch is present?	Goes from orange to blue/black
30	Name the five levels of organisation in living organisms.	Cells – tissues – organs- organ systems - organisms
31	What is a tissue?	A group of cells with similar structures and functions
32	What is an organ?	A group of tissues working together to perform a specific function
33	Define the term double circulatory system.	The right side of the heart pumps deoxygenated to the lungs, the left side pumps oxygenated blood to the body.
34	Which blood vessel carries blood to the body?	Aorta
35	What is the function of valves?	Prevent backflow
36	Give one advantage and one disadvantage of using a mechanical heart valve	Advantage – don't have to wait for a donor heart Disadvantage – could lead to blood clots.
37	What is the function of bile in the digestive system?	Neutralise the hydrochloric acid from the stomach and emulsify fat to form small droplets with a large surface area
38	What is an enzyme?	A biological catalyst
39	Where is amylase produced?	Salivary glands, pancreas, small intestine
40	What does amylase break down?	Starch into simple sugars
41	Name two other enzymes.	Lipase and protease
42	What are the ethical issues with using stem cells	Embryonic stem cells are destroyed which could be seen as a potential life.
43	Define health	State of physical and mental well being
44	What factors can affect health	Disease, diet, stress and life situations
45	What is a tumour?	Uncontrolled, abnormal cell growth
46	What is the difference between a benign and malignant tumour?	Benign – contained in one place Malignant – can spread (metastasize) around the body
47	How can cancer be treated?	Radiotherapy or chemotherapy
48	What is the first stage in drug trials?	Testing on cells and tissues.
49	What is a placebo?	A drug with no active ingredients
50	What is a double blind trial?	Neither the doctors nor the patients know who has received the real drug.
Biology Paper 2		
1	What is an ecosystem?	An ecosystem is the interaction of a community of living organisms (biotic) with the non-living (abiotic) parts of their environment.
2	State the four factors plants compete with each other for.	Space, light, mineral ions, water
3	State the three factors animals compete with each other for.	Food, mates, territory

4	What is interdependence?	Each species within a community depend on others for food, shelter, pollination, seed dispersal, etc. If one species is removed, this will affect the whole community.
5	What is an abiotic factor?	A non-living factor which can affect a community.
6	State the 7 possible abiotic factors which may affect a community.	Light intensity, temperature, moisture levels, soil pH and mineral content, wind intensity (and direction), carbon dioxide concentration, oxygen concentration
7	What is a biotic factor?	A living factor which may affect a community.
8	State all 4 possible biotic factors which may affect a community.	Availability of food, new predators, new pathogens, being outcompeted
9	Organisms have adaptations to enable them to survive in their usual conditions. What 3 categories do these adaptations fall under?	Structural, behavioural, functional (cellular reactions)
10	What is an extremophile?	An organism that lives in an extreme environment, such as at high temperature, pressure or salt concentration.
11	Give an example of an extremophile.	Bacteria living in deep sea vents.
12	What is a producer?	A photosynthetic organisms that produces biomass.
13	What do all food chains begin with?	Producers
14	Give two examples of a producer.	Green plants and algae.
15	What is biodiversity?	The variety of all the different species of organisms on earth, or within an ecosystem.
16	How is water polluted?	Sewage, fertilisers or toxic chemicals.
17	How is air polluted?	Smoke and acidic gases.
18	How is land polluted?	Landfill and toxic chemicals.
19	Give three causes of deforestation.	1. Provide land for cattle or rice fields 2. Grow crops for biofuels 3. To clear space for building"
20	Which 2 gases are increasing in the atmosphere and contributing to global warming?	1. Carbon dioxide 2. Methane"
21	What are the five main biological consequences of global warming?	1. Increased spread of pathogens 2. Affecting migration patterns of animals 3. Melting of polar ice caps, causing flooding 4. Reduced habitats in polar regions 5. Reduced biodiversity"
22	State three positive human interactions in an ecosystem.	"1. Breeding programmes for endangered species 2. Protection and regeneration of rare habitats 3. Reintroduction of field margins and hedgerows in agricultural areas where farmers grow only one type of crop 4. Reduction of deforestation and carbon dioxide emissions by some governments 5. Recycling resources rather than dumping waste in landfill"
23	What is the function of the nervous system	Enables organisms to react to their surroundings and coordinates behaviour
24	What are the two parts of the central nervous system	Brain and spinal cord
25	Why are reflex actions rapid and automatic	They do not involve the conscious part of the brain

26	Give the pathway of a nervous response	Stimulus – receptor- coordinator- effector- response
27	What is homeostasis	Maintenance of a constant internal environment
28	Give three internal conditions controlled in homeostasis	Body temperature Blood glucose concentration Water levels
29	Name three coordination centres	Brain, spinal cord, pancreas
30	Name two types of effectors	Muscles and glands
31	What is the endocrine system?	System of glands that secrete hormones into the bloodstream
32	What is the cause of Type 1 Diabetes?	Pancreas produces insufficient insulin
33	What is the cause of Type 2 Diabetes?	Body cells no longer respond to insulin.
34	What is the function of FSH?	Causes egg to mature in the ovaries and stimulates ovaries to produce oestrogen
35	What is the function of LH?	Stimulates the release of an egg.
36	What is the function of adrenaline in the body?	Increases heart rate and boosts delivery of oxygen and glucose to brain and muscles to prepare the body for “fight or flight”
37	What is the function of thyroxine in the body?	Stimulates basal metabolic rate, so is important for growth and development
38	Name one hormone controlled by negative feedback	Thyroxine
39	What is variation?	Differences in characteristics of individuals in a population
40	What can cause variation?	Genetic causes, environmental causes and a combination of genes and the environment
41	How do new phenotype variants occur?	Mutations
42	What type of cell division is involved in sexual reproduction?	Meiosis
43	What type of cell division is involved in asexual reproduction?	Mitosis
44	What is meiosis	Cell division that produces four daughter cells (gametes) each with a single set of chromosomes
45	What are the male and female sex chromosomes in humans?	XX – Female XY – male
46	What is the genetic material called?	DNA
47	What are alleles?	Different forms of the same gene.
48	What is a recessive gene?	A gene that needs to be present twice to be expressed
49	Define the term homozygous	Two of the same alleles present in an organism
50	Define the term heterozygous	Two different alleles present in an organism