Biology facts to learn for GCSE Topics 6 to 9.

Remember Paper 2 will have questions on topics 1,6,7,8,9. Get someone to ask you these questions until you get all the answers right. **Questions in bold are for the Higher Paper only.**

Topic 6 (Paper 2 only)

Q	Topic 6 Questions	Q	Topic 6 Answers
1	What is the equation for photosynthesis?	1	Carbon dioxide + water $\longrightarrow$ glucose and oxygen
2	Is photosynthesis an endothermic or exothermic process?	2	Endothermic
3	What form of energy is transferred to chemical energy in photosynthesis?	3	Light
4	State three possible limiting factors in photosynthesis	4	Light intensity, carbon dioxide concentration, temperature
5	What is meant by a limiting factor?	5	Increasing the factor will give a higher rate of photosynthesis
6	Why might a high temperature lower the rate of photosynthesis	6	Enzymes involved in photosynthesis start to denature
7	**What is the inverse square law?**	7	**Light intensity is inversely proportional to the distance from the light source squared**
8	Why does a root hair increase absorption of water by root hair cells?	8	Increases the surface area
9	By what process are mineral ions absorbed by a root hair cell?	9	Active transport
10	What is the function of xylem ?	10	Transport water and minerals up a plant
11	Describe two ways that xylem cells are adapted to transport water efficiently.	11	Lignin to strengthen cell walls and dead hollow cells to carry more water
12	What is the function of phloem?	12	Transport sugars around a plant
13	Name the process that transports sugars in the phloem.	13	Translocation
14	Does translocation require energy?	14	Yes
15	Name the process by which water evaporates from leaves so that water moves up the xylem.	15	Transpiration
16	Name the holes through which water evaporates from a leaf	16	Stomata
17	Name three factors that would increase the rate of transpiration	17	High temperature, more air movement (windy) and high light intensity
18	Why does high light intensity increase the rate of transpiration	18	Stomata more likely to be open
19	Why are stomata more likely to be open when it is light?	19	To allow carbon dioxide into the leaf which is needed for photosynthesis
20	How can a leaf stop losing water?	20	Close the stomata.

Topic 7 (Paper 2 only)

Q	Topic 7 Questions	Q	Topic 7 Answers
1	Where are hormones produced?	1	Endocrine glands
2	How are hormones transported around the body?	2	In the blood
3	Which gland produces adrenalin?	3	Adrenal gland
4	**What does adrenalin prepare the body for?**	**4**	**Fight or flight**
5	**State four effects of adrenaline**	**5**	**Increase heart rate, increase blood pressure, increase blood flow to the muscles, increase conversion of glycogen to glucose in the liver**
6	Which gland produces thyroxine?	6	Thyroid gland
7	**If thyroxine levels are low, what hormone is released by the hypothalamus?**	**7**	**TRH**
8	**What effect does release of TRH have on the pituitary gland?**	**8**	**Pituitary gland releases TSH (Thyroid stimulating hormone)**
9	**What effect does TSH have on the thyroid gland?**	**9**	**Thyroid gland releases more thyroxine.**
10	**If thyroxine levels are normal it inhibits the release of TRH and TSH. This type of feedback is called …….**	**10**	**Negative feedback**
11	What is the role of oestrogen in the menstrual cycle	11	It causes the uterus lining to thicken
12	What is the role of progesterone in the menstrual cycle	12	It maintains the thickness of the uterus lining.
13	Which gland produces FSH and LH?	13	The pituitary gland
14	What is the role of FSH from the pituitary gland in the menstrual cycle?	14	It matures an egg in the ovary
15	What is the role of LH from the pituitary gland in the menstrual cycle?	15	It releases an egg from the ovary (ovulation)
16	Why does the contraceptive pill contain oestrogen?	16	Oestrogen prevents FSH being produced by the pituitary gland so therefore no eggs mature.
17	**Why are LH and FSH used in ART (Assisted reproductive Technology)**	**17**	**Stimulate egg maturation and release**
18	What is homeostasis?	18	Keeping internal body conditions constant
19	What does the hormone insulin do?	19	Lowers blood glucose concentration
20	What does insulin cause the liver to do?	20	Absorb glucose and convert it to glycogen
21	**What does glucagon do?**	**21**	**Increase blood glucose concentration**
22	**What does glucagon cause the liver to do?**	**22**	**Convert glycogen to glucose and release glucose into the blood**
23	What causes type I diabetes	23	A lack of insulin
24	How can type I diabetes be controlled?	24	Insulin injections (Plus diet and exercise)
25	What causes type II diabetes?	25	Body does not respond to insulin
26	How is type II diabetes controlled?	26	Correct diet and amount of exercise
27	Describe how to calaculate the waist hip ratio.	27	Waist circumference divided by hip circumference
28	What does a BMI over 30 indicate?	28	Obesity

Topic 8 (Paper 2 only)

Q	Topic 8 Questions	Q	Topic 8 Answers
1	Why do organisms need oxygen?	1	For aerobic respiration
2	Describe two features of alveoli that make them efficient at allowing diffusion of oxygen into the blood	2	Thin walls so diffusion distance is short and millions of them to give a large surface area to volume ratio so more oxygen is absorbed at one time.
3	Name the four components of blood	3	Red blood cells, white blood cells, plasma and platelets
4	State another name for red blood cells	4	erythrocytes
5	Name the two types of white blood cell	5	Lymphocytes and phagocytes
6	What is the role of erythrocytes?	6	Carry oxygen
7	Why do erythrocytes have no nucleus?	7	To make more room for haemoglobin so that they can carry more oxygen
8	What is the role of lymphocytes?	8	To produce antibodies to help to destroy pathogens
9	What is the role of phagocytes?	9	To ingest and digest pathogens
10	What is the role of platelets?	10	To clot blood at a wound
11	What is blood plasma?	11	Liquid part of the blood.
12	Describe three differences between arteries and veins	12	Arteries carry blood away from the heart, arteries have thicker walls, arteries don't have valves
13	Which blood vessel takes blood away from the left ventricle to the rest of the body?	13	Aorta
14	Which blood vessel takes deoxygenated blood back to the right atrium of the heart?	14	Vena cava
15	Which blood vessel takes deoxygenated blood from the right ventricle to the lungs?	15	Pulmonary artery
16	Which blood vessel takes oxygenated blood from the lungs to the left atrium of the heart?	16	Pulmonary vein
17	What is the role of valves in the heart?	17	Stop blood flowing backwards.
18	Why does the left ventricle have a much thicker wall than the right ventricle	18	To create a higher pressure to get blood round the rest of the body (rather than just to the lungs)
19	Is respiration an exothermic or an endothermic process?	19	exothermic
20	What is the purpose of respiration	20	To release energy (for metabolic processes)
21	What is the difference between aerobic respiration and anaerobic respiration?	21	Aerobic needs oxygen, anaerobic does not.
22	What does cardiac output equal?	22	Stroke volume x heart rate

23	Define the term 'stroke volume'	23	Volume of blood pumped with each beat of the heart

Topic 9 (Paper 2 only)

Q	Topic 9 Questions	Q	Topic 9 Answers
1	In an ecosystem, define the term population	1	The number of a particular species
2	What is meant by the term community?	2	All the living things in a habitat/ecosystem
3	What are biotic factors in an ecosystem?	3	Living factors
4	Is light intensity a biotic or abiotic factor?	4	Abiotic
5	Is competition a biotic or abiotic factor?	5	Biotic
6	What is meant by interdependence in a community?	6	How different organisms rely on each other for survival.
7	Name the square grid used to sample an ecosystem	7	Quadrat
8	What is a transect and what is it used for?	8	A line used to show the distribution of organisms in a habitat
9	Why might the introduction of non-indigenous species by humans affect an ecosystem ?	9	They may outcompete the indigenous species
10	Why might fish farming affect an ecosystem?	10	Waste pollutes the water
11	Describe the process of eutrophication	11	Fertiliser gets washed into rivers Plants overgrow in water and block light from plant underneath Many plants die and are cdecomposed by bacteria in the water Bacteria use up the oxygen in the water Fish die as they cannot carry out aerobic respiration
12	Define biodiversity	12	The variety of all living things on the planet
13	Suggest two reasons why is it important to conserve biodiversity?	13	Different species may be useful in the future. Eg for finding new medicines So as not to disrupt food chains
14	What is meant by potable water?	14	Drinking water
15	Why do clouds form?	15	Water evaporates from the Earth and then condenses as it cools in the air.
16	How does carbon get into living things in the carbon cycle?	16	As carbon dioxide during photosynthesis
17	How does carbon get from living things back to the air?	17	As carbon dioxide during respiration
18	How is carbon returned to the air from fossil fuels?	18	As carbon dioxide during combustion (burning)
19	What is the role of micro-organisms in the carbon and nitrogen cycle?	19	Decomposers (that cause decay)
20	How does nitrogen gas become nitrates that plants can use?	20	Nitrogen fixing bacteria (or lightning)
21	Which bacteria convert ammonia in the soil to nitrates?	21	Nitrifying bacteria
22	What do denitrifying bacteria do?	22	Convert nitrates back to nitrogen gas

23	Where do you find nitrogen fixing bacteria in leguminous plants?	23	In their root nodules