Q&A List - GCSE Combined Since - Biology Paper 2

Part 5a - Homeostasis - Nervous System

No.	Question	Answer
1	Define 'homeostasis'.	Maintaining a stable internal environment
2	Name three key internal conditions that need to be controlled through homeostasis.	Temperature Water levels Blood glucose level
3	Name the cell type that detects stimuli in the internal or external environment.	Receptor
4	Name the component in the nervous system that bring about responses to stimuli.	Effector
5	State the function of a neurone.	Transmit electrical impulses
6	Name the type of neurone that carries impulses to the central nervous system.	Sensory neurone
7	Name the type of neurone that carries impulses away from the central nervous system.	Motor neurone
8	Name two types of effectors.	Muscles Glands
9	Name the two coordination centres that make up the central nervous system.	Brain and spinal cord
10	Name one factor that may affect human reaction time.	Caffeine Age Tiredness
11	What are reflex actions?	Automatic and rapid actions
12	Where is the relay neurone found in a reflex arc?	Spinal cord
13	What are hormones?	Chemical messengers that travel in the bloodstream
14	Name the 'master gland' that secretes a variety of hormones.	Pituitary gland
15	State one difference between the effects of hormones compared to the nervous system.	Hormonal effects are slower
16	Name the hormone that decreases blood glucose level.	Insulin
17	Name the organ which produces hormones to control blood glucose level.	Pancreas
18	State an effect of insulin.	Increase glucose absorption by cells

19	What is type 1 diabetes?	Condition where pancreas does not make enough insulin
20	What is type 2 diabetes?	Condition where body cells stop responding to insulin
21	Name a risk factor for type 2 diabetes.	Lack of exercise High carbohydrate diet Obesity
22	Name a treatment for type 1 diabetes but not type 2 diabetes.	Insulin injection
23	Name one treatment for type 2 diabetes.	Lose weight Regular exercise
24	Name the main female reproductive hormone.	Oestrogen
25	Name the process where a matured egg is released from the ovaries.	Ovulation
26	Name the hormone that causes egg maturation in the ovaries.	FSH (follicle stimulating hormone)
27	Name the hormone that stimulates ovulation.	LH (luteinising hormone)
28	Name the hormone that stimulates the build-up of the uterus lining.	Oestrogen
29	Name the hormone that maintains the uterus lining.	Progesterone
30	Name the main male reproductive hormone.	Testosterone
31	Which organ produces testosterone?	Testes
32	State the average length of the menstrual cycle.	28 days
33	Which two female hormones does the pituitary gland secrete during the menstrual cycle?	FSH and LH
34	Which two female hormones do the ovaries release during the menstrual cycle?	Oestrogen and progesterone
35	Name a barrier method of contraception.	Condom
36	Give a disadvantage of the contraceptive pill	Must remember to take it every day Doesn’t protect against STDs
37	How does the contraceptive pill work?	Stop egg cells from maturing and being released.

Part 5a - Homeostasis - Hormonal Control

No.	Question	Answer
1	Define 'homeostasis'.	Maintaining a stable internal environment

2	Name three key internal conditions that need to be controlled through homeostasis.	Temperature Water levels Blood glucose level
3	Name the cell type that detects stimuli in the internal or external environment.	Receptor
4	Name the component in the nervous system that bring about responses to stimuli.	Effector
5	State the function of a neurone.	Transmit electrical impulses
6	Name the type of neurone that carries impulses to the central nervous system.	Sensory neurone
7	Name the type of neurone that carries impulses away from the central nervous system.	Motor neurone
8	Name two types of effectors.	Muscles Glands
9	Name the two coordination centres that make up the central nervous system.	Brain and spinal cord
10	Name one factor that may affect human reaction time.	Caffeine Age Tiredness
11	What are reflex actions?	Automatic and rapid actions
12	Where is the relay neurone found in a reflex arc?	Spinal cord
13	What are hormones?	Chemical messengers that travel in the bloodstream
14	Name the 'master gland' that secretes a variety of hormones.	Pituitary gland
15	State one difference between the effects of hormones compared to the nervous system.	Hormonal effects are slower
16	Name the hormone that decreases blood glucose level.	Insulin
17	Name the organ which produces hormones to control blood glucose level.	Pancreas
18	State an effect of insulin.	Increase glucose absorption by cells
19	What is type 1 diabetes?	Condition where pancreas does not make enough insulin
20	What is type 2 diabetes?	Condition where body cells stop responding to insulin
21	Name a risk factor for type 2 diabetes.	Lack of exercise High carbohydrate diet Obesity

22	Name a treatment for type 1 diabetes but not type 2 diabetes.	Insulin injection
23	Name one treatment for type 2 diabetes.	Lose weight Regular exercise
24	Name the main female reproductive hormone.	Oestrogen
25	Name the process where a matured egg is released from the ovaries.	Ovulation
26	Name the hormone that causes egg maturation in the ovaries.	FSH (follicle stimulating hormone)
27	Name the hormone that stimulates ovulation.	LH (luteinising hormone)
28	Name the hormone that stimulates the build-up of the uterus lining.	Oestrogen
29	Name the hormone that maintains the uterus lining.	Progesterone
30	Name the main male reproductive hormone.	Testosterone
31	Which organ produces testosterone?	Testes
32	State the average length of the menstrual cycle.	28 days
33	Which two female hormones does the pituitary gland secrete during the menstrual cycle?	FSH and LH
34	Which two female hormones do the ovaries release during the menstrual cycle?	Oestrogen and progesterone
35	Name a barrier method of contraception.	Condom
36	Give a disadvantage of the contraceptive pill	Must remember to take it every day Doesn't protect against STDs
37	How does the contraceptive pill work?	Stop egg cells from maturing and being released.

Part 6a - Inheritance

No.	Question	Answer
1	By which cell division type does asexual reproduction rely on?	Mitosis
2	How are gametes formed?	Meiosis
3	How is a gamete different from a normal body cell?	Half genetic information
4	Name the structure formed by fertilisation (fusion of male and female gametes).	Zygote
	Name the gametes in plants.	Egg + Pollen

5		
6	Name the organ that produces egg cells.	Ovaries
7	Name the organ that produces sperm cells.	Testes
8	How many divisions do a cell undergo in meiosis?	Twice
9	Name the process where a sperm and an egg cell fuse together.	Fertilisation
10	How many chromosomes are there in a human gamete?	23
11	Define 'gametes'.	Sex cells
12	Name the gametes in animals.	Sperm + Egg
13	Describe the cells produced by meiosis.	4 cells, genetically different.
14	Describe the cells produced by mitosis.	2 cells, genetically identical (clones).
15	Describe the structure of DNA.	A polymer made up of two strands forming a **double helix**.
16	Name the structure within which DNA is contained.	Chromosomes.
17	What is a gene?	A small section of DNA on a chromosome.
18	What is a genome?	The entire genetic material of an organism.
19	What is an allele?	A different version of a gene.
20	What does the term “dominant” mean?	The individual only needs one copy of this allele for its phenotype to be seen.
21	What does the term “recessive” mean?	The individual needs two copies of this allele for its phenotype to be seen.
22	What does the term “homozygous” mean?	The individual has two **identical** alleles for this gene.
23	What does the term “heterozygous” mean?	The individual has two **different** alleles for this gene.
24	What is a genotype?	The genetic makeup of an organism for a particular gene (e.g. RR).
25	What is a phenotype?	The displayed characteristic due to the interactions between alleles (e.g. red flowers).
26	How many pairs of chromosomes does an ordinary human body cell have?	23
27	What is the genotype of a female?	XX
28	What is the genotype of a male?	XY
29	What is polydactyly?	A condition that causes the individual to have extra fingers or toes.

30	Is polydactyly a dominant or recessive condition?	Dominant.
31	What is cystic fibrosis?	A condition which causes sticky mucus to build up in the lungs.
32	Is cystic fibrosis a dominant or recessive condition?	Recessive.
33	State one concern of screening embryos.	Miscarriage
34	State one benefit of embryo screening.	Know if child will have disorder/Able to decide if proceed with pregnancy or abortion

Part 6b - Variation & Evolution

No.	Question	Answer
1	What is variation within a population?	Differences in the characteristics of individuals in a population.
2	State three causes of variation in a population.	1. Genes 2. The environment 3. A combination of both
3	What causes variation within a population?	Mutations.
4	Define 'species'.	Organisms that can interbreed to produce fertile offspring.
5	What is selective breeding?	The process by which humans breed plants and animals for particular genetic characteristics.
6	State a modern example of selective breeding.	1. Disease resistance in food crops 2. Animals which produce more meat 3. Domestic dogs with a gentle nature 4. Large or unusual flowers
7	State a disadvantage to selective breeding.	Inbreeding
8	State a trait plants might be genetically engineered to have.	Resistant to insect attack
9	What are fossils?	Remains of organisms from millions of years ago that are found preserved
10	What are criteria for decay to occur?	Oxygen Bacteria Correct temperature
11	How is the fossil record helpful?	It shows how much organisms have changed and developed over time
12	Define 'extinction'.	Permanent loss of all members of a species
13	State three causes of extinction.	New predators New diseases/pathogens New/successful competitors
14	Suggest two examples of causes of mass extinction.	Asteroid collision Volcanic Eruption
15	What is antibiotic resistance?	Bacteria becoming resistant means it cannot be killed by a certain antibiotic
	What causes antibiotic resistance?	Random mutations in bacteria

16		
17	Why can bacteria evolve quicker than other organisms?	Bacteria can reproduce at a quick rate
18	Suggest 3 methods to prevent and slow down the development of antibiotic-resistant strains.	1. Do not overuse antibiotics; 2. Patients finish antibiotic course every time; 3. Restrict agricultural use of antibiotics
19	Why must patients finish their course of antibiotics every time?	To ensure all bacteria are killed by the antibiotic
20	Suggest a way in which a hospital can reduce the spread of antibiotic-resistant strains.	Only use antibiotics if really needed
21	What does classification of organisms mean?	Organisation of living things into groups based on their similarities
22	Name the person who developed the classification system.	Carl Linnaeus
23	State the 7 hierarchical levels of the Linnaean classification system.	**K**ingdom, **p**hylum, **c**lass, **o**rder, **f**amily, **g**enus, **s**pecies
24	Which language does the binomial naming system use?	Latin
25	What does the first word of the binominal naming system refer to?	Genus
26	What does the second word of the binominal naming system refer to?	Species
27	How many domains do scientists **now** consider in classification?	3 domains
28	Name the person who proposed the theory of evolution.	Charles Darwin
29	On what mechanism is Darwin's theory of evolution based on?	Natural selection
30	What is Darwin's theory of evolution by natural selection?	All species have evolved from simple life forms
31	State a reason why Darwin's ideas were only slowly accepted.	Insufficient evidence
32	What is speciation?	The process by which two species evolve from a single original species by natural selection

Part 7 – Ecology

No.	Question	Answer
1	Define 'community'.	A group of interdependent organisms that are made of different species.
2	Define 'ecosystem'.	The interaction of a community with the abiotic parts of the environment.
3	What are abiotic factors? State two examples.	Non-living factors in an environment (e.g. light intensity, soil pH, wind, humidity, temperature).
4	What are biotic factors? State two examples.	Living factors in an environment (e.g. predators, competitors, Pathogens/microorganisms).

5	Define ‘population’.	A group of organisms of one species that interbreed, produce fertile offspring and live in the same place at the same time.
6	What is interdependence?	A relationship that describes how all species within a community depend on each other to survive.
7	State three biotic factors.	New pathogens, new predators, new competitors, food availability
8	What are the three things that animals compete for?	Food, mates, territory
9	What are the four things that plants compete for?	Light, space, water, mineral ions
10	Cactus’ long roots is a feature to help compete for…?	Water
11	Large flowers are a feature to help compete for…?	(attract) Pollinators
12	What are producers?	Organisms that can make food/biomass from raw materials such as CO_2 and water (e.g. plants, algae)
13	How do producers make biomass?	By doing photosynthesis
14	What are primary consumers? Give an example.	Animals that eat producers + Any herbivores (e.g. cows, sheep, rabbits)
15	What are secondary consumers? Give an example.	Animals that eat primary consumers + Any carnivores (e.g. lions, foxes, eagles)
16	Secondary consumers may be eaten by…?	Tertiary consumers
17	Describe and explain how prey population changes as predator population increases.	Prey population decreases as more predator eats more prey
18	Describe and explain how predator population changes as prey population decreases.	Predator population decreases, as less prey/food available, more predators die
19	Describe and explain how prey population changes as predator population decreases.	Prey population increases, as less predators hunting them, more prey can survive and reproduce
20	Describe and explain how predator population changes as prey population increases.	Predator population increases, as more food/prey available, more predator and eat to survive and reproduce
21	Define ‘biodiversity’.	A measure of the variety of all the different species of organisms within an ecosystem

TEST YOURSELF - Part 5a - Homeostasis - Nervous System

No.	Question	Answer
1	Define 'homeostasis'.	
2	Name three key internal conditions that need to be controlled through homeostasis.	
3	Name the cell type that detects stimuli in the internal or external environment.	
4	Name the component in the nervous system that bring about responses to stimuli.	
5	State the function of a neurone.	
6	Name the type of neurone that carries impulses to the central nervous system.	
7	Name the type of neurone that carries impulses away from the central nervous system.	
8	Name two types of effectors.	
9	Name the two coordination centres that make up the central nervous system.	
10	Name one factor that may affect human reaction time.	
11	What are reflex actions?	
12	Where is the relay neurone found in a reflex arc?	
13	What are hormones?	
14	Name the 'master gland' that secretes a variety of hormones.	
15	State one difference between the effects of hormones compared to the nervous system.	
16	Name the hormone that decreases blood glucose level.	
17	Name the organ which produces hormones to control blood glucose level.	
18	State an effect of insulin.	
19	What is type 1 diabetes?	
20	What is type 2 diabetes?	

21	Name a risk factor for type 2 diabetes.	
22	Name a treatment for type 1 diabetes but not type 2 diabetes.	
23	Name one treatment for type 2 diabetes.	
24	Name the main female reproductive hormone.	
25	Name the process where a matured egg is released from the ovaries.	
26	Name the hormone that causes egg maturation in the ovaries.	
27	Name the hormone that stimulates ovulation.	
28	Name the hormone that stimulates the build-up of the uterus lining.	
29	Name the hormone that maintains the uterus lining.	
30	Name the main male reproductive hormone.	
31	Which organ produces testosterone?	
32	State the average length of the menstrual cycle.	
33	Which two female hormones does the pituitary gland secrete during the menstrual cycle?	
34	Which two female hormones do the ovaries release during the menstrual cycle?	
35	Name a barrier method of contraception.	
36	Give a disadvantage of the contraceptive pill	
37	How does the contraceptive pill work?	

TEST YOURSELF - Part 5a - Homeostasis - Hormonal Control

No.	Question	Answer
1	Define 'homeostasis'.	
2	Name three key internal conditions that need to be controlled through homeostasis.	

3	Name the cell type that detects stimuli in the internal or external environment.	
4	Name the component in the nervous system that bring about responses to stimuli.	
5	State the function of a neurone.	
6	Name the type of neurone that carries impulses to the central nervous system.	
7	Name the type of neurone that carries impulses away from the central nervous system.	
8	Name two types of effectors.	
9	Name the two coordination centres that make up the central nervous system.	
10	Name one factor that may affect human reaction time.	
11	What are reflex actions?	
12	Where is the relay neurone found in a reflex arc?	
13	What are hormones?	
14	Name the 'master gland' that secretes a variety of hormones.	
15	State one difference between the effects of hormones compared to the nervous system.	
16	Name the hormone that decreases blood glucose level.	
17	Name the organ which produces hormones to control blood glucose level.	
18	State an effect of insulin.	
19	What is type 1 diabetes?	
20	What is type 2 diabetes?	
21	Name a risk factor for type 2 diabetes.	
22	Name a treatment for type 1 diabetes but not type 2 diabetes.	
23	Name one treatment for type 2 diabetes.	

24	Name the main female reproductive hormone.	
25	Name the process where a matured egg is released from the ovaries.	
26	Name the hormone that causes egg maturation in the ovaries.	
27	Name the hormone that stimulates ovulation.	
28	Name the hormone that stimulates the build-up of the uterus lining.	
29	Name the hormone that maintains the uterus lining.	
30	Name the main male reproductive hormone.	
31	Which organ produces testosterone?	
32	State the average length of the menstrual cycle.	
33	Which two female hormones does the pituitary gland secrete during the menstrual cycle?	
34	Which two female hormones do the ovaries release during the menstrual cycle?	
35	Name a barrier method of contraception.	
36	Give a disadvantage of the contraceptive pill	
37	How does the contraceptive pill work?	

TEST YOURSELF - Part 6a - Inheritance

No.	Question	Answer
1	By which cell division type does asexual reproduction rely on?	
2	How are gametes formed?	
3	How is a gamete different from a normal body cell?	
4	Name the structure formed by fertilisation (fusion of male and female gametes).	
5	Name the gametes in plants.	
6	Name the organ that produces egg cells.	

7	Name the organ that produces sperm cells.	
8	How many divisions do a cell undergo in meiosis?	
9	Name the process where a sperm and an egg cell fuse together.	
10	How many chromosomes are there in a human gamete?	
11	Define 'gametes'.	
12	Name the gametes in animals.	
13	Describe the cells produced by meiosis.	
14	Describe the cells produced by mitosis.	
15	Describe the structure of DNA.	
16	Name the structure within which DNA is contained.	
17	What is a gene?	
18	What is a genome?	
19	What is an allele?	
20	What does the term “dominant” mean?	
21	What does the term “recessive” mean?	
22	What does the term “homozygous” mean?	
23	What does the term “heterozygous” mean?	
24	What is a genotype?	
25	What is a phenotype?	
26	How many pairs of chromosomes does an ordinary human body cell have?	
27	What is the genotype of a female?	
28	What is the genotype of a male?	
29	What is polydactyly?	

30	Is polydactyly a dominant or recessive condition?	
31	What is cystic fibrosis?	
32	Is cystic fibrosis a dominant or recessive condition?	
33	State one concern of screening embryos.	
34	State one benefit of embryo screening.	

Part 6b - Variation & Evolution

No.	Question	Answer
1	What is variation within a population?	
2	State three causes of variation in a population.	
3	What causes variation within a population?	
4	Define 'species'.	
5	What is selective breeding?	
6	State a modern example of selective breeding.	
7	State a disadvantage to selective breeding.	
8	State a trait plants might be genetically engineered to have.	
9	What are fossils?	
10	What are criteria for decay to occur?	
11	How is the fossil record helpful?	
12	Define 'extinction'.	
13	State three causes of extinction.	
14	Suggest two examples of causes of mass extinction.	
15	What is antibiotic resistance?	
16	What causes antibiotic resistance?	
17	Why can bacteria evolve quicker than other organisms?	

18	Suggest 3 methods to prevent and slow down the development of antibiotic-resistant strains.	
19	Why must patients finish their course of antibiotics every time?	
20	Suggest a way in which a hospital can reduce the spread of antibiotic-resistant strains.	
21	What does classification of organisms mean?	
22	Name the person who developed the classification system.	
23	State the 7 hierarchical levels of the Linnaean classification system.	
24	Which language does the binomial naming system use?	
25	What does the first word of the binominal naming system refer to?	
26	What does the second word of the binominal naming system refer to?	
27	How many domains do scientists **now** consider in classification?	
28	Name the person who proposed the theory of evolution.	
29	On what mechanism is Darwin's theory of evolution based on?	
30	What is Darwin's theory of evolution by natural selection?	
31	State a reason why Darwin’s ideas were only slowly accepted.	
32	What is speciation?	

Part 7 - Ecology

No.	Question	Answer
1	Define 'community'.	
2	Define 'ecosystem'.	
3	What are abiotic factors? State two examples.	
4	What are biotic factors? State two examples.	
5	Define 'population'.	
6	What is interdependence?	

7	State three biotic factors.	
8	What are the three things that animals compete for?	
9	What are the four things that plants compete for?	
10	Cactus' long roots is a feature to help compete for...?	
11	Large flowers are a feature to help compete for...?	
12	What are producers?	
13	How do producers make biomass?	
14	What are primary consumers? Give an example.	
15	What are secondary consumers? Give an example.	
16	Secondary consumers may be eaten by...?	
17	Describe and explain how prey population changes as predator population increases.	
18	Describe and explain how predator population changes as prey population decreases.	
19	Describe and explain how prey population changes as predator population decreases.	
20	Describe and explain how predator population changes as prey population increases.	
21	Define 'biodiversity'.	