

ISTA Senior Science Quiz – Final 2022

Round 1

No.	Question	Answer
1	What kind of lens is used to correct myopia?	Diverging or Concave Lens
2	What term describes an organism without a nucleus?	Prokaryotic
3	Name the gas produced when zinc reacts with sulfuric acid.	Hydrogen
4	The item shown is called Newton's cradle. Which of Newton's Law's is demonstrated using Newton's cradle?	Newton's Third Law of Motion or Law of Conservation of Momentum
5	Which mineral is often referred to as "fool's gold"?	Pyrite or Iron Pyrite or (FeS ₂)
6	Name this Irish scientist and author.	(Prof) Luke O'Neill

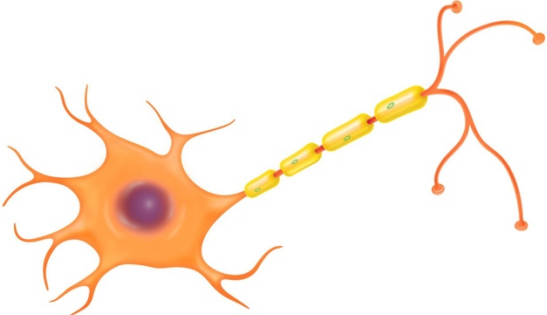


Round 2


No.	Question	Answer
1	Name the most reactive non-metal on the Periodic Table.	Flourine
2	Name the Swedish scientist who defined acids as hydrogen-containing compounds that dissociate in water to give H⁺ ions or protons.	Arrhenius
3	Which particle, as described within the Standard Model of Particle Physics, gives mass to other particles and is sometimes referred to as the "God Particle".	Higgs Boson
4	Name the hormone, produced by the pituitary gland, that regulates water levels in the blood.	Antidiuretic Hormone (accept ADH)
5	NADP ⁻ is a proton and electron acceptor, with a key role in photosynthesis. What does NADP ⁻ stand for?	Nicotinamide adenine dinucleotide phosphate
6	This image was published by NASA in 2019 – it's the first image of what?	Blackhole




Round 3

No.	Question	Answer
1	Which cell organelle is the site of protein synthesis?	Ribosome
2	What term is used to describe a fuel's ability to resist knocking.	Octane Number
3	How many nanometres in 1 metre?	1,000,000,000 (or 1×10^9 or 1 billion)
4	Name the main sugar found in milk.	Lactose
5	There are currently five NASA rovers on Mars. What is the name of the most recent one, which landed there in February 2021	Perseverance
6	What kind of cell is represented by this illustration? 	Nerve Cell or Neuron

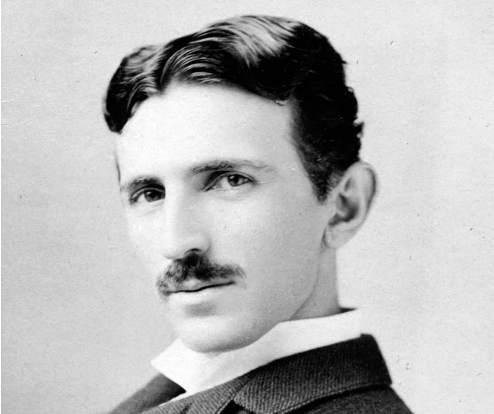
Round 4

No.	Question	Answer
1	Which of the planets in our solar system has the greatest density?	Earth
2	In a combustion reactions, organic compounds react with oxygen releasing heat energy. Name the two compounds always produced when organic compounds react with excess oxygen.	Carbon Dioxide <u>and</u> Water (accept chemical formulae)
3	Robert Boyle, renowned chemist and physicist, was born in which Irish town?	Lismore (Castle)
4	A deficiency of which vitamin results in night blindness.	(Vitamin) A
5	Which carbohydrate is the main component in the exoskeletons of insects?	Chitin
6	Identify this egg-laying mammal. 	Platypus


Round 5

No.	Question	Answer
1	Pierre and Marie Curie discovered two radioactive elements. Name them both.	Polonium <u>and</u> Radium
2	An elevator lifts a force of 3000N to a height of 20m in 10s. Calculate the power of the elevator.	6000W or 6KW
3	Which subatomic particle is made from two up quarks and one down quark ?	Proton
4	Name the fibrous protein found in hair.	Keratin
5	Which metallic element burns in oxygen to produce a brilliant white light?	Magnesium
6	Name this Dutch scientist, commonly referred to the " <i>Father of Microbiology</i> " who first discovered single celled organisms.	 van Leeuwenhoek (accept variations in spelling)


Round 6

No.	Question	Answer
1	Name the two Irish scientists who proposed the Cohesion-Tension Model of water transport in plants.	Joly <u>and</u> Dixon
2	Pfizer and Moderna COVID-19 vaccines used mRNA to trigger the immune response. What does the 'm' in mRNA stand for?	Messenger
3	What is the symbol of chemical element tin.	Sn
4	Name the process by which yeast cells reproduce?	Budding
5	What name is given to the process where electrons are emitted from a heated metal coil.	Thermionic Emission
6	Name this Serbian-American scientists, famous for his work on alternating current technology.	 Tesla

Round 7

No.	Question	Answer
1	List, in order of increasing strength, the four fundamental forces in nature?	Gravity, Weak Nuclear, Electromagnetic, Strong Nuclear
2	Name the part of the brain which controls the heart rate and breathing rate in the human body.	Medulla oblongata
3	Who predicted mathematically the existence of antimatter in the late 1920s?	Dirac
4	Where would you find sebum?	Skin (accept sebaceous glands)
5	Which law states that under the same conditions of temperature and pressure, equal volumes of different gases contain an equal number of particles?	Avogadro's Law
6	Name this apparatus, used to demonstrate that light is a form of energy. 	Crookes Radiometer

Round 8

No.	Question	Answer
1	Name the Irish author who first used the term 'quark'.	James Joyce
2	What is Ireland's largest land mammal?	Red Deer
3	Name the additive used in natural gas to give it a smell so that leaks can be detected?	Mercaptan
4	What term describes the angle between magnetic north and true north?	Magnetic Declination
5	Write a balanced chemical equation for the reaction between sodium thiosulfate and hydrochloric acid .	$\text{Na}_2\text{S}_2\text{O}_3 + 2\text{HCl} \rightarrow 2\text{NaCl} + \text{SO}_2 + \text{S} + \text{H}_2\text{O}$
6	Which organ is highlighted in orange in the diagram? 	Spleen