Question #1: Science
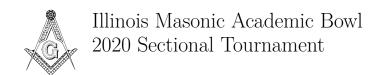
10 points

The only animals of this type native to the New World are Ameridelphia [uh-MAIR-ih-DEL-fee-uh] and the Monito del monte [moh-NEE-toh del MAHN-tay]. One member of this order or subclass of animals can only have 13 offspring survive for any length of time after they are born together, even though sometimes more are born. Those animals are opossums. The largest carnivorous animal in this group is the Tasmanian devil. When these animals are born, they are very underdeveloped, so they are more dependent on their mothers than placental mammals. Most of these animals live in New Guinea and Australia. Name this type of mammal whose mothers have pouches, including the kangaroo.	**marsupial**s or **marsupial**ia

Question #2: Literature

10 points

One novel by this author is set during the same year as the Spithead and Nore mutinies, which this author refers to as the "Great Mutiny". This author set that novel on board the HMS *Bellipotent*, where the title character is accused of mutiny by John Claggart. Another novel by this writer is set on a ship owned by Bildad and Peleg, who hire the Polynesian harpooner Queequeg [KWEE-kweg], who works for the first mate Starbuck. This author started that novel with the sentence "Call me Ishmael." Name this author of *Billy Budd* who wrote about Captain Ahab in his novel *Moby-Dick*.	Herman **Melville**

Question #3: Miscellaneous

10 points

One version of this practice spread to Europe after starting in Norfolk County, England. That practice led to the brother-in-law of Robert Walpole being nicknamed "Turnip Townshend". This process is helpful in getting rid of pests that are both immobile and require the presence of specific crops to stay alive. This practice has been used since ancient times, and it was improved during the Middle Ages by using legumes in the spring, going from a two-field system to a three-field system. The Norfolk system was an improvement to this practice that avoided leaving land fallow. Name this system of changing which crop grows on which land each year.	crop **rotation** or **rotating** crops

Question #4: Social Studies

10 points

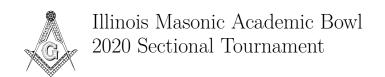|	
Several people working in this job were killed in 1909 in Cherry, Illinois. A strike started by people with this job resulted in the Battle of Virden, and several victims are buried near Mary Harris "Mother" Jones. A labor leader of people with this job also started the United Steel Workers of America after creating the Congress of Industrial Organizations; that person was John L. Lewis. In recent decades, this job has been done by the mountaintop removal method, and there have been debates over whether this job can be done cleanly using pollution mitigation. Name this job in which a fossil fuel is taken from the ground.	**coal miner** or **coal mining** [prompt on partial answers; accept answers that specify a type of coal, such as anthracite or bituminous coal]

Question #5: Science

10 points

This biome [BY-ohm] is generally the best source of caliche [kuh-LEE-chee], a calcium carbonate rock that is a good source of nitrate salts such as sodium nitrate. The smallest canid [KAY-nid], the fennec fox, lives in this biome. Some plants in this biome use CAM photosynthesis and have adaptations to minimize evaporation. In the United States, this biome is the natural habitat of *Yucca brevifolia*, which is commonly called a Joshua tree. Farmers in these biomes need to focus on irrigation, and their production is limited by the climate. Name these large areas with sparse vegetation and not much water.	**desert**s

Question #6: Literature

10 points

Most of the Don Martin Dictionary consists of these types of words. The English term for these words is formed from Greek words meaning "to coin names". These words are not identical across languages, though there are many commonalities among languages. These words are often used in comic books, and the old TV series *Batman* added these words to fight scenes. These words are often used to represent animal sounds or loud noises. Give the name of these words that resemble a physical sound, such as "click", "fizz", and "buzz".	**onomatopoeia**(s) [AH-nuh-MAH-tuh-PEE-uh] [or **onomatopoeiae**]

Question #7: Social Studies

10 points per part

	In chapter 1 of the Book of Luke, this woman says "I am the handmaid of the Lord. Let it be done unto me according to your word."	
1	Name this mother of Jesus.	(Blessed Virgin) **Mary** or **Mariam**
2	In the Book of Luke, this angel tells Mary that she will become the mother of Jesus.	**Gabriel** or **Jibril**
3	This song, sometimes called the Canticle of Mary, is based on words spoken by Mary in the Book of Luke.	**Magnificat**

Question #8: Social Studies

10 points per part

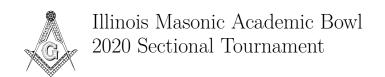|	Answer the following about religions that use stars as symbols:	
1	A star combined with this shape used to be a symbol of the Ottoman Empire, and is now used as a general Islamic symbol. A star with this shape is on the flags of Turkey, Pakistan, and other countries.	**crescent** (moon) [prompt on **moon**]
2	Judaism can be symbolized by a six-pointed star, which in the last few centuries has become named for this Biblical king.	(Star of) **David**
3	This religion often uses nine-pointed stars because it considers nine to be a symbol of perfection and because this religion considers itself the ninth in a line of religions.	**Baha**'ísm or **Baha**'í faith

Question #9: Fine Arts

10 points per part

	During the 19th century, some musical pieces were classified as this type of piece even though they did not fit the old definition, such as Hector Berlioz's *Roman Carnival*.	
1	Name this type of music typically used to introduce a larger work such as an opera.	**overture**(s)
2	In 1880, this composer wrote the *Academic Festival Overture* and *Tragic Overture*.	Johannes **Brahms**
3	This composer based his *Festive Overture*–which was written for an anniversary of the October Revolution—on Mikhail Glinka's *Ruslan and Ludmilla* [ROOS-lahn and lood-MEE-luh].	Dmitri (Dmitriyevich) **Shostakovich**

Question #10: Fine Arts

10 points per part

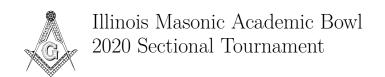|	This term refers to a form with an exposition, development, and recapitulation.	
1	Give this term that also applies to music that is performed by a solo instrument with or without piano accompaniment, such as Ludwig van Beethoven's piece nicknamed "Moonlight".	**sonata** [accept piano **sonata**(s) or **sonata** form]
2	This composer wrote *Sonatas and Interludes* for prepared piano during the 1940s. He later wrote *Four Minutes Thirty-Three Seconds*, which has no deliberate sounds.	John (Milton) **Cage** (Jr.)
3	This Russian composer wrote 10 sonatas for piano, including his white and black masses. When this composer died, Sergei Rachmaninoff [rahk-MAH-nin-awff] toured Russia playing his music.	Alexander **Scriabin** [skree-AH-bin]

Question #11: Literature

10 points per part

	Answer the following about fictional ships:	
1	This novella by Joseph Conrad is set on the *Nellie* on the Thames [temz]. In it, Marlow describes finding Mr. Kurtz in Africa.	***Heart of Darkness***
2	Many of the characters in Jules Verne's [zhool vairn'z] *Twenty Thousand Leagues Under the Sea* leave the U.S. on this ship before they are captured by Captain Nemo on the *Nautilus.*	USS ***Abraham Lincoln***
3	In this novel, Major William Dobbin is very sick when he boards the *Ramchunder*, but he becomes popular on board when he recovers.	***Vanity Fair***

Question #12: Literature

10 points per part

	Identify these fictional places:	
1	This island and nearby Blefuscu [BLEH-fuss-koo] are inhabited by little people in Jonathan Swift's *Gulliver's Travels.*	**Lilliput**
2	In an Aristophanes [air-ih-STAH-fuh-neez] play, Pisthetaerus [piss-thuh-TEE-russ] convinces the birds to build this city between people and gods.	**Cloud·cuckoo·land** [or **Nubicuculia**]
3	Hugh Conway travels to this place, where moderation is emphasized, in James Hilton's *Lost Horizon.*	**Shangri-La**

Question #13: Science

10 points per part

	The conventional form of this phenomenon can be explained by BCS theory.	
1	Name this phenomenon in which a material exhibits no electrical resistance.	**superconductor**s or **superconductivity** or **superconducting**
2	When two electrons are bound together in conventional superconductivity, they are known by this term.	**Cooper pair**
3	This quantity is the maximum vibrational frequency in a lattice. It is used to find the energy gap that separates Cooper pairs from electrons.	**Debye** [duh-BY] frequency

Question #14: Science

10 points per part

	Identify these thought experiments:	
1	This animal, which is in a sealed box with a flask of poison, is seemingly both alive and dead until it is observed.	**Schrödinger**'s **cat** [prompt on partial answer]
2	This experiment is about two people who are the same age until one of them goes through space at a high speed, then returns.	**twin paradox**
3	In this experiment, a delicate string connects two moving objects that are affected by length contraction.	**Bell**'s **spaceship** paradox

Question #15: Social Studies

10 points

Magda Arnold linked this concept to action-tendencies, and her work was developed into appraisal theories of this concept by Richard Lazarus. Arousal and cognition are the two factors that cause this concept according to the Schacter and Singer Experiment. Paul Ekman related this concept to facial expressions. Psychologists have developed ways to measure awareness of this concept in oneself and others, which is called this concept's "intelligence". In the field of psychology, this concept refers to intense responses, which makes it different than a mood. Name this state of feeling, examples of which include scared, angry, and happy.	**emotion**s [accept **emotional**]

Question #16: Literature

10 points

This character hears a voice that says "Sleep no more" after he has trouble saying the word "Amen". This character then says "To know my deed, 'twere best not know myself." This character says that life "is a tale told by an idiot, full of sound and fury, signifying nothing." Those words are spoken after this character's wife commits suicide. This character asks "Is this a dagger which I see before me?" shortly before he kills Duncan. This title character's future is predicted by three witches. Name this thane [rhymes with "main"] who becomes the king of Scotland in a play by Shakespeare.	**Macbeth**

Question #17: Mathematics

10 points

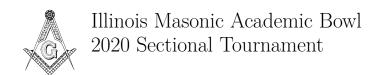|	
These numbers are used as coefficients of a polynomial that approximates the fraction "x over the quantity 1 minus x minus x squared" near x equals 0. The n-plus-first of these numbers times the n-minus-first differs by 1 from the square of the nth of these numbers, according to Cassini's identity. These numbers and Lucas [loo-kah] numbers follow the same recurrence relation. The limit of the ratio of successive pairs of these numbers is the golden ratio. These numbers were introduced in a book that used them to model the growth of rabbit populations. Name these numbers, each of which equals the sum of the previous two numbers, starting with 1, 1, 2, 3, 5, 8.	**Fibonacci** numbers or **Fibonacci** sequence

Question #18: Fine Arts

10 points

Francesco Morosini [fran-CHESS-koh moh-roh-ZEE-nee] is blamed for much of the destruction of this building because he ordered an attack when this building—which is not in Turkey—was storing gunpowder during the Great Turkish War in the 17th century. The British Museum contains several sculptures that were taken from this building in the early 19th century and are called the Elgin Marbles. Ictinos [IK-tuh-nohss] and Callicrates [kal-uh-KRAY-teez] worked on this building under the supervision of Phidias [FID-ee-uss], who designed a large gold and ivory statue of Athena that used to be inside this building. Name this former temple that is a major part of the Acropolis of Athens.	**Parthenon** [or **Parthenónas**] [accept **Acropolis** before "building" in the first sentence]

Question #19: Science

10 points

Sodium is combined with this element to make a molecule important in airbags, sodium azide [AYZ-"eyed"]. This element is combined with calcium carbide in the Frank-Caro process to produce calcium cyanamide ["cyan-um-eyed"]. This element combines with hydrogen to form amines [uh-MEENZ], which are a part of amino acids. An atom of this element is bound to three oxygen atoms by the Ostwald process, which is often used after an atom of this element is bound to three hydrogen atoms by the Haber process. This element is by far the most abundant element in the Earth's atmosphere. Name this element that combines with hydrogen to form ammonia.	**nitrogen** [accept **N**]

Question #20: Social Studies

10 points

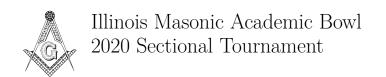|	
This leader forced Holland to agree to the Act of Seclusion, which prevented members of the House of Orange from holding the office of Stadtholder [SHTAHT-"holder"]. In battle, this person often served as second-in-command behind Thomas Fairfax; after Fairfax resigned, this person was successful at the Battle of Dunbar. This person was with the New Model Army that supported the Parliamentarians, who were commonly called Roundheads during the English Civil War. Name this person who became the Lord Protector of England after the beheading of King Charles I.	Oliver **Cromwell**

Question #21: Literature

10 points per part

	The protagonist of this novel is a Lithuanian immigrant who gets a job sweeping cattle entrails.	
1	Name this 1906 novel set in Packingtown, which is part of Chicago.	*The **Jungle***
2	This author wrote *The Jungle*. He later ran for Congress and tried to become governor of California.	Upton (Beall) **Sinclair** (Jr.)
3	In *The Jungle*, Jurgis [YUR-guss] Rudkus is called by this term before listening to a speech. This term is used to refer to many people in a movement featuring Nicholas Schliemann [SHLEE-mahn].	"**comrade**"

Question #22: Literature

10 points per part

	A character in this play states "Not finding yourself at the age of 34 is a disgrace!"	
1	Name this play about the father of Biff and Happy Loman.	***Death of a Salesman***
2	This playwright created *Death of a Salesman* as well as *The Crucible*.	Arthur (Asher) **Miller**
3	Arthur Miller also wrote this play set in Brooklyn, in which Alfieri [al-fee-AIR-ee] narrates the story of Eddie Carbone ["car-BONE"], who dies during a fight with Marco.	*A **View from the Bridge***

Question #23: Science

10 points per part

	A few decades after this person died, the importance of his pea plant studies was recognized.	
1	Name this monk who first used the terms "recessive" and "dominant" in genetics.	Gregor **Mendel**
2	According to Mendelian inheritance, if there are two heterozygous [HET-uh-roh-ZY-gohss] parents, then how many offspring should have the dominant trait for every offspring with the recessive trait?	**3** to 1
3	This Mendelian-recessive disease in humans can lead to intellectual disabilities. People with this condition should not eat dairy products, meat, fish, chicken, eggs, beans, or nuts during childhood.	**phenylketonuria** or **PKU**

Question #24: Science

10 points per part

	These cells connect to each other at synapses [SIN-ap-siz].	
1	Name these cells of the nervous system.	**neuron**s [prompt on **nerve** cells]
2	Synapses usually go from an axon of one neuron to this projection of another neuron.	**dendrite**(s) [or **dendron**(s)]
3	This type of neuron, which is common in the retina, has exactly one axon and one dendrite.	**bipolar** neuron

Question #25: Social Studies

10 points per part

	Minamoto Yoritomo was the first person to attain this title.	
1	Name these people who from 1192 to 1867 were appointed by the emperor of Japan to oversee the military.	**shogun**s [or **bakufu** or sei-i tai**shogun**shoku]
2	This family controlled the shogunate ["SHOW-gun"-uht] from 1600 to 1868 until the Meiji [MAY-jee] Restoration.	**Tokugawa [toe-koo-GAU-wuh]** Ieyasu [ee-AY-uh-soo]
3	This rank was held by many people, including Oda Nobunaga [noe-boo-NAH-guh] and Toyotomi Hideyoshi [toy-uh-TOE-me hee-day-YO-she], who were feudal lords. This Japanese word refers to the land that these people owned.	**daimyo**s

Question #26: Social Studies

10 points per part

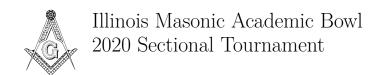|	This series of meetings occurred in 1814 and 1815.	
1	Name these meetings at which the United Kingdom was represented by Viscount Castlereagh ["VIE-count CASTLE-ray"] and the Duke of Wellington, while France was represented by Talleyrand.	**Congress of Vienna** [or **Wiener Kongress** or **Vienna Congress**]
2	This Foreign Minister of the Austrian Empire was the chair of the Congress of Vienna.	Klemens von **Metternich** [MET-ur-nik]
3	At the Congress of Vienna, Sweden gained control of Norway from Denmark, but lost this territory to Prussia.	Swedish **Pomerania** [or New Western **Pomerania**]

Question #27: Mathematics

10 points per part

	This adjective describes a trapezoid with a line of symmetry that bisects its parallel sides.	
1	Give this adjective that also describes a triangle with two congruent sides and two congruent angles.	**isosceles** ["eye"-SAH-suh-leez]
2	Find the measure, in degrees, of one of the base angles of an isosceles triangle if the vertex angle measures 30 degrees.	**75** degrees
3	Find the height of an isosceles trapezoid if its bases measure 10 units and 6 units and the other sides each measure 5 units.	square **root** of **21** units [accept **radical 21** units; do not prompt on "21"]

Question #28: Mathematics

10 points per part

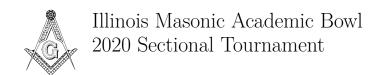|	If two angles have this relationship, then the tangent of one angle equals the cotangent of the other angle.	
1	Name this relationship in which the measures of two angles add to 90 degrees.	**complement**ary angles [or **complement**s]
2	If an angle measures 32 degrees and 20 minutes, find the measure of its complement in degrees and minutes.	**57** degrees and **40** minutes [if they don't specify "degrees" and "minutes", the order must be correct]
3	If the cosine of an angle is 0.6, find the cosine of the complement of the angle.	0.**8** or **4/5**

Question #29: Science

10 points

A factor named for Henry Darcy and this force is used for water flowing through a pipe. The name of this force also describes a loss that affects the efficiency of pipes and engines. The existence of this force leads to objects becoming electrically charged in the triboelectric ["tribe-oh-electric"] effect. This force can be greater when there is no motion, which is the static version of it. This force can be calculated by multiplying a coefficient denoted mu times the normal force. Ice skating is possible because this force is small between metal and smooth ice. Name this force that opposes motion.	**friction**(al force)

Question #30: Literature

10 points

In this novel, a character in disguise states "I am an Italian, and not a Frenchman, and belong to God." That statement induces another character in this novel to describe the events that led to the character in disguise getting arrested at a marriage feast. The character in this novel who states what happened is Caderousse [kad-eh-rooss]. The protagonist of this novel seeks revenge against Fernand and Danglars after they cause him to spend time in solitary confinement. Name this novel about Edmond Dantès [dahn-tess], written by Alexandre Dumas [doo-mah].	*The **Count of Monte Cristo*** [or *Le **Comte de Monte-Cristo***]

Question #31: Mathematics

10 points

One of these entities is named for Gaspard Monge [mawnzh] and is defined by planes going through the midpoints of tetrahedron edges perpendicular to opposite edges. The first definition in Euclid's [YOO-klid'z] *Elements* is of this concept, calling it "that which has no part". Karl Wilhelm Feuerbach [FOY-ur-bahk] and Olry Terquem [ter-kem] discovered that nine of these entities related to a triangle can in turn be used to define a circle. Two of these structures define a line, and three of them define a plane if they are not co-linear. Name this geometric concept that has no length, area, or volume, and which can be a vertex of a polygon or the end of a segment.	**point**s

Question #32: Social Studies

10 points

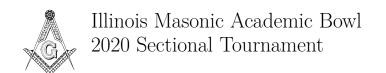|	
Sarah Hopkins Bradford interviewed, befriended, and wrote two books about this person. This person assisted James Montgomery during the raid on Combahee [kum-BEE] Ferry during the Civil War. John Brown often referred to this person, who helped him with recruiting, as a "general". This person claimed to think "I had crossed the line of which I had so long been dreaming" when she entered Philadelphia, and her fame was due to her many trips between Philadelphia and Maryland. This person often sang "Go Down Moses", and in fact she was sometimes called "Moses". Name this woman who helped the Underground Railroad.	Harriet **Tubman** [or Araminta **Ross**]

Extra Question #1: Science

10 points

One of the stars in this constellation is orbited by the exoplanet Thestias [THESS-tee-uss]. Another bright star in this constellation is actually three binaries for a total of six stars. This constellation is between Auriga [aw-"RYE"-guh] and Canis [KAY-nis] Minor, and it is close to Orion's Betelgeuse [BAY-tul-"juice"]. This constellation is located by going through the opening of the 'V' shape in Taurus or by going perpendicular to Orion's belt. This constellation is also near Cancer, and its two bright stars are near each other. Name this constellation whose two brightest stars represent heads and are called Castor and Pollux.	**Gemini**

Extra Question #2: Literature

10 points

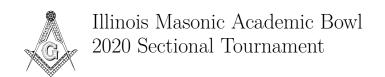|	
One character in this novel sings a song he made up called "Ducks' Ditty" that the ducks do not like. That character and another then travel along a river to another character, and they take some horses out to go camping. That occurs in "The Open Road", an episode in this novel that takes place before the characters visit Badger, who is about to go to bed. Though this novel was not written by A. A. Milne, he adapted it for the stage as *Toad of Toad Hall*. Name this children's novel about Rat and Mole, written by Kenneth Grahame.	*The* **_Wind in the Willows_**

Extra Question #3: Social Studies

10 points

A person from this island helped Orontobates [oh-RAHN-toh-BAH-teez] and used catapults to slow down Alexander the Great during the Siege of Halicarnassus [HAL-ih-kar-NASS-uss]. That person, who also assisted Artabazos [ar-TAH-buh-zose] II, was Memnon. Before establishing a base in Malta and after moving to Cyprus, the Knights Hospitaller [HAHSS-pit-uh-lur] took control of this island. Demetrius I of Macedon attempted a siege on this island in 305 BCE, and this island's residents used the metal from the siege tower to build a statue. In 226 BCE, a major earthquake on this island destroyed its enormous statue. Name this island that housed a giant statue of Helios called the Colossus.	**Rhodes**

Extra Question #4: Fine Arts

10 points

A 1964 composition named for being in this key was a very early example of musicians playing loops and was written by Terry Riley. Though it briefly enters E major, Maurice Ravel's [ruh-vel'z] *Bolero* is primarily in this key. Franz Schubert's two symphonies in this key are nicknamed "Little" and "Great" to distinguish them. The key signature for this key is the same as the key signature for A minor. Introductory piano pieces are often written in this key because it is the only major key that uses only white keys. Name this key signature with no sharps or flats.	**C** major

Extra Question #5: Mathematics

10 points

There are different ways to define the demi·regular type of this structure, while the semi·regular type is defined similarly to Archimedean [ark-ih-MEE-dee-un] solids, meaning there are identical vertices [VER-tuh-sees] but not all identical polygons. Like polyhedra [pah-lee-HEE-druh], these geometric arrangements can be described by a Schläfli [SHLAH-flee] symbol. An a·periodic example of this kind of structure, using kites and darts, was developed by Roger Penrose. There are three regular types of these arrangements, using triangles, squares, and hexagons respectively. In these arrangements, there are no overlaps or gaps between shapes. Give this term for shapes covering a plane surface.	**tessellation**(s) [accept plane **tiling**s; accept **tessellate**d]

Extra Question #6: Social Studies

10 points per part

	This department is nicknamed "the Department of Everything Else".	
1	Name this Cabinet-level department that oversees the National Park Service.	United States Department of the **Interior** [or the **Interior** Department]
2	While serving as Franklin Roosevelt's secretary of the interior, Harold Ickes [IK-eez] also led this agency that spent billions of dollars on construction projects.	**Public Works Administration** [or **PWA**; do not accept "WPA"]
3	Ickes oversaw the finishing of this major project. It was named for the person who worked out a deal for it when he was the secretary of commerce, which was before he became president.	**Hoover Dam**

Extra Question #7: Social Studies

10 points per part

	Identify these people who represented Tennessee in the U.S. Senate:	
1	This person was a senator both before and after being president. He became president when Abraham Lincoln was assassinated.	Andrew **Johnson**
2	This senator–whose father was also a senator from Tennessee–stepped down to be Bill Clinton's vice president, then failed to carry Tennessee when he ran for president in 2000.	Al(bert Arnold) **Gore** (Jr.)
3	This senator became the longest-serving secretary of state in U.S. history. He received a Nobel Peace Prize for his role in drafting the United Nations Charter.	Cordell **Hull**

Extra Question #8: Science

10 points per part

	For a heat engine, the change in this quantity equals the difference between the heat input and the work done by the engine.	
1	Name this quantity equal to internal energy plus the product of pressure times volume.	**enthalpy** [prompt on $\underline{\boldsymbol{H}}$]
2	This law states that the enthalpy change during a reaction does not depend on the steps in the reaction.	**Hess**'s law (of constant heat summation)
3	This "cycle" uses Hess's law to find the lattice energies of ionic crystals.	**Born-Haber** cycle

Extra Question #9: Science

10 points per part

	The dynamic type of this quantity can be measured in poise [pwahss], while the kinematic [ky-nuh-MAT-ik] type can be measured in stokes.	
1	Name this resistance of a fluid to flow.	**viscosity** [or **viscous**ness]
2	To find the kinematic viscosity, the dynamic viscosity is divided by this quantity.	**density**
3	This adjective describes fluid flow without viscosity, which theoretically happens with ideal fluids and actually happens with superfluids.	**inviscid** [in-VISS-id] flow