

# Scobol Solo 2016

## Packet 13 (Round 13)



1. According to Kolmogorov's criterion, processes described by Markov chains have this quality if they satisfy the detailed balance equations. The Clausius theorem can be expressed as an equation for systems with this property, and expressed as an inequality otherwise. Any process of this type is quasi-static, though compression with friction is quasi-static but does not have this property. In this type of process, the change in entropy equals the change in heat divided by the change in temperature, since the only way for these processes to change entropy is by adding or subtracting heat. Name this ideal type of process that can be undone.

Answer: reversible processes or reversibility

2. This person spoke forcefully in favor of the Northern Powerhouse project but not forcefully enough to stop Jim O'Neill's resignation as Commercial Secretary to the Treasury. One of this person's first acts after assuming power was to end a business advisory group that included Virgin Money CEO Jayne-Anne Gadhia ["**GOD**"-yuh]. This person is described as an "enemy agent" by a person in the book *Unleashing Demons* by Craig Oliver, leading to a defense of this leader by Iain Duncan Smith. Her foreign secretary is Boris Johnson, the former mayor of London. Name this U.K. prime minister who rose to power following the Brexit vote and resignation of David Cameron in 2016.

Answer: Theresa (Mary Brasier) May

3. Five years before South Africa established its Truth and Reconciliation Commission, this person's time in power was investigated by a different Truth and Reconciliation Commission established by Patricio Aylwin. This non-European was the subject of an extradition trial in the United Kingdom requested by Spain that was denied based on physical fitness. A plebiscite ["**PLEB**-uh-"site"] in 1988 ended this person's presidency. The government made over 3,000 people disappear after this man gained power in 1973. His power came after the U.S. supported a coup against Salvador Allende ["**eye**"-EN-day]. Name this person who led the government junta ["**HOON**-tuh] of Chile.

Answer: Augusto Pinochet (Ugarte)

4. In one novel, this author described the city of Isidora, where the buildings have spiral staircases encrusted with spiral seashells, and where perfect telescopes and violins are made. A book by this author gives the advice "Relax. Concentrate. Dispel every other thought." After its first chapter, that novel states, "The novel begins in a railway station," in one of several chapters that seem like first chapters of novels. This author wrote much of that novel in the second person. This author interspersed descriptions of imaginary places with conversations between Marco Polo and Kublai Khan in *Invisible Cities*. Name this Italian author of *If on a winter's night a traveler*.

Answer: Italo Calvino

5. In Washburn’s equation, this quantity is divided by pore diameter to calculate the pressure difference between a liquid and a gas. A version of Washburn’s equation divides this quantity by viscosity to calculate how quickly ink can be used in printing. The Hay test for jaundice uses powdered sulfur to check for unusual values of this quantity. A method for measuring this quantity involves lifting a ring and was developed by Pierre Lecomte du Noüy [p’yair luh-kawmt d’nwee]. This quantity is responsible for the meniscus [muh-NISS-kuss] that appears at the top of water. Name this cohesion of liquid molecules that makes it possible for some insects to walk on water.

Answer: surface tension

**Check the score.**

6. The town Shisr in this country claims to be the lost Atlantis of the Sands, and is also known as the Lost City of Ubar. This country’s air force station in Thumrait [THOOM-“rate”] is often used by the United States and its allies. This country’s former capital, Nizwa, was built around Falaj Daris, a tunnel used to transport water. The northern tip of this country is the village of Kumzar, which is near the city of Khasab in its Musandam [moo-SAHN-dum] exclave. This country is separated from Iran by a gulf that shares its name with this country. Name this country by the Arabian Sea, whose capital is Muscat and which is east of Saudi Arabia, the United Arab Emirates, and Yemen.

Answer: (Sultanate of) Oman [or (Saltanat) Uman]

7. After this opera premiered in 1853, the composer wrote a letter to his friend asking if its failure was his own fault or the singers’ fault. After reading a letter near the end of this opera, the protagonist sings “Addio, del passato bei sogni ridenti” [AH-dee-oh del pah-SAH-toh bay SOHN-yee ree-DEN-tee]. When that protagonist is interrupted earlier while writing a letter, she sings “Amami quant’io t’amo”, meaning “Love me as I love you”. In this opera, Giorgio [JOR-joh] sings “Di Provenza il mar,” asking “Who erased the sea?” when his son Alfredo Germont reads that letter. This opera was based on the play *La dame aux Camélias* [lah dahm oh kah-may-lee-ah]. Like *La bohème* [boe-em], it features a woman dying from consumption. Name this Giuseppe [juh-SEH-pay] Verdi opera about Violetta.

Answer: *La traviata* [or *The Fallen Woman*]

8. The ability to waive this right was strengthened by *Montejo v. Louisiana*, which overturned *Michigan v. Jackson*. This right was strengthened with respect to deportation in 2010 in *Padilla* [pah-DEE-yah] *v. Kentucky*. This is the last right guaranteed by the Sixth Amendment, after the right to compel witnesses to testify. States have been required to assist some people to exercise this right since the ruling in *Gideon v. Wainwright*. In addition to the right to remain silent, citizens must be informed of this right thanks to the 1966 case *Miranda v. Arizona*. Name this right given to people accused of a crime.

Answer: right to counsel [accept answers mentioning having an attorney or lawyer or defender; do not accept answers focused on trials that do not mention legal counsel]

9. When this substance is synthesized, its monomers [MAH-noh-murz] are bound to UDP before being added to the product. This compound builds up in lysosomes in Pompe's [POM-puh'z] disease. The breakdown of this compound is reliant on phosphorylase [fahss-FOR-uh-"lace"] as well as a compound that breaks alpha-1,6 linkages, which are responsible for its branches. This compound has a plant analogue named amylopectin [AM-uh-loh-PEK-tin], which is one of the two components of starch. This compound is synthesized in response to insulin. Name this carbohydrate used for energy storage in animals, a polymer of glucose.

Answer: glycogen

10. This author wrote a story about the true case of Mary Hamilton, who posed as a man and tricked several women into marrying her, called "The Female Husband". This English author wrote "We must eat to live and live to eat" in his play *The Miser*. In a novel by this author, the title character steals to support the servant Black George and is seduced by Black George's daughter, Molly Seagrim. This author wrote about that title character being raised with the son of Bridget Allworthy after the title character is found by Mr. Allworthy. Name this author who parodied Samuel Richardson in *Shamela* [SHAM-uh-lah], and who wrote *Tom Jones*.

Answer: Henry Fielding

### ***Check the score.***

11. In addition to Hokusai's views of Mount Fuji that include his great wave, he made a series of pictures showing unusual views of celebrated examples of these objects in Japan. One of these objects named for Europe is the setting of a Gustave Caillebotte [kye-"boat"] painting showing a dog walking away, a man in white looking towards a train station, and a couple walking towards the viewer. Claude Monet made a series of paintings showing the structure of this type at Charing Cross, and several of his paintings of water lilies show a Japanese one. Name these objects, which in J. M. W. Turner's *Rain, Steam and Speed* is being crossed by a train.

Answer: bridges

12. This person was charged with treason and imprisoned for supporting Henry the Young King, and was informally blamed for the death of Rosamund Clifford. Andreas Capellanus described this person's Court of Love in Poitiers [pwaht-yay], possibly inaccurately, which played a major role in encouraging chivalry. One of Richard the Lionheart's first acts as king was to free this person, who ruled as regent during the Third Crusade. This person went on the Second Crusade with Louis VII. Name this woman who annulled her marriage with Louis VII and then married Henry II of England.

Answer: Eleanor of Aquitaine

13. The pricing theory named for this process was developed by Stephen Ross as an improvement to the capital asset pricing model. That theory assumes that this process will be used by investors to correct the mispricing of assets. Convertible securities are often taken advantage of through this process because they can be priced inefficiently. In its pure form, this process makes money without risk, though its statistical form does include risk. This process is used sometimes by gamblers when different odds are available for an event. Name this process of buying an asset in one market and selling it in a different market where the price is higher.

Answer: arbitrage [AR-bit-rahzh]

14. In 2015, this process was used with lithium to make graphene superconductors. Lithium is more commonly used for this process in solar cells. There are usually one or three electrons in the outermost *p* orbital of elements commonly used for this process, such as boron, phosphorus, or arsenic. This process provides either extra electrons or extra holes, which improves conductivity. Depending on the material used in this process, the affected object is classified as either *n*-type or *p*-type. Name this process of intentionally introducing impurities to improve semiconductors.

Answer: doping semiconductors [accept dopant]

15. The speaker of this poem likes to “eat, sleep, drink, and be in love”, and to “work, read, learn, and understand life”. In response to something that was said earlier in the day, the speaker of this poem asks, “I wonder if it’s that simple?”. This poem’s speaker says “as I learn from you, I guess you learn from me” to somebody who is “somewhat more free”. The speaker of this poem is 22, is writing in his room in the Y, and has a teacher who said “go home and write a page tonight / and let that page come out of you.” The speaker writes “being me, it will not be white.” Name this poem by Langston Hughes.

Answer: “Theme for English B”

### **Check the score.**

16. This composer developed themes from Mozart’s *Don Giovanni* in his *Réminiscences de Don Juan* [rem-ee-nee-sen-say day dohn zhoo-awn]. This composer portrayed the circles of Hell in one of the first pieces to use progressive tonality, his *Dante Symphony*. Though this composer drew from Goethe [GRR-tuh] for his *Faust Symphony in three character pictures*, he drew from Nikolaus Lenau for his *Mephisto Polka* and *Mephisto Waltzes*. This composer was taught by Carl Czerny [“CHAIR”-nee], to whom he dedicated his *Transcendental Études*. Name this composer who drew from what he thought was folk music to compose nineteen piano pieces called *Hungarian Rhapsodies*.

Answer: Franz (Joseph) (Ritter von) Liszt [or Liszt Ferenc] (Many of the themes that inspired the *Hungarian Rhapsodies* were actually Roma music.)

17. Banging pots and pans is commonly done to drive away the cause of these events, which in Korea was believed to be due to flaming dogs, and in Vietnam due to a large frog. Vikings believed these events occurred due to the wolves Skoll and Hati, who chase the children of Mun·dil·fari. In Egypt these events were interpreted as Apep [AY-pep] succeeding in his attempts to swallow the barge of Ra. According to Herodotus [her-AH-dih-tuss], the successful prediction of one of these events by Thales [THAY-leez] scared the Medes [meedz] and Lydians, who then stopped fighting. Name these events that many cultures believed were caused by an animal swallowing the sun or moon.

Answer: (solar or lunar) eclipses

18. After this battle, King Joachim Murat [zhoh-ah-keem myoo-rah] of Naples switched sides to ally with the Austrian Empire. During this battle, Pierre Augereau [ohzh-roh] and Józef Poniatowski [YOO-zeff pawn-yah-TAWFF-skee] tried to keep control of Mark·klee·berg. Most of the fighting at this battle took place near the Pleisse ["PLY"-zuh] River, but several troops retreating from this battle were killed or captured due to the poorly-timed destruction of the only bridge over the Elster River. This battle during the War of the Sixth Coalition was Napoleon's last fight in Germany, and his defeat at it led to his exile to Elba. Name this conflict involving several hundred thousands of soldiers, also known as the Battle of the Nations.

Answer: Battle of Leipzig [accept Battle of the Nations before "Nations"]



19. In an *arbelos* — a semicircle with two smaller semicircles chopped out of it — two tangent circles that can be drawn inside are named for this person. The type of spiral named for this person, based on his book *On Spirals*, can be expressed using the polar equation  $r = a + b\theta$  ["*r equals a plus b theta*"]. In his book *On the Measurement of a Circle*, this person used the method of exhaustion to approximate the area of a circle. A set of 13 solids that combine more than one regular face, unlike the Platonic solids, is named for this person. Name this ancient Greek mathematician and scientist who supposedly screamed "Eureka" after discovering how to measure the volumes of solids.

Answer: Archimedes (of Syracuse)

20. In one novel whose setting is this geographical feature, Steve drinks blood from Julie's hand in order to convince police that their marriage is legal. This place is where Magnolia is raised by Parthy Ann and Captain Andy Hawks before Andy drowns. In another novel, a brass button, a round ball, and lots of "rubbage" are found in the stomach of a six-foot-two-inch catfish that is caught along with a skinned rabbit in this place. The title character in that novel set in this place joins his friend after Buck Grangerford tries to shoot Harney Shepherdson. Name this river on which the *Cotton Blossom* travels in Edna Ferber's *Show Boat*, and down which Jim and Huckleberry Finn raft.



Answer: Mississippi River

***This is the end of regulation. Check the score. If it is tied, proceed to overtime tossups. If it is not tied, the game is over.***

-   <sup>TB</sup>21. The northeast part of this country includes the Barra del Colorado Wildlife Refuge. The Baldi Hot Springs are near its Arenal Volcano. In the west, this country's Chiriquí Island is in the Gulf of Nicoya. In the northwest, this country's Santa Rosa National Park includes the Orosí Volcano, and the Tempisque [tem-PEES-kay] River flows through Palo Verde National Park. Its east coast is in the Limón Province. This country controls Cocos Island, which is located halfway between this country and Ecuador's Galápagos Islands. This country shares La Amistad International Park with Panama. Name this country just south of Nicaragua, whose capital is San José.


Answer: (Republic of) Costa Rica [or (República de) Costa Rica]

***If the score is still tied, continue. If it is not tied, the game is over.***

-   <sup>TB</sup>22. One well-known performer on this instrument is Andrew Lloyd Webber's brother Julian. Two pianos and one of these instruments perform "The Swan" in Camille Saint-Saëns' [san sawnz'z] *The Carnival of the Animals*. The tone poem *Don Quixote* was written for a soloist on this instrument, and was conducted by its composer, Richard Strauss [REEK-hart shtraoss], when Pablo Casals made his Carnegie Hall debut as that soloist. Several 20th-century works for this instrument were written for Mstislav Rostropovich [mist-EES-lahv roh-stroh-POH-vich]. Johann Sebastian Bach's six suites for this instrument are performed often, including on a recording by Yo-Yo Ma. Name this string instrument that is held between the legs while it is played, and is between the sizes of a viola and a double bass.

Answer: (violin)cello [do not accept or prompt on "violin"]

***If the score is still tied, continue. If it is not tied, the game is over.***

-  <sup>TB</sup>23. The Book of Proverbs says that having this quality "is a crown of dignity, when it is found in the ways of justice." General MacArthur said that this type of soldier never dies. This adjective describes the type of English spoken by the Anglo-Saxons, and it modifies the word "school" to describe how things used to be done. Give this opposite of "young".

Answer: old (age) [accept elderliness before "English"]

***There are no more overtime questions available. If the score is still tied, contact the control room for further instructions. If it is not tied, the game is over.***