Scobol Solo 2018
Packet 10 (Round 10)

1. A type of rainbow that is more unusual than a secondary rainbow, and that intersects a regular rainbow at the horizon and has a higher arc, is named for this phenomenon. This phenomenon can be classified as specular or diffuse, the former of which occurs with smooth surfaces. This phenomenon does not occur at all at the polarization angle, which is also known as Brewster's angle. If the angle of incidence is greater than the critical angle, then the "total internal" type of this phenomenon occurs instead of refraction. Name this phenomenon in which a wave bounces, as light does when it strikes a mirror.

    Answer: reflection or reflecting

2. In one work, this writer says that he writes "for the lovers...Who pay no praise or wages nor heed my craft or art." Those lines appear in this writer's collection *Deaths and Entrances.* Another poem by this writer mentions different types of men, including "Grave men, near death, who see with blinding sight". In that poem, this writer tells his father, "Curse, bless, me now with your fierce tears." That poem tells men to "Rage, rage against the dying of the light." Name this Welsh author of "Do not go gentle into that good night".
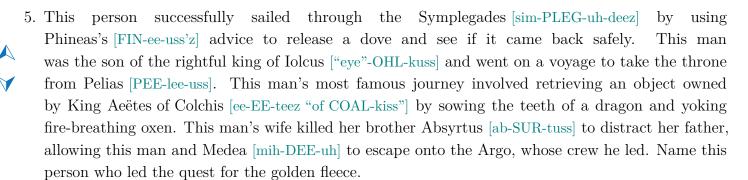
    Answer: Dylan (Marlais) Thomas

3. This monarch was thrown to the ground by the French king in a wrestling match, leading this ruler to make an alliance with Holy Roman Emperor Charles V. This monarch, who led the non-French side at the Field of the Cloth of Gold, had Thomas Culpeper executed for having an affair with this man's wife. This king's minister Thomas Cromwell dissolved his country's monasteries but was executed for arranging this ruler's failed marriage to Anne of Cleves. This monarch was excommunicated after annulling his marriage to Catherine of Aragon, leading him to found the Anglican church. Name this English monarch who had six wives.

    Answer: Henry VIII (of England) [prompt on Henry]

4. This sculptor responded to criticism of one of his pieces by creating a larger-than-life sculpture of *Saint John the Baptist Preaching.* This sculptor worked closely with a fellow sculptor he had an affair with, Camille Claudel [kam-eel kloh-del]. Three figures lean down and touch hands at the top of a large work by this sculptor that is based on the writings of Dante [DAHN-tay]. This man was accused of casting from a live model for his piece *The Age of Bronze*, and his work *The Kiss* is adapted from part of his larger creation *The Gates of Hell.* Name this French sculptor of *The Thinker.*

    Answer: (François-)Auguste(-René) Rodin [oh-goost roh-dan]

5. This person successfully sailed through the Symplegades [sim-PLEG-uh-deez] by using Phineas's [FIN-ee-uss'z] advice to release a dove and see if it came back safely. This man was the son of the rightful king of Iolcus ["eye"-OHL-kuss] and went on a voyage to take the throne from Pelias [PEE-lee-uss]. This man's most famous journey involved retrieving an object owned by King Aeëtes of Colchis [ee-EE-teez "of COAL-kiss"] by sowing the teeth of a dragon and yoking fire-breathing oxen. This man's wife killed her brother Absyrtus [ab-SUR-tuss] to distract her father, allowing this man and Medea [mih-DEE-uh] to escape onto the Argo, whose crew he led. Name this person who led the quest for the golden fleece.

Answer: <u>Jason</u>

Check the score.

6. When vertices are on an integer lattice, this property can be calculated using Pick's theorem. This property is not a constant but was calculated by ancient mathematicians using the method of exhaustion. For an ellipse, this property equals π ["pi"] times the product of the semi-major and semi-minor axes. Integrals are used to find this property between curves and the x-axis. Name this quantity that, for a circle, equals π times the radius squared.

Answer: <u>area</u> [accept signed <u>area</u> after "integral"]

7. Judson Kilpatrick claimed that this person captured enemy artillery at the Battle of Culpeper Court House, and Alfred Pleasonton claimed this person was injured in that Civil War battle. After the Civil War, this person led the 7th U.S. Cavalry, attacking Black Kettle's Southern Cheyenne ["shy"-EN] camp in 1868. That battle, at which this person's troops killed women and children, was Washita ["WASH"-it-aw] River. In 1876, this person was defeated by forces under Crazy Horse. Name this commander who fought in the Great Sioux [soo] War until he was killed at the Battle of the Little Bighorn.

Answer: George Armstrong <u>Custer</u>

8. A D-flat piece by this composer opens with a trill on A-flat and follows with the rapid eighth notes G-natural, A-flat, C, B-flat. In the 15th of his set of 24 preludes, this composer used a repeated A-flat to represent raindrops. 16th-note triplets on the black keys are played in the right hand in a G-flat major piece by this composer. This composer wrote a piece inspired by a dog chasing its own tail as well as a furiously fast piece inspired by a national uprising, the *Revolutionary Étude*. This composer is known for his polonaises, nocturnes, and mazurkas. Name this Polish-born piano composer of the *Minute Waltz*.

Answer: Frédéric (François) <u>Chopin</u> [or Fryderyk Franciszek <u>Chopin</u>]

9. This country is home to the Cueva del Milodón [KWAY-vah del mee-loh-DOHN] Natural Monument, which is named for the remains of a giant ground sloth found inside. The tectonic divergent plate that shares its name with this country is between the Nazca and Antarctic Plates. Daniel Defoe's *Robinson Crusoe* was inspired by Alexander Selkirk, the namesake of one of this country's Juan Fernández Islands. This country also controls the site of the moai [MOH-"eye"] statues created by the Rapa Nui [RA-puh NOO-ee] people on Easter Island. The north part of this country contains the driest desert in the world, the Atacama [ah-tah-KAH-mah]. Name this very long, thin South American country that is west of Argentina.

Answer: (Republic of) <u>Chile</u> [or República de <u>Chile</u>]

10. The dismantling of this general type of vehicle is the job of Mr. Nevil, who gives insights to Ramadhin, Cassius, and Michael in a novel by Michael Ondaatje [un-DAHT-jay] called *The Cat's Table*. Bébé—a bulldog belonging to the Hutten family—rides this type of vehicle in a novel by Katherine Anne Porter. *General Grant* is the namesake of one of these vehicles, which is taken soon after Passepartout [pas-par-too] is reunited with Phileas Fogg in Jules Verne's *Around the World in Eighty Days*. Name this type of vehicle on which Fogg crosses the International Date Line while going from Yokohama to San Francisco.

Answer: <u>boat</u> or <u>ship</u> [or ocean <u>liner</u> or <u>schooner</u> or <u>steamer</u>] (The novel by Katherine Anne Porter is *Ship of Fools*.)
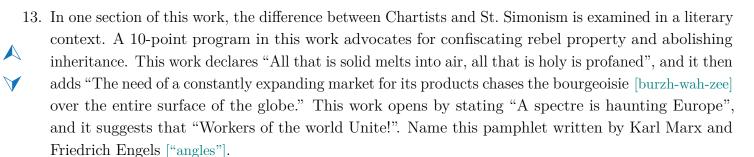
Check the score.

11. A McCabe-Thiele [TEE-luh] diagram is a plot of mole fractions during this process. The efficiency of this process is quantified in terms of theoretical plates. To reduce the incorporation of air in this process, a Perkin triangle can be used. Raoult's [rah-ool'z] law explains why this process works, including why it doesn't work for azeotropes [AY-zee-oh-"tropes"]. A reflux condenser is need to perform the fractional type of this process on crude oil, partitioning heavy asphalt from lighter products like kerosene and gasoline. Name this process for separating the components of a mixture based on differences in their boiling points.

Answer: (binary) <u>distill</u>ation or <u>distill</u>ing

12. A painting by this artist features skulls in the eyes and mouths of other skulls and is titled *The Face of War*. Tigers jump out of a fish in this artist's depiction of a *Dream Caused by the Flight of a Bee*. Objects differ from their reflections in this artist's *Swans Reflecting Elephants*. Bricks in a grid-like formation flood the *Disintegration of* this artist's best-known painting, in which ants swarm an orange object on a table on the left, and a beach and a cliff are in the background. Name this Spanish surrealist who painted melting clocks in his *The Persistence of Memory*.

Answer: Salvador (Domingo Felipe Jacinto) <u>Dalí</u> (i Domènech)

13. In one section of this work, the difference between Chartists and St. Simonism is examined in a literary context. A 10-point program in this work advocates for confiscating rebel property and abolishing inheritance. This work declares "All that is solid melts into air, all that is holy is profaned", and it then adds "The need of a constantly expanding market for its products chases the bourgeoisie [burzh-wah-zee] over the entire surface of the globe." This work opens by stating "A spectre is haunting Europe", and it suggests that "Workers of the world Unite!". Name this pamphlet written by Karl Marx and Friedrich Engels ["angles"].

Answer: _The Communist Manifesto_ [or _Manifesto of the Communist Party_ or _Manifest der kommunistischen Partei_]

14. This person was the Chairman of the Senate Judiciary Committee when Robert Bork was nominated to the Supreme Court. This person turned 30 just after being elected to the U.S. Senate; soon after that, his wife and daughter died in a car accident that also badly injured his young sons. A microphone picked up this person whispering the F-word to President Obama upon the passage of the Affordable Care Act. At that time, this person was not a Senate member but was the President of the Senate. Name this Delaware politician who served as Barack Obama's vice president.

Answer: (Joseph) "Joe" (Robinette) <u>Biden</u> (Jr.)

15. People with this condition are both 500 times more likely to develop acute mega·karyo·cytic ["MEGA-carry-oh-SIT"-ik] leukemia and 1/10 as likely to develop solid-tumor cancers. Many people with this condition have Brushfield spots in their irises. Spina bifida [SPY-nuh BIF-ih-duh] and this condition are often recognized by high alpha-feto·protein levels in a triple screen during pregnancy. About half of babies with this condition require heart-defect surgery. People with this condition tend to have a single palm crease, slanting eyes, and a flattened face. Name this syndrome caused by inheriting three copies of chromosome 21, and marked by slowed growth and intellectual disability.

Answer: <u>Down</u> syndrome [accept <u>trisomy 21</u> before "21"]

Check the score.

16. A character in this novel says "You hate me, but your abhorrence cannot equal that with which I regard myself" and describes himself as an "abortion, to be spurned at, and kicked, and trampled on". This novel opens with a series of letters from St. Petersburg to London addressed to Margaret Saville by Robert Walton. The last letter states that while traveling to the North Pole, Walton found the title character of this novel. This novel describes the title character's friendships with Henry Clerval and Elizabeth Lavenza before describing the problems caused by his scientific work. Name this novel by Mary Shelley about the creation of a monster.

Answer: _Frankenstein(; or, The Modern Prometheus)_

17. This leader was strongly criticized for a 2018 pension reform proposal to change the retirement age to 65 from 60 for men, and to 63 from 55 for women. To improve relationships with the United States, this leader appointed the actor Steven Seagal as a special representative. President Trump said he would invite this leader to the White House in the Fall of 2018 but then changed his mind. That occurred shortly after Trump claimed to have said "would" when he should have said "wouldn't" at a Helsinki meeting with this leader. Name this leader who interfered in the 2016 U.S. election and who is the president of Russia.

Answer: Vladimir (Vladimirovich) <u>Putin</u>

18. When the Revolution of 1930 in this country took power from President Washington Luís and President-Elect Júlio Prestes [ZHOOL-yoo PREST-shis], this country's "coffee with milk" politics ended and Getúlio Vargas [zheh-TOOL-yoo VAR-gahss] gained power. Much earlier, this country's independence was supported by Princess Maria Leopoldina and declared at Ipiranga Brook in 1822 by Dom Pedro I. This country consists of the land east of the Tordesillas Line. Name this country that was part of the Portuguese Empire and is now the largest country of South America.

Answer: (Federative Republic of) <u>Brazil</u> or (República Federativa do) <u>Brasil</u>

19. If two of these things are close to each other, they circulate each other as part of the Fujiwhara effect. These are the largest things that can be evaluated using the Dvorak technique, which uses satellite imagery and looks for rain·bands among other formations. These things are more likely to occur when there are both high pressure and temperature gradients, which are more common over warm ocean water. The Saffir-Simpson scale rates these things from 1 to 5. These things are most commonly generated over the Atlantic Ocean in June through November. Name these major storm systems.
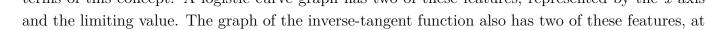
Answer: <u>hurricanes</u> [or tropical <u>cyclones</u>; accept <u>typhoons</u>]

20. One character in this novel contributes 25 dollars "toward making Father comfortable and bringing him home". When another character in this novel asks how she got the money, the first character takes off her bonnet to show that she had gotten the money by selling her hair. The mother in this novel, who travels to Blank Hospital in Washington, D.C. when the father gets pneumonia, is often referred to as "Marmee". In this novel, John Brooke marries Meg, who teaches and takes care of her little sisters. Name this novel about Jo, Beth, and Amy March that was written by Louisa May Alcott.

Answer: *Little Women*

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.

TB21. Big theta, big omega, and big O notation are used in the analysis of the behavior of functions in terms of this concept. A logistic curve graph has two of these features, represented by the x-axis and the limiting value. The graph of the inverse-tangen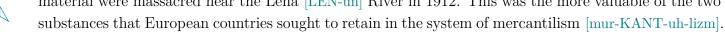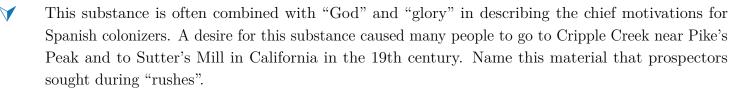t function also has two of these features, at $\pi/2$ ["pi over 2"] and $-\pi/2$ ["negative pi over 2"]. A graph has one of these features if it is not constant and has a finite limit as x approaches positive or negative infinity. Give this term for a line that a function's graph gets infinitely close to, but may not reach.

Answer: (horizontal) <u>asymptote</u>(s) or <u>asymptotic</u> behavior [prompt on <u>end behaviors</u>]

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

TB22. Despite the reforms of Pyotr Stolypin, hundreds of striking workers who would normally collect this material were massacred near the Lena [LEN-uh] River in 1912. This was the more valuable of the two substances that European countries sought to retain in the system of mercantilism [mur-KANT-uh-lizm]. This substance is often combined with "God" and "glory" in describing the chief motivations for Spanish colonizers. A desire for this substance caused many people to go to Cripple Creek near Pike's Peak and to Sutter's Mill in California in the 19th century. Name this material that prospectors sought during "rushes".

Answer: <u>gold</u>

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

TB23. This is the day of the week that on October 29, 1929 the Great Depression began. This day is named for the Norse god of combat. U.S. federal elections are held on this day of the week. Name this day that is celebrated as "Fat" before Lent begins.

Answer: <u>Tuesday</u>

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.