Scobol Solo 2019

Packet 7 (Round 7)

1. To adjust for parameterization, a cross product of derivatives is used when applying this operation on a surface. When partial-fraction decomposition is used before this operation, the result often includes natural logs. Discs and cylindrical shells are often used when this operation is used to find the volume of a solid of revolution. The range of a function is partitioned in one definition of this operation, which is named for Henri Lebesgue [awn-ree leh-beg], while the domain is partitioned in the definition named for Bernhard Riemann [bairn-ard REE-mahn]. Name this operation typically used to find the area between a curve and the x-axis that is often evaluated using an anti·derivative.

   Answer: definite integrals or definite integration [prompt on antiderivatives or antidifferentiation; do not accept or prompt on "derivative" or "differentiation"]

2. During much of the 10th century, rulers of Córdoba ["CORE"-doh-bah] controversially claimed this title. A 500-year period of people holding this title ended in 1258 when Hulagu Khan had Al-Musta'sim killed; after that, people with this position had less power and ruled from Cairo. This title means "successor", and people who took it were often also referred to as "commander of the faithful". This title was first taken by Abu Bakr, and it was also taken by the leaders of the Umayyads and the Abbasids. Sunnis refer to the first four holders of this position as "rightly guided". Name this title given to people considered to be successors to Muhammad.

   Answer: Abbasid Caliphs [or khalifah or caliphate; prompt on successors or Abbasid]

3. The nickname for this composer's only major string quartet is based on a note he wrote above three E-minor chords. This conductor's only concerto was originally dedicated to Willy Burmester, but it was re-dedicated after Burmester did not perform it. That violin concerto's third movement is labeled *Allegro ma non tanto* but is nicknamed "a polonaise for polar bears". This composer of *Voces intimae* [VOH-chess EEN-tee-mee] wrote a tone poem that uses an English horn to represent the voice of a bird and another tone poem that was first performed at the Press Celebrations of 1899. Name this composer of *The Swan of Tuonela* and *Finlandia*.

   Answer: Jean Sibelius [or Johan Julius Christian Sibelius]

4. A king of this city named Agrestes [ug-RESS-teez] pretended to be converted to Christianity by Joseph of Arimathea [air-ih-muh-THEE-uh] but then persecuted this city's Christians. King Leodagan [LEE-oh-duh-gan] provided the most famous piece of furniture in this city when his daughter became engaged to the king who lived there. Another piece of furniture in this city was the perilous chair. This city was overtaken by Mordred, who took advantage of an affair between Lancelot and Guinevere. Several people from this city went on a quest for the Holy Grail. Name this home of the Round Table and King Arthur.

   Answer: Camelot [or Caerleon]

5. An equation named for one of these devices uses an ideality factor and the thermal voltage. That equation is sometimes named for transistor co-inventor William Shockley and these devices. The transient voltage suppressor type of this device is used to protect other devices from voltage spikes. The laser type of this device is used to pump solid-state lasers. A type of these devices capable of having a sudden increase in current in one direction is named for Clarence Zener [ZEE-nur]. Some of these devices emit a color of light that depends on the direction of the current flowing through them, and are called the "light-emitting" type, or LEDs [ell ee dees]. Name these devices with very high conductance in only one direction.

   Answer: diodes

6. Shortly after explaining her plan, this character asks "Why do you turn your backs? Where are you going?". This character is able to win other people over to her plan by stating "All we have to do is idly sit indoors with smooth roses powdered on our cheeks." Though Myrrhine [MUR-in-ay] and Calonice [kal-OH-nih-kay] first refuse to join this person, they change their mind when Lampito supports her. This character is ultimately successful when she uses her naked handmaid, Peace. Name this woman who ends the Peloponnesian [pel-uh-puh-NEE-zhun] War in an Aristophanes [air-iss-TAH-fuh-neez] play by convincing women to withhold sex from their husbands.

   Answer: Lysistrata [liss-uh-STRAH-tuh]

7. This person's autobiography was *Eighty Years and More*. This person led a "Revising Committee" of 26 people that wrote Biblical commentaries. One document written by this person states "The history of mankind is a history of repeated injuries and usurpation on the part of man toward woman." At a World Anti-Slavery Convention, this person met Lucretia Mott, with whom she organized a major convention. This writer of the *Declaration of Sentiments* often worked closely with Susan B. Anthony. Name this suffragist who helped organize the Seneca Falls Convention.

   Answer: Elizabeth Cady Stanton [accept either underlined name]

8. The Mike O'Callaghan-Pat Tillman Memorial Bridge is on a route that bypasses this object. This object's original name came from the fact that it is near a town named Boulder City. Attempts to give this object its current name were temporarily blocked by the Franklin D. Roosevelt administration. The construction of this object lasted from 1931 to 1936 and contributed to population growth in Las Vegas. The completion of this object also created the largest reservoir in the continental U.S., Lake Mead. Name this object that was originally called Boulder Dam and is on the Nevada and Arizona border.

   Answer: Hoover Dam

9. The unconfined types of these objects are the subject of the Dupuit-Forchheimer [doo-pwee "FORK-hi"-mur] assumption, which states that discharge is proportional to saturation thickness. This layer is fed from the vadose [VAY-"dose"] zone above it. One test that monitors this layer and objects that take advantage of it involves quickly adding water and is called a slug test. The Floridan example of this layer is larger than Florida, while much of Illinois uses the one named for Mahomet, and Nebraska and other states use the Ogalalla [oh-guh-LAH-luh] one. Liquid travels up from this layer at a spring. Name this underground layer of rock that is a source of groundwater.

   Answer: aquifers

10. One novel by this author is about an artist whose grandson often gallops around and shouts "Hi-yo Silver!". That artist, who had made patriotic works for Japan during World War II, is Ono. This author of *An Artist of the Floating World* wrote a novel about a visit to Cornwall to see Mrs. Benn, who used to be a housekeeper referred to as Miss Kenton, and who writes a letter suggesting that her marriage is not working out. This author had that novel narrated by the Darlington Hall butler, Mr. Stevens. Name this author who was born in Japan and lived in Britain, and who wrote *The Remains of the Day*.

    Answer: Kazuo Ishiguro

11. After this painter visited Venice in 1833, he claimed to depict it from the porch of a building that does not have a porch, in *Venice, from the Porch of Madonna della Salute* [sah-LOO-tay]. Another painting by this artist depicts a ship used in the Battle of Trafalgar in a way that refers to declining British naval power. Another painting by this artist originally had the subtitle *Typhoon Coming On*. The foreground of that painting shows people trying to stay afloat, while the background shows the ship the people were thrown off of. Name this English artist who painted *The Fighting Temeraire* and *The Slave Ship*.

    Answer: J(oseph) M(allord) W(illiam) Turner

12. It is not known when this person died, but the Smoltsov report and the diary of former KGB director Ivan Serov both claim that it was 1947. This person was a diplomat who worked with Koloman Lauer to run the Mid-European Trading Company. This person made many more protective passports than he was legally allowed to make, and he distributed them to many people in Budapest. The plans of Adolf Eichmann [“EYE”K-mun] were difficult to carry out because thousands of people lived in the so-called “Swedish houses” that this person built. Name this Swedish businessman who saved thousands of Hungarian Jews from the Holocaust.

Answer: Raoul (Gustaf) Wallenberg

13. A demonstration in suport of this country’s prime minister in 2018 in Meskel Square ended with a grenade being thrown at the prime minister but missing him. A few months after a Boeing 737 MAX crashed in Indonesia, another one crashed en route from this country to Kenya. The prime minister of this country has worked closely with Isaias Afwerki [ih-SY-uss uff-WER-kee], the president of a neighboring country, to settle a 20-year border dispute. This country’s prime minister, Abiy Ahmed [ah-BEE AHK-med], won the 2019 Nobel Peace Prize. Name this country that has been landlocked since Eritrea declared independence during the 1990s and whose capital is Addis Ababa.

Answer: (Federal Democratic Republic of) Ethiopia

14. At the beginning of this short story, a girl reading the funny papers says “She wouldn’t stay at home to be queen for a day” and “She wouldn’t stay at home for a million bucks.” That girl, June Star, says those words about her grandmother in this story while Bailey reads the sports section. When the characters in this story get in a car, John Wesley says “Tennessee is just a hillbilly dumping ground, and Georgia is a lousy state too.” The grandmother in this story wants to go to East Tennessee rather than Florida and warns about The Misfit. Name this story by Flannery O’Connor.

Answer: “A Good Man Is Hard to Find”

15. A constant used in this equation can be replaced by collision frequency. This equation is similar to the Eyring [“eye-ring”] equation, which uses a transmission coefficient and is better for mixed-phase reactions. The constant in this equation, which is not actually constant but temperature-dependent, is called the pre-exponential factor. The plot named for this equation has a logarithmic scale and shows a line whose slope is the opposite of activation energy divided by ideal gas constant. Identify this equation, named for a Swedish scientist, which uses exponents to give the relationship between activation energy and rate constant.

Answer: Arrhenius [uh-RAY-nee-uss] equation

16. A year after becoming a leader, this person defeated Wilhelm Reinhard von Neipperg [NY-purg] at the Battle of Mollwitz [MOHL-vits]. This political and military leader was credited for defeating Prince Charles of Lorraine and Leopold Joseph von Daun at the Battle of Leuthen [LOY-ten], but his use of the oblique order was less successful two years later at the Battle of Kunersdorf. This leader's younger brother Prince Henry was also successful during the Seven Years' War. This leader gained territory from Austria in the Silesian Wars. Name this Hohenzollern who for much of the 18th century was the king of Prussia.

Answer: Frederick the Great of Prussia or Frederick II [prompt on Frederick]

17. This person was the original performer of the Irene Higginbotham, Ervin Drake, and Dan Fisher song that states "I've got those Monday blues, straight through Sunday blues." This person made the first recording of a song that Abel Meeropol wrote under the pseudonym Lewis Allan, and which is about lynchings. Those songs were "Good Morning Heartache" and "Strange Fruit". An argument between this singer and her mother led to the song "God Bless the Child". Name this singer whose prostitution and heroin addiction were addressed in a portrayal by Diana Ross in the movie *Lady Sings the Blues*.

Answer: Billie Holiday [or Eleanora Fagan; prompt on Lady Day]

18. In general, the growth rate of this quantity equals the real output growth rate plus the inflation rate. Milton Friedman's k-percent rule states that this quantity should be increased by a constant rate each year. Robert Solow wrote that "Everything reminds Milton Friedman of" this quantity. Measures of this quantity are represented by a capital M followed by a number from 0 to 3, with most measurements including demand deposits. This quantity equals the combined liquid assets held by individuals and banks. Name this quantity that consists, in large part, of currency in circulation.

Answer: money supply [prompt on money]

19. Recent advances in the real-time, or quantitative, version of this technique have improved the diagnosis of mucor·mycosis [myoo-kor-my-KOH-siss] and asper·gillosis [ass-per-juh-LOH-siss] infections, though a weakness of this technique is that it does not distinguish between living and dead organisms. This technique begins with the heating of a reaction chamber to about 200 degrees Fahrenheit to break hydrogen bonds. The temperature is then lowered so that the primers may form a poly·nucleo·tide. This technique often used polymerase [puh-LIM-ur-"ace"] that has been isolated from *Thermus aquaticus* bacteria. Name this technique developed by Kary Mullis that amplifies DNA sequences.

Answer: PCR or polymerase chain reaction

20. A poem by this writer is addressed to "You who hear the sound, in scattered rhymes, of those sighs on which I fed my heart". This person wrote "Rarely do great beauty and great virtue dwell together" in his set of dialogues *De remediis utriusque fortunae* [day reh-MAY-dee-is oo-TROOS-kay for-TOO-nay]. This writer claimed that his life changed on April 6, 1327 in the Church of Saint Clare at Avignon [ah-veen-yohn]. Many of the poems by this writer consist of an octave followed by a sestet. Name this writer of *Il Canzoniere* [eel kan-zon-YAIR-ay] who was obsessed with a woman named Laura and who is the namesake of a type of sonnet.

Answer: Petrarch or Francesco Petrarca

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. A pastel drawing by this artist depicts the back of a woman sitting on white towels on a wicker chair while she dries her hair. That picture is *After the Bath, Woman Drying Herself.* A painting by this artist is set at La Nouvelle Athènes [lah noo-vel ah-ten] in Paris and shows a woman in the center sitting next to a man on the right smoking a pipe. Another painting by this artist shows a man in black with a violin with several women in white and pink, who are working on their foot positions. Name this French artist of *The Absinthe Drinker* and *The Dancing Glass*, the latter of which was one of his many ballerina paintings.

Answer: (Hilaire-Germain-)Edgar Degas [day-gah]

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

TB22. There are three classes of this type of material, the most recently accepted of which was discovered in aluminum-manganese alloys by Dan Shechtman [SHEKT-mun], and another of which is characterized by a lack of long-range order. When liquid particles form a gel, the dispersion medium is this type of material. All of these materials resist forces that are perpendicular or parallel to their surface. These common materials are created by conditions in the upper-left section of a phase diagram. Most of these materials are crystalline or amorphous. Name this common state of matter that is neither liquid nor gas.

Answer: solids [accept quasicrystals before "long-range order"]

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

TB23. A novel set in this type of building is about Molina and Valentín. That novel is Manuel Puig's *Kiss of the Spider Woman.* Another novel set in this type of building is Stephen King's *The Green Mile.* Jeremy Bentham designed a building of this type called the pan·optic·on. A complex of these buildings is on Rikers Island and currently holds Paul Manafort. Name this type of building where people serve sentences.

Answer: prison(s) or jail(s) [or penitentiary or correctional center(s)]

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.