

Scobol Solo 2022

Replacement Packet

1. The ability to convert this element into a more useful form is the defining characteristic of a diazotroph [“die”-AZ-oh-trohff]. The Birkeland–Eyde process makes fertilizers based on this element, and most fertilizers are based on this element, phosphorus, and/or potassium. This element is central in amine [uh-MEEN] molecules such as amino acids. This element combines with oxygen to form laughing gas. In the form of a di-atomic gas, this is the most abundant element in the Earth’s atmosphere. The Haber process combines this element with hydrogen to form ammonia. Name this element with atomic number 7 and symbol N.

Answer: nitrogen [accept N before the end]

2. This effect is the namesake effect of a mass or inertial flow meter that uses an oscillating flow tube. The magnitude of this effect is given by 2 times the cross product of angular velocity with velocity. This effect explains why air moving north from the equator gets deflected eastward. This fictitious force exists in the same types of conditions that cause Euler [OY-lur] and centrifugal [sen-TRIFF-oo-gul] forces. Name this fictitious force that acts perpendicular to both the direction of motion and to the axis of rotation in a rotating reference frame.

Answer: Coriolis force [accept Coriolis effect]

3. In 2011, several scientists announced that Xena·coelo·morpha [ZEE-nuh-SEE-loh-MOR-fuh] should be considered this level of taxonomic classification, making it the fourth deuterostome [doo-TEAR-uh-stome] set of animals at this level. There is some debate as to whether Ecto·procta, Ento·procta, and Cyc·li·o·phora, which are three different examples of this level, should be combined. This level of classification is just above class, and Chordata [kor-DAH-tuh], Mollusca, and Arthropoda are all taxa at this level. This level of classification is equivalent to plant divisions. Name this level just below kingdom.

Answer: phylum or phyla

4. One of these statements is that there are at least four prime numbers between the square of each prime number and the square of the next prime number. A statement that used to be this type of statement claims that for every elliptic curve there is a modular function. Another of these things, which is based on a letter written to Leonhard Euler [OY-lur], states that every even natural number greater than 2 is the sum of two prime numbers. Those examples of this type of statement are named for Brocard, Taniyama and Shimura, and Goldbach. Name these mathematical statements that are made without proof.

Answer: conjectures [prompt on hypothesis or hypothesis]

5. The use of this energy source is the largest cause of airborne mercury emissions in the United States. In the 2021 Glasgow Climate Pact, many countries agreed to phase down the use of this energy source. Electro-static precipitators are often used to decrease the amount of fly ash released when this energy source is used. Workers who extract this energy source often get progressive massive fibrosis as a complication of of pneumo-coniosis [NOO-moh-koh-nee-OH-siss], which is also called “black lung”. The densest form of this energy source is anthracite [ANTH-ruh-“site”], but the most common form is bituminous [bih-TOO-mih-nuss]. Name this dark-colored rock that is burned for fuel.

Answer: coal [prompt on carbon or fossil fuels]

Check the score.

6. This person ran for governor of New York in 1804 but lost to Morgan Lewis after the *Albany Register* published a letter from Charles Cooper describing this person as “a dangerous man”. This person sometimes went by his mother’s maiden name, Edwards, late in life to avoid creditors, and his grandfather was the evangelist Jonathan Edwards. In 1800, this person was eventually elected vice president after several tie votes in the electoral college. Name this person whose political career ended after a duel in which he killed Alexander Hamilton.

Answer: Aaron Burr (Jr.)

7. This person calmed fears of AIDS by hugging a seven-year-old at the Harlem Hospital Center, shaking a man’s hand without gloves at Middlesex Hospital, and being bedside for the death of her friend Adrian Ward-Jackson. This woman’s wedding in 1981 was watched by hundreds of millions of people worldwide. This person’s driver Henri Paul was driving under the influence when she died in a car crash in 1997. This person accused her husband of having an affair with Camilla Parker Bowles. This woman was the mother of Prince William and Prince Harry. Name this former wife of the then-Prince Charles.

Answer: (Lady) Diana (Frances Spencer), Princess of Wales [accept either underlined name; accept Princess Diana]

8. This uprising followed an incident in which a soldier shot at officers, then tried to kill himself, and then was hanged at Barrackpore. One of the policies leading to this uprising prevented rulers from passing on their land to adopted heirs. That policy, called the Doctrine of Lapse, was enforced by Lord Dalhousie [dal-HOW-zee]. This uprising had a large number of participants at Meerut, in large part due to a rumor about Enfield rifles that upset both Muslims and Hindus. Name this 19th-century event that led to the British Raj establishing direct rule in India.

Answer: Sepoy Rebellion [or Sepoy Mutiny or Rebellion of 1857 or Revolt of 1857 or Uprising of 1857; accept or Indian Rebellion of 1857 or Indian Mutiny of 1857 before “India”]

9. This person died shortly after working with Thomas Baskerville on a failed attempt to take over what is now Panama. Shortly before that, this person and John Hawkins lost the earliest battle called the Battle of San Juan. This person's major success took place when he was a vice admiral serving under Lord Howard of Effingham at the Battle of Gravelines [grav-leen], which was fought near Calais [kah-lay] in 1588. Name this Englishman who circumnavigated the world and played a major role in defeating the Spanish Armada.

Answer: Francis Drake

10. In a story by this writer, Mr. McClane promises a ticket stub, postcards, and other pieces of evidence to Douglas Quail. In that story by this writer, Quail receives a partial refund and finds a box with six dead maw-worms and some Martian fauna. Another story by this author is about Police Commissioner John A. Anderton and his murder of Leopold Kaplan. In that story, this author described a Pre-crime Division that predicts crimes. Name this science fiction author who wrote "We Can Remember It for You Wholesale" and "The Minority Report".

Answer: Philip K(indred) Dick

Check the score.

11. In one novel by this author, the death of the title character is investigated by Vigot [vee-goh], who likes to read books by Blaise Pascal. This author portrays Vigot being suspicious of Thomas Fowler in the death of CIA agent Alden Pyle. In another novel by this author, the protagonist meets his illegitimate daughter Brigida [BREE-hee-duh] while escaping from police, especially from a character known as The Lieutenant. That novel by this author is set during a ban on Catholicism in Mexico and is about a "whisky priest". Name this English author of *The Quiet American* and *The Power and the Glory*.

Answer: (Henry) Graham Greene

12. The keeper in this novel, who watches the narrator through a peephole, makes knot-works out of string. The narrator of this novel gets locked in an asylum after confessing to the murder of Sister Dorothea, though it seems unlikely that he killed her. Another character in this novel is rejected by the army and then defends a post office, but he is shot by a firing squad. That character, Jan [yon] Bronski, is one of two men that this novel's narrator considers to be his father; the other father, Alfred, is a Nazi. The narrator of this novel stops growing when he is three years old. Name this novel about Oskar Matzerath that was written by Günter Grass.

Answer: *The Tin Drum* [or *Die Blechtrommel*]

13. Much of this poem is set at Hampton Court, but some of it takes place at the Cave of Spleen. In this poem, the contents gathered at the cave are poured on Thalestris [THAL-uss-triss] and the woman this poem is about. This poem's fifth line admits of its story "Slight is the subject, but not so the praise." This poem mentions guardian spirits called sylphs [silfs] who try to protect a woman and are led by Ariel. This poem begins "What dire offence from amorous causes springs, / what mighty contests rise from trivial things!". Name this poem about the Baron cutting Belinda's hair, written by Alexander Pope.

Answer: *The Rape of the Lock*

14. This painter used very little color in a series of abstract paintings made during the 1940s, the best-known of which is *Attic*. This artist followed those works by using a little more color and more recognizable human and animal shapes for a work that is on display at the Art Institute of Chicago and is entitled *Excavation*. This abstract expressionist then made a series of paintings the last of which shows a person with round eyes even though the head is erased. That series of six paintings led some critics to call this painter a misogynist. Name this Dutch-American artist who painted the *Woman* series.

Answer: Willem de Kooning [prompt on Kooning]

15. This song was inspired by a poem by Karl Isidor Beck, and the original lyrics to this song made fun of losing a war and being in a bankrupt city. This song begins with rising quarter notes D, F sharp, A, followed by a half-note A, followed by quarter-note and half-note chords, and then quarter-note and half note-chords again. Along with the song *Also sprach Zarathustra*, this song appears twice on the soundtrack for *2001: A Space Odyssey*, and during the film this song is played during the space-station docking scene. Name this Viennese waltz written by Johann Strauss II.

Answer: "By the Beautiful Blue Danube" [or the Blue Danube Waltz or "An der schönen, blauen Donau"]

Check the score.

16. In one movie by this director, several characters try to synchronize their actions with a van falling in very slow motion off a bridge into water. In that movie, this director also used a spinning top that moves perfectly in dreams. A more recent movie by this director features bullets with reverse entropy that are caught by, rather than shot out of, a gun. This director blew up a former candy factory in Chicago and made it look like a hospital while filming *The Dark Knight*. Name this director of *Inception* and *Tenet*.

Answer: Christopher Nolan

17. The holder of this position is protected by the Nechung Oracle. Traditionally, the holder of this position lived in the Potala Palace. The person who holds this position confirms the selection of the Ganden Tripa. This position is above the Panchen Erdeni, making it the best-known spiritual position within the Gelug school, which is also known as the Yellow Hat school. This position is equivalent to the Bodhisattva [boh-dee-SAHT-vuh] of Compassion, and each holder of this position is believed to be a reincarnation of the previous holder. Name this leader of Tibetan Buddhism.

Answer: Dalai Lama

18. This person wrote that historical processes often both preserve and destroy existing systems through a process of sublation. This person wrote that concepts exist in reality, making him one of the earliest major critics of Immanuel Kant. This person and Friedrich Schelling are considered two of the first absolute idealists. This philosopher often used groups of three concepts in his writings, and other people have summarized his thought as a process of thesis, antithesis, and synthesis, which is known as this person's dialectic. Name this German philosopher who wrote *The Phenomenology of Spirit*.

Answer: Georg Wilhelm Friedrich Hegel

19. This type of event killed hundreds of people in February 2022 in Petrópolis [puh-TRAU-poh-liss], which is a city in the state of Rio de Janeiro, Brazil. According to the Taliban, the combination of this problem and earthquakes killed over a thousand people this summer over a wide area that includes Panjshir [pahnj-SHIR] province. A heat wave has been blamed for causing this problem in Pakistan this year, leading to thousands of deaths following monsoons and shrinking glaciers. Name this problem that also killed 35 people in Kentucky in July following heavy rains.

Answer: floods or flooding [prompt on mudslides; prompt on rain before the end]

20. The northwest part of this U.S. state contains Flathead Lake, Flathead National Forest, and Flathead Reservation near the town of Kalispell [KAL-uh-spell]. This state has filed lawsuits against Wyoming over use of the Yellowstone River. The Crow Reservation in this state was the site of the Battle of Little Bighorn. This is the only state that borders Alberta, and it also borders British Columbia and Saskatchewan. A major town in this state [pause] and a trail used to get to this state by people traveling north out of Wyoming [pause] are both named for John Bozeman. Name this state whose most populous city is Billings and whose capital is Helena [HELL-eh-nuh].

Answer: Montana

This is the end of the packet.