2023 Reinstein Set – Packet 7

Tossups

1. This element is used to lower the ignition temperature of gunpowder, and traditional gunpowder combined this element with a nitrate and charcoal. This element is second to carbon for the most allotropes, one of which is the omega type used in the vulcanization of rubber. An acid with this element is usually used in lead-acid batteries. This element is the central element in mercaptans [mur-"captains"], which are also called thiols [THY-awlz] and are responsible for skunk spray. Name this element that is below oxygen on the periodic table, many of whose compounds are smelly.
Answer: **sulfur** [accept **S**]

2. A writer from this country wrote a poem about a pill "in which has been condensed, chemically pure, the order of the world." The writer of that poem, "Valium 10", described an uprising in this country in the novel *The Book of Lamentations*. Another writer from this country wrote a novel in which each chapter is named for a month and begins with a recipe. That novel, in which Tita's [TEE-tuh'z] mother prevents her from marrying, is *Like Water for Chocolate*. A U.S. novelist whose family is from this country wrote *The House on Mango Street* about Esperanza Cordero. Name this country home to Rosario Castellanos [kahss-tay-YAH-nohss], Laura Esquivel [es-kee-VELL], and the grandparents of Sandra Cisneros [sis-NEAR-ose].
Answer: **Mexico** [or United **Mexican** States or Estados Unidos **Mexicanos**; do not accept or prompt "Estados Unidos"]

3. In 2021, a leader of this company was sentenced to 30 months in prison for bribery, embezzlement, and concealment of criminal proceeds. In 2022, this company apologized for being insensitive to women's safety after they showed a woman running at night as part of their Night Owls campaign. In 2012, Apple was awarded 1 billion dollars in an intellectual property lawsuit against this company. Unlike Apple, this company put rotating bezels on many of its smartwatches. This company is the global leader in smartphone manufacturing. Name this company that makes many devices with the brand name Galaxy.
Answer: **Samsung** (Electronics Company)

4. Staverman's reflection coefficient is multiplied by a difference of two of these values in the Starling equation. This quantity was traditionally measured using an inverted funnel in a device invented by Wilhelm Pfeffer [VIL-helm FEFF-ur]. This quantity is demonstrated using the difference in fluid heights in a dialysis ["die"-AL-uh-siss] tube. This quantity is based on preventing fluid movement across a semi-permeable membrane. This quantity is calculated by multiplying molar concentration of solute times the ideal gas constant times absolute temperature times the van 't Hoff [vahnt hof] index, and this quantity is often represented by the Greek letter pi. Name this colligative [kuh-LIG-uh-tiv] property.
Answer: **osmotic pressure** [accept **oncotic pressure**; prompt on **pressure**]

5. Ancient mathematicians determined that the volume of the intersection of two of these solids equals 16/3 the cube of one of their common measurements. That intersection forms a Steinmetz solid. Viviani's curve, which looks like a figure eight, is formed from the combination of this solid with a sphere. Archimedes [ar-kih-MEE-deez] determined that an inscribed sphere takes up 2/3 of the volume of this shape. Name this shape whose volume is pi times r squared times h, and which consists of two parallel congruent circles and the region between them.
Answer: **cylinder**s

6. One copy of this person's *Letter to Benedetto Castelli* was sent to the Roman Inquisition. Eventually, this person lost the support of Pope Urban VIII [8] after the publication of this person's *Dialogue Concerning the Two Chief World Systems*. When this person said he overstated his case, he was put under house arrest. 350 years after this person's death, the Catholic Church determined that punishing him was a mistake. This person supported ideas of the Polish astronomer Copernicus. Name this supporter of heliocentrism [hee-lee-oh-SEN-trizm] who, according to legend, dropped two objects from the Leaning Tower of Pisa.
Answer: **Galileo Galilei** [accept either]

7. One novel by this writer begins with Jimmie bleeding from the mouth because of a fight with people from Devil's Row. This author ended that novel with the title character's mother saying "I'll forgive her." In another novel by this author, the protagonist slides through a crowd after being asked "Where yeh hit, old boy?". This author had the tattered man ask that question shortly before the protagonist is reunited with Jim Conklin. This writer set that novel during the American Civil War. Name this author of *Maggie: A Girl of the Streets* who wrote about Henry Fleming in *The Red Badge of Courage*.
Answer: Stephen **Crane**

8. During the early to mid-20th century, political prisoners from what is now this country were sent to Boven–Digoel [boh-VEN dee-"GOAL"] concentration camp. Those prisoners included Mohammad Hatta, who became this country's first vice president, and Sutan Sjahrir [soo-TAHN shah-RIR], who became its first prime minister. Shortly after an attempted coup by the 30 September Movement, this country transitioned into its New Order when President Suharto took power from President Sukarno. This country has more recently been led by Joko Widodo [wee-doh-doh]. In 2002, East Timor [TEE-mor] seceded from this country. Name this country that includes the world's most populous island, Java—the location of its capital, Jakarta.
Answer: (Republic of) **Indonesia**

9. An opera by this composer contains a duet whose title means "Now, Sir, Listen to a Word or Two." That duet is sung by Jeník [YEN-ik] and Kecal [KET-zahl] in this composer's opera about Jeník and Mařenka [mar-ZHEN-kah]. This composer also wrote a set of six symphonic poems whose best-known section has rising alternating eighth notes and quarter notes peaking at dotted quarter notes. This composer ended that set with a piece about Blaník [blah-NEEK], a real mountain that contains a legendary army led by Saint Wenceslas [VEN-suss-lahss]. Name this Czech composer of *The Bartered Bride* whose cycle *Má vlast* contains *The Moldau*.
Answer: Bedřich **Smetana** [BED-rikh **SMEH-tah-nah**]

10. In one novel by this author, Susan says "I think sometimes of Percival who loved me. He rode and fell in India. I think sometimes of Rhoda." This author began that novel with short statements by the characters before moving to lengthy soliloquies [soh-LILL-oh-kweez] by Bernard, Susan, Rhoda, Neville, Jinny, and Louis. Another novel by this author includes the perspective of Mrs. McNab, who helps restore a house on the Isle of Skye. The last section of that novel is about a trip by Cam and James with their father, Mr. Ramsay, and the novel is one of several by this author that uses the stream-of-consciousness technique. Name this British author of *The Waves* and *To the Lighthouse*.
Answer: (Adeline) Virginia (**Stephen**) **Woolf** [accept either underlined name]

11. These stars are in luminosity class 2 or 3, which means that their absolute magnitudes are usually slightly below zero. Most, but not all, carbon stars are the cool type of this star. Arcturus [ark-TUR-uss] and Aldebaran [al-DEB-uh-run] are both this type of star, and the closest example to us is Pollux. The word describing this type of star is sometimes prefixed by "sub-" or "super-" to describe stars of different sizes that are also in the top half of the Hertzsprung–Russell diagram. In the future, it is likely that our Sun will likely spend about 1 billion years as a red star of this type. Name these stars that are larger than main sequence stars.
Answer: **giant**s [or **giant** stars; accept more specific answers such as red **giant**s; do not accept "supergiant" or "subgiant"]

12. This U.S. president stated "An attempt by any outside force to gain control of the Persian Gulf region will be regarded as an assault on the vital interests of the United States." This president was criticized for his grain embargo against the Soviet Union and for boycotting the Moscow Olympics. This president helped negotiate the Camp David Accords between Israel and Egypt. The Iran hostage crisis took place during his presidency. Name this president who unsuccessfully ran for re-election in 1980 against Ronald Reagan.
Answer: (James Earl) "Jimmy" **Carter** (Jr.)

13. The narrator of this novel claims that he has trouble paying attention to a magistrate because "the office was so stiflingly hot and big flies were buzzing round and settling on my cheeks." The magistrate in this novel had taken a silver crucifix from a file cabinet and asked the narrator "Do you know who this is?". Just before that, the magistrate had asked this novel's narrator "Why did you pause between the first and second shot?". Earlier, this novel's protagonist began a relationship with Marie just after his mother's funeral. The narrator of this novel kills a man he refers to as "the Arab". Name this existentialist novel about Meursault [mair-sohl] written by Albert Camus [al-bair ka-moo].
Answer: *The* ***Stranger*** [or *The* ***Outsider*** or *L'****Étranger***]

14. Some of the impacts of this agreement were addressed by the formation of the Commission for Environmental Cooperation. This agreement extended an agreement that the United States had negotiated earlier with Brian Mulroney because this deal was also negotiated with Carlos Salinas [suh-LEE-nus] de Gortari. The phrase "giant sucking sound" was used by Ross Perot [puh-roh] to build opposition to this agreement. Name this agreement supported by Presidents George H. W. Bush and Bill Clinton that made it easier for the United States to import and export goods with Canada and Mexico.
Answer: **NAFTA** or the **North American Free Trade** Agreement

15. This person is the namesake of the win-stay/lose-shift strategy in the iterated [IT-er-ay-tid] prisoner's dilemma. Work started by Anatol Rapoport classifies rhetorical strategies as belonging to this person, Sigmund Freud, or Carl Rogers. This person studied so-called "psychic secretions" by surgeries that moved certain body fluids outside of animals' bodies. This person is credited for developing the theory of classical conditioning. This person won the 1904 Nobel Prize for Physiology or Medicine "in recognition of his work on the physiology of digestion", making him the first Russian laureate. Name this scientist who was able use a noise to get dogs to salivate.
Answer: Ivan (Petrovich) **Pavlov** [prompt on **Pavlovian**]

16. This inner organ is connected to the urachus [YUR-uh-kuss] during fetal development. This organ is examined during a cystoscopy [siss-TAH-skuh-pee]. Much of this organ is lined by detrusor [dih-TROO-zur] muscle, and the lower part of this organ has a triangular region called the vesical trigone ["TRY"-gahn] that has stretch receptors. The ureters [YUR-uh-turz] lead to this organ, and the urethra [yuh-REETH-ruh] leads away from it. In pregnant women, the top of this organ is pushed down by the uterus, and in old men the bottom of this organ is pushed up by the prostate, which explains why some people need to use the bathroom often. Name this hollow organ that stores urine.
Answer: (urinary) **bladder**

17. This color is used for both the sling and the sombrero, in contrast to the pink and purple load being carried, in Diego Rivera's painting *The Flower Carrier*. Vincent van Gogh's *Café Terrace at Night* features a large lantern of this color that makes the main building look this color. Paul Gauguin [goh-gan] made one painting titled *The Green Christ* and another painting of Christ in this color. One of the pigments of this color uses lead [led] chromate, and one of the shades of this color is called "canary". Name this color whose chrome pigment is used to color school buses.
Answer: **yellow**

18. One statue of this goddess shows her with one foot on a tortoise and is associated with her epithet Urania [yoo-RAY-nee-ah]. This goddess has a golden chariot that was pulled by either sparrows or doves. This goddess plays a central role in the founding myth of the city of Paphos [PAH-fohss], which is supposedly named for the daughter of Galatea [gal-uh-TAY-uh]. This goddess changed a statue into Galatea in response to a wish from Pygmalion [pig-MAY-lee-un]. This goddess was given the golden apple because she promised Paris the most beautiful woman in the world. Name this equivalent of Ishtar and Inanna, the Greek goddess of beauty and love.
Answer: **Aphrodite** [accept **Venus** before "Greek"]

19. This theory inspired the tachyonic anti-telephone [tak-ee-AH-nik "anti-telephone"] thought experiment in which a message is sent to the past. This theory explained a thought experiment in which a train is hit by two bolts of lightning but there is disagreement as to whether the bolts were simultaneous. This theory uses Minkowski space, which is why some of its basic equations use Lorentz transformations. The two postulates of this theory are that the speed of light in a vacuum is the same for all observers and that the laws of physics are the same in all inertial reference frames. Name this theory that was later augmented by a "general" theory of gravitation, both of which were developed by Albert Einstein.
Answer: theory of **special relativity** [or **special** theory of **relativity** or **special relativity** theory; prompt on **relativity**]

20. During this war, the Battle of White Mountain was a loss for Christian of Anhalt and led to the abdication of a king whose rule was so short that he was nicknamed "the Winter King". At the beginning of this war, that king—Frederick V of the Palatinate [puh-LAT-ih-nit]—replaced Ferdinand II as the king of Bohemia. Later during this war, Albrecht von Wallenstein was victorious at the Battle of Lützen [LOOT-zen], defeating a Swedish–German army and killing Gustavus [goo-STAH-vus] Adolphus. The treaties signed at Osnabrück and Münster at the end of this war formed the Peace of Westphalia ["west"-FAY-lee-uh]. Name this war that was fought from 1618 to 1648.
Answer: **Thirty Years**' War

21. The example of these mathematical figures named for Henri Brocard [awn-ree broh-kar] is found using the first and second Brocard points. Three of these figures named for Leonhard Euler [LEN-urd OY-lur] are used to give the orientation of an object. Spherical coordinates use two of these figures, but cylindrical coordinates only use one. Two of these figures are called "co-terminal" if they have a common terminal side, meaning they go to the same point on the unit circle. Measures of these figures are the inputs to trigonometric functions. These figures are formed by two rays from a common endpoint. Name these figures that can be measured using a protractor in radians or degrees.
Answer: **angle**s