

2015 SCOP Middle School 5

Replacements

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Tossups

1. **This character looks like his great uncle, who sent a substitute to the Civil War and started a family hardware business. In his “younger and more vulnerable years,” he was told not to criticize people who may not have had his advantages. He has a love affair with the golfer (*) Jordan Baker and went to a funeral with Henry Gatz. The second cousin once removed of Daisy Buchanan, for 10 points, identify this narrator of *The Great Gatsby*.**

Answer: Nick Carraway (accept either underlined name)

2. **The driest thing one character in this work knows is a lecture on William the Conqueror, and a poem in this novel asks how Father William can stand on his head and balance an eel on his nose. White rose bushes are (*) painted red to appease the decapitation-thirsty Queen of Hearts in this work. It features the Mad Hatter and the Cheshire Cat, who guide the title character after she falls down a rabbit hole. For 10 points, identify this novel by Lewis Carroll.**

Answer: Alice's Adventures in Wonderland

3. **Allred and Rochow related effective nuclear charge and this quantity. This quantity equals the mean of the electron affinity and first ionization energy by Mulliken's definition. When molecules have atoms with differences in this quantity, they are deemed (*) polar. Fluorine has the highest value for this quantity on the Pauling scale. For 10 points, name this quantity which measures an atom's likeliness to attract electrons.**

Answer: electronegativity

4. **The Eyring-Polyani equation modifies an equation named for this man that contains a pre-exponential factor and relates rate constant to activation energy and temperature. This scientist developed a theory involving increases in (*) hydrogen and hydroxide ion concentrations that was later replaced by the Bronsted-Lowry and Lewis theories. For 10 points, name this Swedish chemist who won a Nobel Prize for his work on acids and bases.**

Answer: Svante Arrhenius

5. **The simplex algorithm is a common method of solving optimization problems of this type. A set of points with this relationship will have a Pearson's correlation coefficient, r , equal to plus or minus 1. Cramer's Rule will directly solve a system of these equations, which are (*) polynomials of degree 1. For 10 points, give this adjective that describes the shape of graphs, like y equals two x plus 1, that have a straight, constant slope.**

Answer: linear (accept word forms, such as line)

6. **The truncated icosahedron features 20 faces of this shape and 12 pentagonal faces. The area of this regular polygon is three-halves times root 3 times the side length squared. This is the polygon with the most sides that can regularly tile the (*) plane. If its angles are bisected by its diagonals, equilateral triangles are formed because each of its angles measures 120 degrees. For 10 points, name this regular polygon with six sides.**

Answer: regular hexagon

7. **Refusal by one party to obey this law led to an uprising supported by Louis VIII and led by Robert Fitzwalter; that ruler had previously lost control of Brittany when Philip Augustus was victorious at the Battle of Bouvines. This (*) document's Clause 61 gave a certain group of barons the power to override unlawful acts of the king. For 10 points, name this charter signed at Runnymede by King John in 1215.**

Answer: Magna Carta

8. **A colorfully-named part of this organization circumnavigated the world in order to spread goodwill in the early 20th century. Theodore Roosevelt was the assistant secretary of this organization during war, a position he resigned to fight on the front lines. During the Spanish-American War a leader in this organization, (*) George Dewey won the battle of Manila Bay. For 10 points, name this organization which defends the coast and oversea holdings of a certain North American nation.**

Answer: United States Navy(Accept obvious equivalents; Prompt on Navy)

9. **During this man's administration an act limiting child labor, the Keating-Owen Act, was passed. Another bill passed during this man's administration was the Clayton Antitrust Act which helped limit big business. This president's secretary of state resigned after the sinking of the (*) Lusitania. This man campaigned with the slogan he kept us out of the war and would later attempt to end that war with his 14 points. For 10 points, name this 28th President of the United States who was in office during World War I**

Answer: Woodrow Wilson

10. **One leader of this country when asked how far he would go to maintain order responded well, just watch me. After giving that statement that leader invoked the use of the War Measures Act to bring an end to the (*) October Crisis. In this country's namesake caper it participated in a joint operation with the CIA to rescue six American Diplomats from Iran. For 10 points, name this North American country whose capital city is Ottawa.**

Answer: Canada

Bonuses

1. The title objects of this story are combs and a fob. For ten points each:

[10] Name this story in which Della sells her hair and Jim sells his watch in order to buy each other Christmas presents.

Answer: The **Gift of the Magi**

[10] "The Gift of the Magi" is a story by this author, who included it with "The Cop and the Anthem" in his collection *The Four Million*.

Answer: **O. Henry** (accept William Sidney **Porter**)

[10] O. Henry also wrote this short story, in which the title child terrorizes his would-be kidnappers until they pay for him to go home.

Answer: The **Ransom of Red Chief**

2. This author attacked censorship in his pamphlet *Areopagitica*. For 10 points each,

[10] Identify this author who wrote about Samson losing his hair and eyes in his play *Samson Agonistes*.

Answer: John **Milton**

[10] In this epic poem by Milton, Adam and Eve are expelled from the Garden of Eden. In this epic poem, Satan claims that it is "better to reign in Hell than serve in Heaven."

Answer: **Paradise Lost**

[10] Milton had this quality later in his life, and wrote a sonnet, "On his (this quality)" that begins with the poet considering "how [his] light is spent."

Answer: **blindness**

3. The potency of these cells describes their ability to differentiate; the totipotent type has the largest ability. For 10 points each,

[10] Name this class of undifferentiated cells that have the ability to become all the specialized cell types of the body.

Answer: **stem** cells

[10] Controversy arises when stem cells are harvested from this earliest developmental stage that precedes the fetus.

Answer: **embryo**

[10] Pluripotent embryonic stem cells are unable to become this organ, which is essential for gas exchange and waste removal between the fetus and its mother.

Answer: **placenta**

4. These kinds of properties include boiling-point elevation, freezing-point depression, and osmotic [ahs-MAH-tic] pressure. For 10 points each,

[10] Name these kinds of properties which are affected by the number but not the type of molecules in solution.

Answer: **colligative** properties [co-LIG-a-tive properties]

[10] This colligative property is governed by Raoult's [rah-OOLTs] law and is lowered when a nonvolatile solute is added to a solution.

Answer: **vapor pressure**

[10] This measure of concentration is multiplied by a constant when computing boiling-point elevation or freezing-point depression. It is defined as moles of solute per kilogram of solvent.

Answer: **molality** (do not accept molarity or normality)

5. These structures exist under the vadose zone in the phreatic zone, which begins at the water table. For 10 points each,

[10] Give this term for a layer of rocky material, often gravel or sand, from which water can be harvested.

Answer: **aquifers**

[10] Water can be harvested by digging or drilling one of these structures, then installing a pump or using buckets to bring the water to the surface. These may be called Artesian if simple pressure forces the water up.

Answer: **wells**

[10] This material, a sediment whose particles are smaller than sand, is another common bearer of water in an aquifer. This material is commonly found in river water and deposited at the mouths of rivers.

Answer: **silt**

6. This value for x will be greater than 1 if and only if x is between 0 and 1. For 10 points each,

[10] Give this term for the multiplicative inverse of a number, often used in the context of fractions. For example, this value for seven is one-seventh.

Answer: **reciprocal** (prompt on "one over x" or any similar description)

[10] Two numbers have the unique property that they are their own reciprocal; that is, that one over x equals x. Find both of those numbers.

Answer: **one** and **negative one** (both answers required; prompt on single answer, but do not permit stalling)

[10] This is the only positive number that is equal to exactly one more than its reciprocal. It's also equal to the continued nesting fraction 1 plus 1 over 1 plus 1 over... and to the continued nesting root 1 plus the square root of 1 plus the square root of...

Answer: **phi** or the **golden ratio** (accept "mean," "cut," "section," or "proportion" in place of "ratio;" accept **Mean of Phidias**; accept **Divine Proportion**; accept "**1 plus** the square **root** of **5**, all **over 2**")

7. It only existed in 1860 and 1861, as the completing of the first transcontinental telegraph rendered this expensive and dangerous mail delivery service obsolete. For 10 points each,

[10] Name this short-lived mail service, in which relay teams of horseback riders delivered mail from station to station across the American West.

Answer: **Pony Express**

[10] This rider for the Pony Express later toured the world with his "Wild West" show, which employed Annie Oakley and Sitting Bull.

Answer: William "Buffalo Bill" **Cody** (accept **Buffalo Bill**; prompt on Bill)

[10] Much of the Pony Express route followed this general trail, which led wagon trains from Missouri to the Willamette Valley on the Pacific Ocean.

Answer: **Oregon** Trail

8. This period was established by a Constitutional amendment and the passing of the Volstead Act. For 10 points each,

[10] Name this period of time from 1920 to 1933, during which alcohol was banned within the United States.

Answer: **Prohibition**

[10] Prohibition was established by this Constitutional amendment, which was repealed by the 21st amendment.

Answer: **18th** Amendment to the U.S. Constitution

[10] This supporter of Prohibition famously took a hatchet to barrels of liquor in saloons, being arrested dozens of times for destroying bars.

Answer: Carrie A(melia) (Moore) **Nation**

9. For 10 points each, give the following about the end of the unsuccessful rule of Louis XVI.

[10] Louis XVI was executed in this decade long period of unrest which began with the storming of the Bastille.

Answer: **French Revolution**

[10] Shortly after Louis' execution, this lawyer founded the Committee of Public Safety. His Reign of Terror ended with the Thermidorian Reaction and his execution.

Answer: Maximilien François Marie Isidore **Robespierre**

[10] After nearly allowing Louis XVI to escape, Robespierre accused this French general of treason. This friend of George Washington led troops in the American Revolution.

Answer: Marie-Joseph Paul Yves Roch Gilbert du Motier de **La Fayette**(accept Marquis de **La Fayette**, or just **Lafayette**)

10. Gran Colombia was established by this leader. For 10 points each,

[10] Name this South American “Liberator” who spread democracy through Latin America.

Answer: Simon **Bolivar**

[10] During the Admirable Campaign, Bolivar issued this Decree as a response to Spanish massacres. This order permitted murder of Spanish born citizens opposing independence.

Answer: Decree of **War to the Death**

[10] Bolivar issued the Decree of War to the Death from this South American country; Bolivar freed its city of Caracas during the Admirable Campaign.

Answer: **Venezuela**