

NEW TRIER SCOBOL SOLO 2011

ROUND 3

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1. This offensive began with a mine explosion now known as Hawthorn Crater, and its central thrust paralleled a Roman road between Albert and Bapaume. Planned by Joseph Joffre, its first day is the bloodiest in British history. Though often called a battle, this event includes battles such as Ginchy and Morval. The German bunkers, barbed wire, and machine guns were successful defensively because British explosives were poorly made and many French forces had been diverted to Verdun. Eventually, the Allies advanced about six miles under the leadership of Douglas Haig. The use of British Mark I's in this offensive is the first example of tank warfare. Name this 1916 offensive named after a river in France.

ANSWER: Battle of the Somme [or Somme Offensive]

2. The competitive exclusion principle serves as this type of statement for ecology and the steady state model was once one of these in cosmology. Hardy-Weinberg equilibrium and the molecular clock form one of these statements for evolution, based on the presumption that most mutant alleles (uh-LEELS) are neutral. Famous ones rejected by experiment include the luminiferous (loo-muh-NIF-er-us) ether and the plum pudding model, and a Type II error occurs when this statement is accepted even though it is false. Often assuming no correlation between two events, name this type of experimental statement, symbolized H-sub-naught, which holds that the assumed explanation is the correct one.

ANSWER: null hypothesis [prompt on H-sub-naught or H-sub-zero before "naught"; prompt on a partial answer]

3. This character states, "We are not the first who with best meaning have incurred the worst." Much earlier, she complains, "I cannot heave my heart into my mouth," leading the Duke of Burgundy to withdraw his marriage proposal, though this woman marries the King of France instead. This character is supported by a character who disguises himself as a peasant named Caius but is actually the Earl of Kent. She eventually gains the support of her father who had earlier disowned her. Name this youngest daughter of King Lear who is unable to match the flattery of her sisters Goneril and Regan.

ANSWER: Cordelia

4. Historians debate whether or not hundreds of years ago this city had an African American community called New Guinea located near Copp's Hill. Copp's Hill has this city's second oldest cemetery, with the oldest at King's Chapel Burying Ground. This city has historical reenactments at its Old South Meeting House, and it contains a grasshopper weather vane on top of a building funded by Peter Faneuil (FAAN-yul). The oldest public park in the United States is this city's Common, which is also the beginning of its Freedom Trail. One neighborhood in this city, Charlestown, contains Breed's Hill and Bunker Hill. Name this capital of Massachusetts.

ANSWER: Boston, Massachusetts

5. This goddess sent Iphigenia (iff-ih-juh-NAI-uh) to Brauron after deciding that Orestes (o-RES-tees) was not guilty. To please Chariclo, this goddess cleaned the ears of Tiresias (tai-REE-see-us), though she had already blinded him for seeing her naked. Because this goddess invented the horse-bit and chariot, her name was sometimes appended with the epithet Hippias. She was the daughter of Metis (MEE-tis), but because her father Zeus swallowed her mother, her birth was from her father's head. Often represented by owls, she carried a shield bearing Medusa's head called the Aegis. Name this goddess whose gift of an olive tree caused a very important Greek city to be named after her.

ANSWER: Pallas **Athena** [prompt on **Minerva**]

6. This artist often collaborated with his wives Pat Muschinski and Coosje van Bruggen on works such as *Lipstick Ascending on Caterpillar Tracks* and *Bottle of Notes*, the latter of which can be found in Middlesbrough, England. The top of a shopping center in Neumarkt Square in Cologne is the home of his *Dropped Cone*, while the Minneapolis Sculpture Garden is home to his water sculpture *Spoonbridge and Cherry*. Chicago is the home of this sculptor's *Batcolumn*. Name this sculptor known for large works depicting everyday objects, including the recently completed *Paint Torch* in Philadelphia.

ANSWER: Claes **Oldenburg**

7. Some of the fighting this leader is associated with was actually led by his brother Olikut. This man's birth name was Hin-mah-too-yah-lat-kekt, or Thunder Rolling Down the Mountain. He tried to negotiate with Oliver Otis Howard, and he eventually led a retreat from Wallowa Valley to the Bear Paw Mountains and surrendered to Nelson Miles in 1877, preventing a return to northeastern Oregon from Montana Territory. One of this chief's speeches ended, "I am tired. My heart is sick and sad. From where the sun now stands, I will fight no more forever." Name this chief of the Nez Perce.

ANSWER: Chief **Joseph** [accept **Hin-mah-too-yah-lat-kekt** before it is mentioned; accept **Thunder Rolling Down the Mountain** before it is mentioned]

8. In 1928, Kathleen Lonsdale became the first to confirm this concept using X-ray crystallography, and alcohol and amine (uh-MEEN) groups contribute to a form of it called the mesomeric effect. The stability of enolate anions (AN-"eye"-ons) is explained by this concept, and its namesake energy is minimized in the hybrid structures of the nitrate ion. Because of delocalization, this concept produces fractional bond orders. This is depicted with two or more Lewis dot diagrams, and a type of this specific to organic conjugated rings is called aromaticity. Name this concept in which the length of carbon-carbon bonds is between single and double, a concept exemplified by benzene.

ANSWER: **resonance** (structures) [accept word forms]

9. The n^{th} derivative of functions using this operation can be found using Faà di Bruno's formula, and the reverse of this process sometimes involves writing a given matrix as the product of an orthogonal matrix times an upper triangular matrix. For linear functions without shifts, this operation is equivalent to multiplication. To find the first derivative of functions expressed with this operation, the Chain Rule is used, and this operation can be used to express a function which performs one operation after another as a combination of simpler functions. Often represented with an open circle, name this operation of inputting one function into another.

ANSWER: **composition** [accept word forms]

10. One of this man's poems, which ends, "Stand and fight and see your slain, And take the bullet in your brain," is titled "The Day of Battle". He protested the trial against Oscar Wilde with the poem "Oh Who Is That Young Sinner", and addressed a work to a writer whose work is so bad that it kills a cow; that work is "Terence, this is stupid stuff". Another work is addressed to somebody who "will not swell the rout / Of lads that wore their honours out." That work begins, "The time you won your town the race / We chaired you through the market-place." Name this English poet whose collection *A Shropshire Lad* includes "To An Athlete Dying Young".

ANSWER: A(lfred) E(dward) Housman

11. One painting by this artist darkly shows a man tending a fire in the lower right corner and shows an older man by a window next to a winding staircase, and in different works he painted his son reading and as a monk. In addition to *Philosopher in Meditation*, one of the last works by this artist shows the title character kneeling with one bare foot and one shoe falling apart; that work is *Return of the Prodigal Son*. Another one of his works, which shows the characters looking in amazement at Hebrew words next to a hand, is *Belshazzar's Feast*. Another work by this artist shows Willem van Ruytenburch wearing a yellow outfit with a white sash standing next to Captain Frans Banning Cocq. Name this 17th century Dutch painter of *Night Watch*.

ANSWER: Rembrandt Harmenszoon van Rijn [accept either underlined part]

12. Clifford Shull used the neutron type of this concept to explore the structure of ice, and one model of this concept uses Rayleigh-Sommerfeld integrals. Used to explain an opal's play-of-color, the Laue (LOUW-uh) patterns produced by this effect on X-rays helped determine the shape of DNA. An Airy disk results when this principle occurs for a circular aperture, and Fresnel numbers less than one are indicative of its Fraunhofer (FROUN-hoh-fer) type. Generating interference patterns in Young's double-slit experiment, name this principle, the bending or spreading of waves around an obstacle.

ANSWER: diffraction [accept word forms]

13. In this country, Kazys Grinius was overthrown in a 1926 coup by Antanas Smetona, and its current independence was fought for by the group Sąjūdis. This country was earlier ruled by Vytenis, who is sometimes considered the first ruler in the Gediminid Dynasty. Its only King, Mindaugas, united its five regions, including Samogitia, after converting to Catholicism. This country merged with Poland during the 16th century to become for a time the largest country in Europe. Name this nation which was part of the Soviet Union until it became independent along with its neighbors Latvia and Estonia.

ANSWER: Lithuania

14. In this novel, it is considered good riddance when a woman who has given birth to twins four times leaves her family for religious reasons. The people running the church she joins surprise local residents when they survive twenty-eight days, and they eventually recruit the son of the protagonist of this novel. In another church in this novel, Reverend James Smith takes over from the more lenient Mr. Brown. The protagonist of this novel often worries about being considered feminine; he is punished for disturbing the Peace of Ani and often remembers his defeat of the Cat in a wrestling match. Name this novel set in Umuofia, written about Okonkwo by Chinua Achebe.

ANSWER: Things Fall Apart

15. The most recent proof of this theorem was provided by Georges Gonthier using the Coq assistant, while P. G. Tait showed that it is equivalent to the statement that no snark is planar. The crucial concepts of reducibility and unavoidability were introduced in Kempe's incorrect proof of this theorem, which can be extended to polyhedra by the Heawood conjecture. This theorem does not apply when exclaves are present, and neighbors that share only a single point do not meet this theorem's definition of adjacency. Proven by Appel and Haken using a computer to test 1,936 distinct cases, name this theorem which gives an upper bound on the maximum number of colors required to label a contiguous map.

ANSWER: four-color theorem

16. Wu Sangui tried to start a dynasty with this name during the 17th century, and this name was used by the fifth dynasty during the Five Dynasties and Ten Kingdoms Period. The major Chinese dynasty with this name was the first to declare the Mandate of Heaven, which was formulated by Wu Taibo and his nephew King Wen. Originally located at Haojing and Fengjing, this dynasty moved its capital to Chéngzhōu in the east. This dynasty led China through both the Spring and Autumn Period and the Warring States Period, which led to the Ch'in Dynasty. Name this dynasty that followed the Shang Dynasty, ending in the third century BCE.

ANSWER: Zhouchao Dynasty [or Chou Ch'ao]

17. This branch of thought included *The Four Books of Sentences* by Peter Lombard and near its end included John Ponce, who wrote, "Entities are not to be multiplied unnecessarily." It was concerned with conceptual analysis and, like the Greeks, often used the dialectic method. Some of its central works were *Sic et Non* and *Summa Theologica* written respectively by Peter Abelard and Thomas Aquinas, and one of their goals was to use logic in their study of theology. This was a leading branch of philosophy until its decline around the fifteenth century. Identify this school named after the heads of academic institutions.

ANSWER: scholasticism [accept word forms]

18. Robert Schumann dedicated his *Kreisleriana* to this composer and called him a genius after this man wrote variations on a duet from Mozart's *Don Giovanni*. He wrote an *Allegro* movement which some people believe was supposed to be his third piano concerto. Nicknames such as *Waterfall*, *Chromatic*, and *Octave* were applied to some of this composer's twenty-seven études, and some notes from Beethoven's *Moonlight Sonata* can be heard at the beginning of this composer's *Fantaisie-Improvisation*. He also wrote eighteen polonaises and fifty-eight mazurkas, though he left his native Poland at the age of twenty. Name this composer who wrote many pieces for piano, including the *Minute Waltz*.

ANSWER: Frédéric (François) Chopin [or Fryderyk (Franciszek) Szopen]

19. In one story by this writer, Eloise remembers her former boyfriend Walt, who died when a stove exploded, and in another story by this writer an unnamed sergeant who serves with a man referred to as both Corporal Z and Clay remembers a girl who gives him advice on how to write short stories. Those stories are "Uncle Wiggily in Connecticut" and "For Esmé – with Love and Squalor". This author also wrote a novel about a character who invites his girlfriend Sally Hayes to run away with him. Name this author who wrote about Pencey Prep student Holden Caulfield in *The Catcher in the Rye*.

ANSWER: J(erome) D(avid) Salinger

20. This process is analogous to apomixis (ap-uh-MIK-sis) in plants, and before his study of human sexuality, Alfred Kinsey studied the effect of this process on the evolution of gall wasps. Jacques Loeb showed that the initiation of mitosis is controlled chemically by inducing this process in sea urchins, and Charles Bonnet first recognized it by observing the growth of aphid populations. Rotifers reproduce almost exclusively by this process, which has been recorded in Komodo dragons but is far more common in insects. In this type of unisexual reproduction, organisms develop from unfertilized eggs. Identify this process named from the Greek for “virgin birth”.

ANSWER: parthenogenesis [prompt on asexual reproduction before “virgin”]

TB1. This explorer was killed by an explosion during the Battle of York. Earlier, while working for James Wilkinson, this person incorrectly identified Cass Lake instead of Lake Itasca as the source of the Mississippi River. This person tried to find the source of the Red River, but he mistakenly followed the Arkansas River instead, and further efforts led him to the Rio Grande. In 1806, this explorer reached what is now Pueblo, Colorado and attempted to climb what Spanish settlers called El Capitan. Name this explorer for whom that large Colorado mountain is now named.

ANSWER: Zebulon Pike

TB2. This composer wrote pieces based on Charles Dieupart’s six suites for harpsichord, and he also wrote six partitas that are sometimes referred to as German Suites. One of his pieces starts with an aria and ends with a quodlibet, and he was the most commonly performed composer by musicians Rosalyn Tureck and Glenn Gould. This person also composed the first collection of pieces in all twenty-four possible keys, and thanks to the German notations for B Flat and B Natural, he was able to spell his name using notes in another work. Those works are the *Goldberg Variations*, *The Well-Tempered Clavier*, and *The Art of Fugue*. Name this German baroque composer.

ANSWER: Johann Sebastian Bach

TB3. Which animal...was famously shot by George Orwell while in Burma; was brought by Hannibal’s army across the Alps during the Second Punic War; and is known for its long tusks and trunk?

ANSWER: elephant