

NEW TRIER SCOBOL SOLO 2011

ROUND 7

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1. This class of molecules can contain SECIS elements within UTRs, and most examples of this molecule found in archaeans (ar-KAY-unz) are polycistronic (PAH-lee-sis-TRAHN-ihk). This molecule is degraded by PIWI 9 ("peewee") proteins, and modification of it is partly achieved by snRNPs (SNURPs). Multiple expression products can be formed due to alternative splicing of this molecule, which rearranges exons. Prior to leaving the nucleus, this molecule gains a 5-prime cap and poly-A tail, and its first section to be read is the AUG ("A-U-G") start codon. Formed by transcription of a DNA strand, name this nucleic acid that carries the instructions for protein synthesis to the ribosome.

ANSWER: messenger RNA [or mRNA; prompt on RNA; accept ribonucleic acid in place of RNA in any answer or prompt directive]

2. This person was denied the position of King of Ireland by Pope Lucius III, but permission was later given by Pope Urban III. Soon after this person became King of England, he was blamed for the disappearance of Arthur, Duke of Brittany, and he gave away Normandy and Brittany. This person had earlier tried to become King when his brother was held prisoner by Duke Leopold of Austria. The youngest child of Eleanor of Aquitaine, this man eventually succeeded his brother Richard the Lionheart on the throne. Name this king who in 1215 at Runnymede signed the Magna Carta.

ANSWER: King John I [or King John Lackland; or King John Softsword; prompt on Lackland; prompt on Softsword]

3. This country contains Kukenan Tepui (koo-kay-NAHN tay-PWEE), which includes Cuquenán Falls, and part of its Southeastern border is marked by Mount Roraima. Its third most populous city is Valencia, which lies next to a lake of the same name. The eastern part of this country sits on the Guiana (gee-AA-nuh) Shield, and the northeast part of this country is Delta Amacuro, so named because it contains the delta of the Orinoco River. The northwest part of this country contains the Tablazo Strait, where what used to be a lake connects to an arm of the Caribbean Sea. Name this home of Lake Maracaibo whose capital is Caracas, a country headed by Hugo Chávez.

ANSWER: Bolivarian Republic of Venezuela [or República Bolivariana de Venezuela]

4. This character moves his dining room table into his bedroom when his apartment becomes too large for him. At one point, a magistrate waves a crucifix at him and later refers to him as an Antichrist. This man often eats lunch at Celeste's, and he agrees to write a letter on behalf of a man who calls himself a warehouse guard, Raymond Sintès. At the beginning of the novel he appears in, this man takes a bus to Marengo to attend the funeral of Maman, his mother, where he declines an offer to view her body. Later, while on a beach possibly suffering from heatstroke, this man shoots an Arab several times. Name this protagonist in Albert Camus' (ka-MOOS) *The Stranger*.

ANSWER: Meursault [be lenient on pronunciations, it should be pronounced mair-sohl]

5. This writer tried to, "give expression to the shattering emotion which the unvarnished spectacle of divine savagery and ruthlessness produces in us," in a work that suggests that the Trinity should have a fourth side, *Answer to Job* (johb). In *Flying Saucers: A Modern Myth of Things Seen in the Skies*, this writer used his concept of synchronicity to discuss paranormal phenomena. This writer used "self" and "shadow" as two of his archetypes, which also included the feminine component of the unconscious in men, the anima. His work is credited for the development of the Myers-Briggs Type Indicator. Name this analytical psychologist who wrote about the collective unconscious.

ANSWER: Carl (Gustav) Jung

6. The molecules selenorhodane (seh-leh-nor-HOH-dane) and thiocyanate (thai-oh-SAI-uh-nate) are sometimes called “pseudo-” members of this group, which exchanges one atom for another in the Finkelstein reaction. In the era of leaded gasoline, a compound made from ethylene (e-thuh-LEEN) and an element from this group was used to clean out engine cylinders. Another element from this group is in a solution which turns blue-black in the presence of starch, Lugol’s solution, and another element from this group gives mustard gas and DDT their deadly potency. Freon contains two elements from this group, as do several other ozone depleting refrigerants. Containing the most electronegative element, name this group that includes astatine, iodine, chlorine, and fluorine.

ANSWER: halogens [accept Group 7A or Group 17]

7. One side in this war made an alliance at Nymphenburg Palace in Munich, and during this war a member of the House of Wittelsbach became Holy Roman Emperor. The treaty that ended this European war also ended the First Carnatic War and another war involving the Fortress of Louisbourg. This war began with the capture of Silesia by Prussian forces under Frederick the Great. This overlapped the War of Jenkins’ Ear and King George’s War, and it would not have happened had European powers honored two Pragmatic Sanctions. Name this war at the beginning of the reign of Maria Theresa.

ANSWER: War of the Austrian Succession [prompt on First Carnatic War or War of Jenkins’ Ear or King George’s War]

8. This operation is used three times in the hypergeometric distribution’s mass function, which is a discrete probability distribution without replacement. When all of the possible outputs of this function whose inputs are identical sums are added, the result is a number from the Fibonacci sequence, and when all of the possible outputs of this operation are added together using the same first input, the sum is equal to two raised to the power of that input. All of the outputs from this function are easily arranged to form Pascal’s Triangle. This operation determines how many ways a number of items can be selected from a group if order does not matter. Name this operation often contrasted with permutation.

ANSWER: binomial combinations [accept binomial choose function or word forms thereof]

9. This poet wrote one work criticizing a man for stealing his napkin and another work claiming that Varus writes lots of bad poetry. He also wrote about speaking in vain to the silent ashes of his brother, whose death made this poet worn out with constant grief. Some of his poems were addressed to the biographer Cornelius Nepos, and one was addressed to his lover’s pet sparrow. One poem by this writer talks about alternating between a thousand kisses and a hundred kisses until he and his lover have lost count. He often wrote lines with eleven syllables, and he died around 54 BCE. Name this Roman writer of 116 known poems who loved a woman he called Lesbia.

ANSWER: Gaius Valerius Catullus

10. The title animals take up a small part of the canvas in this artist’s *The Leaping Horse* and *The White Horse*, and he looks in through the missing wall of an old octagonal building and at its cloudy landscape in *Hadleigh Castle*. He portrayed Bishop John Fisher and his wife walking in the lower left corner of *Salisbury Cathedral from the Bishop’s Garden*. Many of his early works show the areas near where he grew up in East Anglia, including Bergholt, Higham, and Dedham Vale. His most famous work is officially titled *Landscape: Noon* and shows a vehicle being pulled through water. Name this early 19th century painter of *The Hay Wain*.

ANSWER: John Constable

11. The Furies helped this goddess give birth to Horkos, whose role was to plague people who took false oaths. This goddess was also the mother of the personification of forgetfulness, Lethe (LEE-thee). This goddess combined with Aporia to enlarge an apple that blocked Heracles. Though the *Iliad* described this goddess as the sister of Ares, other sources claim her parents are Erebus and Nyx. When this goddess was not admitted to the banquet celebrating the wedding of Peleus and Thetis, she sparked the Trojan War by claiming that she would give a golden apple to the fairest guest at the banquet. Name this goddess of strife and discord.

ANSWER: Eris [accept Discordia before the last word]

12. One symphony by this composer was started when he saw a chapel missing its roof in Holyrood Castle, and another honored the three hundredth anniversary of the Augsburg Confession. At the age of sixteen, this composer wrote a string octet that is still performed, and another work by him was originally nicknamed "The Lonely Island" and is sometimes nicknamed "Fingal's Cave". He also wrote an overture and later incidental music including a Wedding March for *A Midsummer Night's Dream*. Name this composer of the *Reformation Symphony*, *Hebrides* (HEH-brih-deez) *Overture* and *Scottish Symphony* who also wrote an upbeat *Italian Symphony*.

ANSWER: Felix Mendelssohn

13. Richardson numbers show a negative bimodal distribution in this region where peroxyacetyl [pur-AHKS-ee-uh-see-tul] nitrate is an important pollution storage molecule. Anvil heads form at the upper boundary of this region, and the three-cell model, which consists of Hadley, Ferrel, and Polar cells, explains circulation within it. This region has grown in recent decades, a trend blamed on ozone depletion and greenhouse gases. Like the mesosphere, this region experiences decreased temperature with altitude and its upper reaches contain the jet streams and cirrus clouds. Containing most of the mass and all the weather of the atmosphere, name this layer just above the surface of the Earth.

ANSWER: troposphere

14. In one work by this writer, *The Spanish Armada* is a play within a play, supposedly written by Mr. Puff, who tries to impress Dangle, Sneer, and Sir Fretful Plagiary. In another work by this writer, wealthy uncle Oliver disguises himself as a poor relative named Stanley and a wealthy moneylender named Mr. Premium. Another work by this writer almost involves a duel between Lucius and Jack, who is in love with Lydia. One plot twist works out when we learn that Delia is the first name of Mrs. Malaprop. Name this playwright of *The Critic*, *The School for Scandal*, and *The Rivals*.

ANSWER: Richard Brinsley Sheridan

15. Late in his career, this person received advice from Frederick Gates and wrote *Random Reminiscences of Men and Events*. Early in his career, this person worked with James and Richard Clark, Samuel Andrews, and Henry Flagler, and one of his first big deals was with Jay Gould. This man started the South Improvement Company, which was a complete failure, but during that controversy he bought up several businesses in what is known as the Cleveland Massacre. This man would later fund the creation of the University of Chicago, and his work was the subject of several articles by Ida Tarbell. Name this multimillionaire who chaired the Standard Oil Company.

ANSWER: John Davison Rockefeller, Sr.

16. Abel's identity uses a Wronskian to demonstrate a relationship between two solutions to this type of problem, and a more general form of Abel's identity is Liouville's formula. Those solutions work when the coefficients in this problem are all functions with respect to the independent variable, which is the homogeneous type of this. Examples with a single independent variable can sometimes be solved with Laplace (luh-PLAHS) transforms, while examples with more than one independent variable are "partial" as contrasted with "ordinary". Slope fields graphically represent solutions to these problems, which can be approximated by the Euler (OY-lur) method. The separable types can be solved by integrating both sides of these equations. Name these equations that relate a function to its derivatives.

ANSWER: differential equation(s) [accept homogeneous differential equations before mentioned]

17. The communists in this country were known as the PAGS coalition until that group was purged by President Chadli Bendjedid. Earlier, this country redistributed land and found oil under the leadership of Houari Boumediène, who supported Western Saharan self-determination and antagonized Morocco. During the 1990s, this country experienced a brutal civil war after a disagreement between the Islamic Salvation Front and National Liberation Front. This country's first leader after independence was Ahmed Ben Bella. Name this North African nation, which in 1962 was given its independence from France.

ANSWER: People's Democratic Republic of Algeria [or Democratic and Popular Republic of Algeria]

18. In one novel, this author describes the Fingerbowl Test, which is carried out by psychiatrist Rudolph Aura at Waindell College. Another novel by this author alludes to the death of Hazel Shade, whose father John writes a poem that is edited and commented upon by Charles Kinbote. Another novel by this author is set in Ramsdale, where before being hit by a car Charlotte Haze tells her boarder that he must marry her or move out. That boarder, Humbert Humbert, is obsessed with Charlotte's daughter. Name this Russian-born novelist of *Pnin*, *Pale Fire*, and *Lolita*.

ANSWER: Vladimir Nabokov

19. This work opens with two children, Ngana and Jerome, singing in French and asking for someone to tell them why in the song "Dites Moi" (DEE-teh mwah). Though it addresses racial prejudice with the song "You've Got to be Carefully Taught", some productions of this musical omit the song "Happy Talk" because of concerns that its dialect is considered racist. At one point, the lead character Nellie Forbush sings "I'm Gonna Wash That Man Right Outta My Hair". Set during World War II, this also includes the songs "Some Enchanted Evening" and "Bali Hai". Name this Rodgers and Hammerstein musical based on a novel by James Michener.

ANSWER: South Pacific [do not accept "Tales of the South Pacific"]

20. In 2011, NASA's Chandra X-ray Observatory found matter with this property in the core of a neutron star, while the application of heat to a substance with this property generates waves known as second sound. Pyotr Kapitsa won the Nobel Prize for describing this property, and Lev Landau received the Nobel Prize for his theory of this substance lacking thermal resistance. In the Onnes (ON-es) effect, matter with this property forms a Rollin film, which allows it to leave a container by creeping up the walls. Found below the lambda point temperature of a substance and usually observed in helium-four, name this property in which extreme cold produces a liquid with no viscosity.

ANSWER: superfluidity [accept word forms]

TB1. A symphonic poem by this composer was inspired by a work about a princess murdering a traveler written by Mikhail Lermontov. This composer also wrote *Grande Fantasia on Russian Folk Songs* in addition to *Tamara*. His best known work, which directly influenced Borodin's *Prince Igor* and Rimsky-Korsakov's *Scheherazade*, is subtitled *Oriental Fantasy*. Name this composer of *Islamey* who influenced many Russian composers including Tchaikovsky and was considered the head of the Mighty Five.

ANSWER: Mily Alexeyevich Balakirev

TB2. Gardner syndrome is an autosomal dominant disorder of this organ, which is also the site of infection by parasitic whipworms. The formation of pouches in this organ can lead to diverticulosis, and it is the main site for synthesis of vitamins B-12 and K. The most distal region of this organ is called the sigmoid, and among its most common diseases are pre-cancerous polyps and Crohn's, both of which are diagnosed by colonoscopy. Prone to constipation due to inadequate fiber in the diet, this organ consists of the cecum (SEE-kum) and colon. Responsible for reabsorbing water from indigestible waste, name this organ of the digestive system which is attached to the end of the small intestine.

ANSWER: large intestine [prompt on colon or intestine]

TB3. Which animal...has electricity sensing organs called ampullae of Lorenzini; is about to devour a young sailor named Watson in a painting by John Singleton Copley; and has tiger and great white species as seen in the movie *Jaws*?

ANSWER: shark