

Scobol Solo 2018

Championship Tiebreakers



1. This book begins with 10 points of inquiry about the nature and extent of sacred doctrine, beginning with whether it is necessary. One section of this work argues that a certain action should only be pursued if it is declared by a proper authority, is for “good” purposes, and maintains peace as the end goal. This work also lists five proofs for the existence of God, including the argument from motion and the argument from contingency. This work, which investigates the principles of Just War, refers to Peter Lombard as “The Master” and Aristotle as “The Philosopher”. Name this work of Scholastic theology, a massive book meant to educate young Christians by Thomas Aquinas.

Answer: Summa Theologica [SOOM-ah teh-oh-LOH-jee-kah] [or Summa Theologiae]

2. This person’s third law states that a spin axis and the normals to an orbital plane and the ecliptic are co-planar. This scientist’s first law is the one-to-one spin-orbit resonance of the Moon, and his second law is the Moon’s constant inclination from the ecliptic plane. A “division” named for this person is based on his observation of a region between the A and B rings of Saturn. A NASA probe named for this person orbited Saturn and flew with a European craft that landed on Titan. Identify this namesake of a mission in which his name was often hyphenated with the name of Christiaan Huygens [kreest-yahn “HI-guns”].

Answer: Giovanni Cassini

3. This war was responsible for the death of the father of Sam Hughes, who lives with her Uncle Emmett in a novel by Bobbie Ann Mason. In a short story, a man who escaped this war by moving to the United States tries to teach his son how to get crickets to fight. That story is one of many dealing with the effects of this war in Robert Olen Butler’s collection *A Good Scent from a Strange Mountain*. Lieutenant Jimmy Cross throws away his pictures of Martha after losing one of his men during this war. Name this real war that plays a major role in the novel *In Country* and Tim O’Brien’s collection *The Things They Carried*.

Answer: Vietnam War

4. This quantity for different products of matrices is used in both the Frobenius inequality and Sylvester’s inequality. This term equals the least value of k where a matrix can be written as the product of two matrices so that the matrix on the left has k columns. For matrices, this term is equal to the number of columns minus the nullity, which equals the dimension of the space spanned by the matrix’s columns. In graph theory, this quantity equals the number of vertices of a graph minus the number of connected components. Name this quantity whose circuit type in graph theory is also known as the cyclomatic number and is equal to edges minus nodes plus connected components.

Answer: rank

11. In a painting by this artist, a soldier wearing only a cloth around his waist grasps the title figure by the wrist as he prepares to execute him with a thin, cross-shaped sword. This artist painted a horse standing over the title man as he lays on the ground in his second version of the *Conversion on the Way to Damascus*. A three-painting series by this artist shows a title figure's "Inspiration" and "Martyrdom." The second painting in that series by this artist shows Jesus standing on the right stretching his hand at a man sitting with a group of conspicuously-dressed gamblers. Name this Italian artist best known for his use of chiaroscuro [kee-ar-oh-SKOO-roh] and for painting *The Calling of Saint Matthew*.

Answer: Michelangelo (Merisi da) Caravaggio

12. "Fulcrum" and "Foxhound" are NATO reporting names for vehicles of this brand. The creation of model "25" of this brand led to major performance upgrades to the F-15 Eagle. In 2006 this aircraft brand was merged with Sukhoi [suuk-oy] and others to form the United Aircraft Corporation. United Nations troops identified a stretch of North Korean airspace as an "alley" of this brand. Many of this brand's fighters were used during Operation Barbarossa, along with Ilyushins [il-YOO-shinz]. Give this three-letter brand name used for many Russian military aircraft.

Answer: MiG [or Mikoyan-Gurevich]

13. Crown ethers have an extremely high affinity for this group of elements. Laser cooling of one member of this group created the first Bose-Einstein condensate. Yellow street lights and some medication for bipolar people rely on ions of elements in this group. These elements generally have the largest atomic radii and lowest electronegativities. Strong bases are formed when these soft metals react violently with water. Atoms of elements in this group have an unpaired electron in their outermost *s* orbital. Name this group on the left side of the periodic table that includes rubidium, sodium, and lithium.

Answer: alkali metals [accept Group 1; do not accept or prompt on "alkaline earth metals"]

21. Petzval field curvature is a form of this phenomenon that affects flat objects. An attempt to eliminate a different type of this phenomenon uses the Schmidt corrector plate. These phenomena are classified as monochromatic or chromatic, and the chromatic types are further classified as axial or lateral. These phenomena are similar to, and sometimes identical to, refractive errors such as presbyopia [prez-bee-OH-pee-uh] or astigmatism [uh-STIG-muh-tizm]. The chromatic form of this phenomenon occurs because a material's index of refraction varies slightly with wavelength. Name this phenomenon in which a lens focuses light imperfectly.

Answer: (optical) aberrations

22. An artist in this group created an installation titled *The Upper Room* that includes 13 paintings of monkeys, each of which rests on two lumps of elephant dung. An artist in this group created a tent with various names sewn on the inside, entitled *Everyone I Have Ever Slept With 1963–1995* along with a piece simply called *My Bed*. An artist in this group is known for grotesque scenes preserved inside formaldehyde tanks, like a piece with a tiger shark called *The Physical Impossibility of Death in the Mind of Someone Living*. Many of these artists graduated from Goldsmiths University in London. Name this group including Chris Ofili, Tracey Emin, and Damien Hirst.

Answer: Young British Artists or YBA or Brit artists or Britart

23. The Temple of Debod was moved from Egypt to this city in the 1960s and '70s. The Fountain of the Fallen Angel is in this city's Buen Retiro Park, which also includes the Forest of Remembrance, a memorial garden dedicated to people who died in a 2004 terrorist attack in this city. Residents of this city eat 12 grapes to welcome each new year at its Puerta del Sol [PWAIR-tah del sohl]. The Bridge of the Frenchmen crosses the Manzanares [mahn-zah-NAH-"race"] River in this city. Name this city whose Golden Triangle of Art includes the Thyssen-Bornemisza [TEE-sen bor-neh-MEE-sah], Reina Sofía [ray-EE-nah soh-FEE-ah], and Prado museums.

Answer: Madrid, Spain

This is the end of the packet.