



HSAPQ

High School Academic Pyramid Questions

2008-2009
NSC-Format Set #2

Round 11

Related Tossups &
Bonuses

1. Some types of this technique use devices named for Claisen or Vigreux, the former of which reduces the effects of “bumping.” The McCabe-Thiele method optimizes parameters such as the location of feed trays and the number of necessary stages. Azeotropes cannot be separated using this technique, whose “vacuum” form occurs at low pressure and whose “fractional” form involves multiple condensers. For 10 points, name this method of purifying mixtures of liquids by separating them by boiling point.

ANSWER: **distillation**

Bonus: One variety uses light with frequency between that of microwaves and visible light. For 10 points each:

[10] Name this technique, in which electromagnetic radiation is sent towards a sample of unknown substance to yield information as to the content or structure of the substance.

ANSWER: **spectroscopy**

[10] One popular form of spectroscopy uses light in this region of the electromagnetic spectrum, whose frequency is just shorter than visible light.

ANSWER: **infrared** spectroscopy [accept **IR** spectroscopy]

2. This man issued a namesake statement with Soviet delegate Adolf Joffe on the role of communism in his country. This leader of the March 29 Revolution aired his views in the *People's Journal*, the organ of the United League that he founded. He promoted the Plan for National Reconstruction and the goals of “nationalism, democracy, and people’s livelihood,” or Three Principles of the People. He founded the Kuomintang, which initially supported Yuan Shikai. For 10 points, name this Chinese nationalist leader, succeeded by Chiang Kai-Shek.

ANSWER: **Sun** Yat-sen [or Sun **Yixian**; or **Sun** I-hsien; or **Sun** Wen; or **Sun** Zhongshan; or **Deming**; or **Rixin**]

Bonus: This nation’s long war for independence was led by figures such as Ahmed Ben Bella. For 10 points each:

[10] Name this North African country, whose namesake “crisis” brought down France’s Fourth Republic.

ANSWER: **Algeria**

[10] Along with Tunis, Tripoli, and Morocco, pre-colonial Algeria made up this group of “states,” which fought a namesake naval war with the United States in the early nineteenth century.

ANSWER: **Barbary** states

3. *Moore v. Illinois* held that state-imposed penalties for harboring a fugitive slave did not contradict one clause in this part of the Constitution. That clause immediately follows a clause dealing with the return of fugitives from justice. The Defense of Marriage Act notably excludes same-sex marriage from being covered under one part of this article, the “full faith and credit” clause. For 10 points, name this article of the U.S. Constitution, which also includes the “privileges and immunities” clause and follows the article dealing with the judiciary branch.

ANSWER: **Article IV** [accept Article **IV** after “article”; accept clear equivalents like **fourth article**]

Bonus: This type of trial can only result from an accusation of “Treason, Bribery, or High Crimes and Misdemeanors.” For 10 points each:

[10] Name this type of trial, in which a civil official is removed from office if found guilty.

ANSWER: **impeachment** trial

[10] Now that there are one hundred voting members of the Senate, this many members of the Senate must find the official guilty in order to effect his removal from office.

ANSWER: **67**

4. The children of this deity were said to protect the canopic jars. She appears with her sister on coffins with outstretched wings, and her pairing with Ra caused her to be conflated with Hathor. She gained powers of magic after learning the true name of Ra using a snake, believed to be Wadjet. Her husband was trapped a box and cut into pieces before she was able to seek out his pieces and reassemble him. For 10 points, name this mother of Horus and wife of Osiris.

ANSWER: **Isis**

Bonus: This goddess owns the necklace Brisingamen, as well as a cloak that makes her invisible, and she rides around in a chariot pulled by gib-cats. For 10 points each:

[10] Name this Norse fertility goddess.

ANSWER: **Freya**

[10] In some traditions, Freya is conflated with this other fertility goddess, the mother of Balder and wife of Odin.

ANSWER: **Frigg**

5. This structure contains the columella cells that differentiate into the mucigel-producing peripheral cells. The Zone of Cell Division in this structure contains the apical meristem, and water and nutrients enter through its Casparian Strip. The primary one is known as the “radicle” and matures into the “tap.” For 10 points, name this structure that anchors a plant to the ground and absorbs water and nutrients.

ANSWER: **roots**

Bonus: For 10 points each, name these plant tissues.

[10] This structure of dividing cells gives rise to secondary xylem and secondary phloem.

ANSWER: vascular **cambium**

[10] Monocots lack this bundle of parenchymal cells, which is found in the central part of the stem.

ANSWER: **pith** [accept **medulla**]

6. This author coined the phrase "the shock of recognition" in his essay "Hawthorne and His Mosses." The protagonist of one of this author's novels pledges to worship a malign god through defiance in a chapter titled "The Candles." This author portrayed Amasa Delano's discovery of a slave rebellion led by Babu aboard the *San Dominick* in *Benito Cereno*, and wrote a novel about a monomaniacal Quaker who employs Starbuck, Queequeg, and Ishmael. For 10 points, name this American author of a novel about Captain Ahab's hunt for a white whale, *Moby-Dick*.

ANSWER: Herman **Melville**

Bonus: This novel includes a section narrated by the protagonist's domineering father Gabriel, "The Prayers of the Saints." For 10 points each:

[10] Name this novel about the fourteenth birthday of John Grimes.

ANSWER: ***Go Tell It on the Mountain***

[10] This author of *Giovanni's Room* and *The Fire Next Time* wrote *Go Tell It on the Mountain*.

ANSWER: James **Baldwin**

7. Cerberus appears below the title figure, on whose face are sculpted tears, in this artist's *Rape of Proserpine*. He depicted a fully clothed David in the act of throwing a stone, and a nymph is in the middle of turning into a laurel in his *Apollo and Daphne*. A work of his in the Piazza Navona includes depictions of the Danube and the Ganges, the Fountain of the Four Rivers. One of this man's most famous sculptures is housed in Santa Maria della Vittoria and depicts an angel pointing a spear at the writhing title saint. For 10 points, name this sculptor of *The Ecstasy of St. Theresa*.

ANSWER: Gian Lorenzo **Bernini** [accept early **Rape of Proserpine**]

Bonus: This man built the Villa Tugendhat in Brno, in the modern day Czech Republic. For 10 points each:

[10] Name this architect, who was fond of the saying "less is more," and designed the IBM plaza, a Lake Shore Drive residence, and the Seagram Building with Phillip Johnson.

ANSWER: Ludwig **Mies** van der Rohe

[10] The Seagram Building is an architectural wonder in this city that also contains the Flatiron Building and the Museum of Modern Art, as well as the Chrysler Building.

ANSWER: **New York** City

8. The Treaty of Ninfeo led to this city's establishment of a settlement at Pera in the Byzantine Empire. It defeated Pisa at the Battle of Meloria, and though it is not Venice, Simone Boccanegra was the first native of this city to be elected doge. This city ruled Kaffa in the Crimea, and in the 1768 Treaty of Versailles, ceded Corsica to the French. Andrea Doria was the most prominent doge of this Italian city-state. For 10 points, name this port on the Ligurian Sea, a major rival to Venice for Mediterranean supremacy and birthplace of Christopher Columbus.

ANSWER: **Genoa**

Bonus: Its goals included the firing of Tribonian and John the Cappadocian. For 10 points each:

[10] Name this 532 uprising of the Blue and Green chariot-racing factions, which ended with Belisarius massacring participants in the Hippodrome of Constantinople.

ANSWER: **Nika** revolt/riot/uprising etc

[10] This husband of Theodora and patron of a namesake law code was the emperor whose rule was challenged by the Nika revolt.

ANSWER: **Justinian I**



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Category Quiz
Bonus Choices

Arts
Current Events
Geography
History
Literature
Math Calculation
Religion
Social Science

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Category Quiz Tossups

9. His oratorio *Paradise and the Peri* borrows from Thomas Moore's *Lalla-Rookh*. This composer declared "Hats off, gentleman--a genius!" after hearing Chopin's compositions, and dedicated his solo piano work *Kreisleriana* to Chopin. Other piano pieces by this man include *Carnival* and *Scenes from Childhood*. This composer's third symphony has five rather than the usual four movements, and was nicknamed after a river near the composer's home, the "Rhenish." For 10 points, name this composer of the "Spring" Symphony.

ANSWER: Robert Schumann

10. These objects can be modeled using the second-degree differential equation $ay'' + by' + cy = 0$. In one common example of them, the small angle assumption, that $\sin \theta$ equals θ , must be made to analytically solve the equation, while the other common example obeys Hooke's Law and requires a frictionless surface. For 10 points, the pendulum and mass-on-a-spring systems are examples of what type of system displaying periodic motion and constant amplitude?

ANSWER: simple harmonic oscillators [accept simple harmonic motion; accept SHO; accept SHM; prompt on pendulum; prompt on mass-on-a-spring; prompt on harmonic oscillators]

11. This river's namesake aquifer is one of the most productive in the world. The Lost River joins that aquifer underground, and it joins with Jackson Lake in the Grand Tetons, before entering Idaho at the Palisades Reservoir. It takes in the Raft River before entering Lake Walcott. It begins in Yellowstone National Park and flows through Hells Canyon before joining the Columbia River near Ice Harbor in Washington. For 10 points, name this river of the Northwest United States, named for its winding path.

ANSWER: Snake River

12. One woman who wrote in this language described Inez's attempts to match a sugar magnate with the title character of a novel. Another woman who wrote in this tongue created the characters of Lady Reason, Lady Rectitude, and Lady Justice to respond to misogynistic literature in *The Book of the City of Women*. The novels of another female author in this language include *All Men Are Mortal* and *The Mandarins*. For 10 points, name this native tongue of the author of *Gigi*, Colette, as well as the author of *The Second Sex*, Simone de Beauvoir.

ANSWER: French

13. In one role, this actor plays a robber who robs a vault containing Michael X's picture of a member of the royal family having a threesome. In another role, this actor plays Jensen Ames, whose framing for his wife's murder forces him compete in the titular event of a Paul W.S. Anderson film. In another role, this man is injected with "Beijing Cocktail," and is forced to strip down Amy Smart on the streets of Chinatown to keep up his adrenaline. This star of *Death Race* and *Crank* also played Handsome Rob in *The Italian Job*. For 10 points, name this actor who stars in the *Transporter* movies.

ANSWER: Jason Michael Statham

14. William Still organized part of this institution, whose most active members included Erastus Hussey, John Fairfield, and Levi Coffin. Another of its members, Peg Leg Joe, taught participants in it to sing "Follow the Drinking Gourd." Many Quakers served as "stationmasters" for this institution, and its most active members, termed "conductors," included Harriet Tubman. For 10 points, name this institution stretching from the Southern states to Canada, which helped escaping slaves reach their freedom.

ANSWER: **Underground Railroad**



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Category Quiz
Bonuses

Arts: Some scholars suggest that this sculpture has some connection to an Amanita mushroom cult, and its distorted perspective suggests that it may have been a primitive form of self-portrait. For 15 points, name this figure of a squat nude woman found near an Austrian village.

ANSWER: Venus of Willendorf [or Woman of Willendorf]

Current Events: A man claiming to represent the "al-Mufti and Ansar al-Qaeda brigades" blew himself up in an apartment being raided in connection with attacks here. For 15 points, name this city where trains were bombed in 2004, three days before national elections.

ANSWER: Madrid

Geography: Oranjestad lies opposite this country's Paraguana peninsula, and Porlamar is the largest city on this country's Isla de Margarita. For 15 points, name this South American nation whose large river ports include Ciudad Guayana and Ciudad Bolivar.

ANSWER: Venezuela

History: He wrote the book *Markings*, but is better known for succeeding Trygve Lie. He was shot down in Zaire while holding peace talks with Katangan leader Moshe Tshombe. For 15 points, name this Swedish Secretary General of the United Nations.

ANSWER: Dag Hjalmar Agne Carl Hammarskjold

Literature: Gerda, the former wife of a nameless "gentleman," leaves her second husband Fischer in this man's play *Stormy Weather*. For 15 points, name this Swedish playwright of *Miss Julie*.

ANSWER: August Strindberg

Math Calculation: The first row of a 3 by 3 matrix is [0,0,5], the second row is [3,2,3] and the third row is [y,4,10]. For 15 points, find the value of y that makes this matrix non-invertible.

ANSWER: 6

Religion: Honorius III granted this man the Porziuncola Indulgence, which applied to all who confessed their sins and visited this man's chapel. For 15 points, name this author of the "Canticle of the Sun" and founder of the Friars Minor.

ANSWER: St. Francis of Assisi [accept Giovanni Francesco Bernadone; prompt on St. Francis]

Social Science: His work with troubled children led to him to write *The Clinical Treatment of the Problem Child*, and he later wrote *On Becoming a Person*. For 15 points, name this psychologist who posited the idea of *Client Centered Therapy* in its namesake book.

ANSWER: Carl Ransom Rogers



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Stretch Phase

15. This poem describes "gardens bright with sinuous rills" enclosed by "walls and towers" in an area of "twenty five miles of fertile ground." At one point in this poem, "a woman wailing for her demon lover" portends a gushing fountain bursting from the earth, and in its second section, "Mount Abora" is sung about by "a damsel with a dulcimer." That portion was written after its poet had been interrupted by a visitor from Porlock, and it describes "caves of ice" and "the river Alph." For 10 points, name this Samuel Taylor Coleridge poem in which the title character decrees a "stately pleasure dome" in Xanadu.

ANSWER: "Kubla Khan"

Bonus: For 10 points each, name these Russian composers.

[10] He set Edgar Allen Poe's *The Bells* to music, but he is better known for his beautiful second piano concerto and a *Rhapsody on a Theme by Paganini*.

ANSWER: Sergei Rachmaninoff

[10] This synesthete wrote such works as *Poem of Ecstasy* and *Poem of Fire*, as well as *Vers La Flamme*.

ANSWER: Alexander Scriabin

[10] He wrote the *Lieutenant Kije Suite* and a piece in which the clarinet represents a cat and oboe represents a duck, *Peter and the Wolf*.

ANSWER: Sergei Prokofiev

16. Secret societies in this religion include Bizango and Sampwel, and branches of this religion include Manding, Nago, Rada, and Daome. Danbala and Ogou are celebrated on the saints' days of Patrick and James, respectively. The residents of Ginen in this religion include anvizib, or invisibles, and zanj, or angels. It is dedicated to serving various lwa, or saints, who include Legba and Baron Samedi. This religion has its roots in the Kongo, Dahomey, and Yoruba cultures. For 10 points, name this religion of African origin prominent in Haiti.

ANSWER: Voodoo [or Vodun]

Bonus: This country joined with Lithuania in the Union of Lublin. For 10 points each:

[10] Name this European country once ruled by the Jagiello dynasty, which has been partitioned three times.

ANSWER: Republic of Poland

[10] This Pole led a namesake 1794 uprising against Russia, and also fought in the American Revolution. A mountain in Australia is named for him.

ANSWER: Andrzej Tadeusz Bonawentura Kosciuszko

[10] This Polish state was established by Napoleon after the Treaty of Tilsit and ruled over by Frederick Augustus I of Saxony.

ANSWER: Duchy of Warsaw [prompt on Warsaw; accept Grand Duchy of Warsaw, as it is sometimes referred to as that]

17. This conflict was divided into two phases by the Peace of Nicias, and the Megarian decrees were issued during the preceding Thirty Years' Peace. It ended at the naval battle of Aegospotami, where Lysander destroyed the opposing side's navy, and both Brasidas and Cleon died at the battle of Amphipolis in this conflict. It saw Alcibiades campaign for an expedition to Syracuse, and its history was recorded by Thucydides. For 10 points, name this conflict that pitted the namesake military league of city-states, led by Sparta, against the Athenian empire.

ANSWER: **Peloponnesian** War

Bonus: This type of process conserves mass number, but not atomic number. For 10 points each:

[10] Name this general type of radioactive disintegration that can involve the conversion of a neutron into a proton along with the emission of an electron.

ANSWER: **beta decay**

[10] Beta decay is mediated by this force, which is itself mediated by the W and Z bosons.

ANSWER: **weak** force

[10] Beta decay can also occur through this process in which the namesake particle from the K shell combines with a proton in the nucleus to form a neutron.

ANSWER: **electron capture**

18. These structures can act as opsonins by binding to other molecules, making them easier to phagocytose. The A form is found in colostrums and breast milk, and transfusion reactions are mediated by the M form. Monoclonal ones may be used to treat cancers. These structures consist of two heavy chains and two light chains. For 10 points, name these structures that are produced by B cells, sometimes called immunoglobulins, and bind to antigens.

ANSWER: **antibodies** [or **antibody**; accept **gamma globulins**; accept early **immunoglobulins**]

Bonus: The poem "Counter Attack" was written by his friend Siegfried Sassoon. For 10 points each:

[10] Name this man who wrote about Tim's suicide in the poem "S.I.W." and a man who sees his killer in Hell, "Strange Meeting." He also wrote "Parable of the Old Man and Young."

ANSWER: Wilfred Edward Salter **Owen**

[10] In this Owen poem, which takes its title from a line of Horace's about "the old lie," a group of soldiers travel "drunk with fatigue" and are forced to put on their gas masks after a sudden attack.

ANSWER: "**Dulce et Decorum Est**"

[10] Owen also wrote this sonnet, which Sassoon edited to include the line "the tenderness of patient minds," offered by girls to "those who die as cattle," instead of "passing bells."

ANSWER: "**Anthem for Doomed Youth**"

19. This man collaborated with Richard Rorty and others on *Interpretation and Overinterpretation*, and wrote a history of the belief in a primordial tongue, *The Search for the Perfect Language*. A man who can only remember books he has read is the focus of his *The Mysterious Flame of Queen Loanna*. The search for a lost volume of Aristotle and the attempts by Jorge of Burgos to suppress blasphemy are exposed by William of Baskerville in one of his novels. For 10 points, name this semiotician and author of *The Name of the Rose* and *Foucault's Pendulum*.

ANSWER: Umberto **Eco**

Bonus: Whether they wanted to or not, the following women from British history caused some controversy. For 10 points each:

[10] This American divorcee and author of the memoir *The Heart Has Its Reasons* married King Edward VIII, but he had to abdicate in order to make that happen.

ANSWER: Wallis **Warfield Simpson** [accept either name]

[10] This woman served as queen of England for nine days in 1553. However, she was imprisoned after being deserted by the Duke of Northumberland, and her father's joining the rebellion of Thomas Wyatt led to her execution.

ANSWER: Lady **Jane Grey** [accept either name]

[10] This queen of the Iceni led a revolt against the Romans, sacking London, St. Albans, and Colchester. She was ultimately defeated by Caius Suetonius Paulinus, however, and took poison.

ANSWER: **Boadicea**

20. In one of this man's paintings, a fire rages on the left while parts of the white title buildings remain standing to the right. Men cower as a storm overwhelms an orange sun in his *Hannibal Crossing the Alps*, and he depicted another fire in his *The Eruption of Vesuvius*. This painter of *The Fighting Temeraire* is known for a work in which sea creatures devour people thrown from the title vessel, as well as one that depicts a black train hurtling toward the viewer that is subtitled *The Great Western Railway*. For 10 points, name this artist of *The Slave Ship* and *Rain, Steam, and Speed*.

ANSWER: Joseph Mallord William **Turner**

Bonus: This man's pseudonyms included Victor Eremita and Hilarius Bookbinder. For 10 points each:

[10] Give the real name of this Danish philosopher who continued one of his works in *Stages in Life's Way*. Other works of his include *The Sickness Unto Death* and *Either/Or*.

ANSWER: Søren Aabye **Kierkegaard**

[10] Kierkegaard also wrote a book about practices in this religion, the essence of which was described by Feuerbach. Bertrand Russell described why he was not a follower of it.

ANSWER: **Christianity** [accept word forms like **Christians**]

[10] In this Kierkegaard work, the Knight of Infinite Resignation and the Knight of Faith are used as metaphors. It deals with the moral questions posed by Abraham's sacrifice of Isaac.

ANSWER: **Fear and Trembling** [or **Frygt og Bæven**]

21. This principle can be obtained from the current density associated with an electric field using the Poynting theorem. A system with time translation symmetry also exhibits it according to Noether's theorem. Special relativity expanded this principle to account for mass increases that occur at relativistic speeds. When it encompasses thermal, potential, and kinetic contributions, it is expressed in the first law of thermodynamics. For 10 points, name this principle of physics, which states that the total energy of a closed system will remain constant.

ANSWER: **conservation of energy** [prompt on **first law of thermodynamics**]

Bonus: For 10 points each, name the following asteroids or groups of asteroids.

[10] This was the first member of the asteroid belt to be discovered. Along with Pluto and Charon, it is one of the three original dwarf planets.

ANSWER: **Ceres**

[10] The Apollos, Amors, and Atens are collectively known by this name because their orbits come close to those of a certain planet.

ANSWER: **Near-Earth** Asteroids [accept **NEAs**]

[10] These half-comet half-asteroid masses are found between the orbits of Jupiter and Neptune. The first one to be discovered was Chiron in 1977.

ANSWER: **Centaur**s

22. Its “great” version excludes Norfolk, Suffolk, and Essex, and its components include the “Exon” version and the *Inquisition of the County of Cambridge*. The portions dealing with Winchester and London are missing. It includes accounts of ponds, mills, and number of workers, and is organized by the concept of “barony,” which was introduced twenty years before its compilation. Researched by around seven groups of commissioners in 1086, for 10 points, name this exhaustive record of all lands held by the chief tenants of William the Conqueror.

ANSWER: the **Domesday Book**

Bonus: He buys tobacco from a Latvian and steals felt to make warmer garments for his companions. For 10 points each:

[10] Name this gulag inhabitant who passes one day in January 1951.

ANSWER: **Ivan** Denisovich Shukov

[10] This author of *The Gulag Archipelago* wrote *One Day in the Life of Ivan Denisovich*.

ANSWER: Aleksandr Isayevich **Solzhenitsyn**

[10] The Party member Pavel Rusanov and the surveyor Oleg Kostoglotov are among those who gather for treatment in this Solzhenitsyn novel.

ANSWER: **Cancer Ward** [or **Rakovy Korpus**]



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Tiebreakers + Extras

1. Mary Cassatt's *Portrait of a Little Girl* depicts one of these sleeping on a chair next to the reclining title figure. One of these investigates a puddle of blood below the titular satyr in Titian's *The Flaying of Marsyas*. A black one stands at the center of Georges Seurat's *Sunday Afternoon on the Island of La Grande Jatte*, and one sleeps on the bed in Titian's *Venus of Urbino*. For 10 points, name this animal, examples of which play poker in works by Cassius Coolidge.

ANSWER: dogs

2. Two characters in this novel agree to marry by writing chalk letters on a dinner table, and this novel's protagonist lends her name to Tomas and Tereza's dog in *The Unbearable Lightness of Being*. One character is influenced by the French psychic Landau. It begins by describing the infidelities of Stepan Oblonsky, who is married to Dolly. Kitty ends up happily married to Konstantin Levin in this novel, which focuses on Count Vronsky's affair with the title character. For 10 points, name this novel in which the title character throws herself in front of a train, written by Leo Tolstoy.

ANSWER: Anna Karenina

3. Rasmus Pagh is known for his work with these data structures, and developed the cuckoo type. These structures utilize a process similar to the generation of checksums, and they often use lazy deletion, without actually removing deleted elements. Separate chaining and linear and quadratic probing are methods for dealing with collisions in these structures, which can offset the fact that all operations take ideally constant-time. For 10 points, name these structures which use a namesake function to generate an integer from a key, which is then used to store a value.

ANSWER: hash table [or hash map; or other equivalents]

Extra 20-point Bonus:

Organized labor often dealt with forms of transportation. For 10 points each:

[10] A 1941 threat by this founder of the Brotherhood of Sleeping Car Porters to lead a march on Washington led to the lessening of discrimination in the defense industry during World War II.

ANSWER: Asa Philip Randolph

[10] A 1937 sitdown strike in a Flint, Michigan factory helped bring this union to prominence. Its leaders included Walter Reuther and Douglas Andrew Fraser.

ANSWER: United Auto Workers

Extra 30-point Bonus:

For 10 points each, name these taxa of plants.

[10] This division used to contain hornworts and liverworts, but now only contains mosses.

ANSWER: **Bryophyta** [accept **bryophytes**]

[10] These true vascular plants see the development of sporophytes known as fiddleheads from fertilized eggs before uncoiling at one end of the life cycle.

ANSWER: **ferns** [accept **Pterophyta** or **pterophytes**]

[10] This group of plants is divided into Cycadophyta, Ginkgophyta, and Coniferophyta; it consists of seed-bearing plants whose seeds are not encased in an ovary.

ANSWER: **Gymnospermae** [accept **gymnosperms**]