

### 1. Earth Science/Geography/Astronomy

Which of the planets in our solar system has the shortest day? It has a rocky core surrounded by layers of metallic hydrogen, liquid hydrogen, and gaseous hydrogen. Its faint rings were discovered in 1979 by the Voyager 1 and Voyager 2 missions. Name this planet whose moons include Carpo, Leda, Metis, Io, Callisto, Europa, and Ganymede.

ANSWER: Jupiter

### 2. Language Arts

What twelve-letter word refers to the process of gradually eliminating a loan by regularly paying part of the principal? These payments are usually made at the same time as interest payments, and this process is commonly used with mortgages and car loans. This word begins with an A, and the seventh letter is a Z.

ANSWER: Amortization

### 3. Geometry/Trigonometry (10 Seconds)

Which mathematician was at one point made governor of Lower Egypt by Napoleon? His most important research was in heat propagation. Even though he made some mistakes, his research led to important results that were eventually named after him. The transform that changes any periodic function into a sum of sine functions now bears his name.

ANSWER: (Jean Baptiste Joseph) Fourier

### 4. United States History

What nickname was applied to a group consisting of William Lewis, Treasury auditor Amos Kendall, newspaper editor Duff Green, Presidential Secretary Andrew Donelson, Secretary of War John Eaton, and Secretary of State Martin Van Buren? This group generally sided with Van Buren over Vice President John Calhoun, and it was given a lot of power from 1829 to 1831. Name this group of advisers to Andrew Jackson.

ANSWER: (The) Kitchen Cabinet

### 5. World Literature

Who used *Naked Masks* as the collective title for his plays? His most famous work involves personalities from an uncompleted work of fiction who invade a rehearsal of another play and refuse to follow directions. Name this author of *The Man With The Flower In His Mouth*, *The Life I Gave You*, and *Six Characters In Search Of An Author*.

ANSWER: (Luigi) Pirandello

### 6. Chemistry (10 Seconds)

Which adjective can refer to the highest temperature at which it is possible to liquefy a gas with any amount of pressure? It can also refer to the pressure required to liquefy a gas at that temperature or to the volume occupied by one mole of a gas at those temperatures and pressures. More commonly, it is used to describe the necessary mass of radioactive material required for a chain reaction.

ANSWER: Critical (accept longer answers)

### 7. Pop Culture

The oldest of the three brothers, Cooper, has a job trading oil and gas stocks. He would have been a wide receiver, but he was diagnosed with spinal stenosis. The other two brothers have followed in their father's footsteps even though the middle brother played for the University of Tennessee. The father, like the youngest son, went to Ole Miss. Name this family of quarterbacks containing Archie, Eli, and Peyton.

ANSWER: (Archie, Cooper, Peyton, and/or Eli) Manning(s)

8. Calculus/Combinatorics (30 Seconds)

Ignore units. The position of a certain particle is given by the equation  $d=t^3$ . What will be the acceleration of the particle when it has traveled a distance of 27 units?

ANSWER: 18

9. Nonfiction

Which book was traditionally associated with turtle shells and yarrow stalks? Using those objects, people were able to choose which of sixty-four hexagrams applied to their situation. Name this book of divination written around 1500 BC in China.

ANSWER: I Ching

10. Technology

This two-word phrase was invented by IBM, and some of the leaders in the technology include Kofax and In-Q-Tel. It often uses clustering algorithms, and it is defined as an information extraction activity whose goal is to discover hidden patterns and relationships in lists of information. It is abbreviated DM.

ANSWER: Data Mining (prompt DM)

11. Music

(Note to moderator: No singing; nothing personal.) Name the song with the lyrics: "Dream maker, you heart breaker, wherever you're going I'm going your way. Two drifters off to see the world, there's such a lot of world to see." It was in the movie *Breakfast At Tiffany's*, winning an Oscar for Frank Sinatra. Name this song about something wider than a mile.

ANSWER: Moon River

12. Physics (30 Seconds)

Give your answer using a single unit. How much work is done by a net force of 10 Newtons which acts on a 10 kilogram object accelerating from rest for 10 seconds?

ANSWER: 500 Joules

13. United States Literature

Whose first published works were poems, including the collections *Once* and *Revolutionary Petunias*? She is better known as a novelist. Her novels include *The Temple of My Familiar*, which she described as a romance of the last 500,000 years, *Now Is The Time To Open Your Heart*, which was published last year, and *The Color Purple*.

ANSWER: (Alice) Walker

#### 14. Art/Architecture

According to Greek mythology, the nymph Chloris became the goddess Flora. Which famous painting from 1482, however, shows them next to each other? This painting also portrays Venus in a way that makes her look like The Virgin Mary. The left side of the painting shows Mercury blocking clouds. Mercury's festival day was May 15<sup>th</sup>, which is an appropriate time of year considering the name of this Botticelli work.

ANSWER: Primavera (prompt on Spring or The Garden of the Hesperides)

#### 15. World History

Which nation became an independent empire in 1822 and a republic in 1889? It has been a republic since then except for periods in the 1930s under Dictator Vargas and periods in the 1960s, '70s, and '80s after a military coup. Discovered by Pedro Cabral, this country was ruled for a time during the nineteenth century by Dom Pedro and his son. It is now headed by Luiz Inacio Lula da Silva.

ANSWER: Brazil

#### 16. Biology

It has chemical formula  $C_4H_4N_2O_2$ , which is lacking a methyl group that is present in thymine. Like thymine, it is paired with adenine. Name this RNA nucleobase that is not normally found in DNA.

ANSWER: Uracil

#### 17. Religion/Mythology

According to Mormon tradition, he is the same as Noah. He is mentioned in the Book of Daniel and Book of Luke. According to Islamic tradition, he is the chief angel. Name this character often associated with Raphael and Michael.

ANSWER: Gabriel

#### 18. Algebra (30 Seconds)

Find the log base three of the quantity 81 raised to the fifth power.



ANSWER: 20

#### 19. Current Events

About forty percent of this country's population is Native American. Many of them do not trust the country's soldiers, so they resisted the recovery efforts that followed massive mudslides caused by Hurricane Stan. The mudslides were half a mile wide and fifteen feet deep, and officials considered declaring that two towns are mass graves. Name this country that borders Belize and Mexico.

ANSWER: Guatemala

#### 20. British Literature

Who wrote the words: "Come live with me, and be my love; And we will all the pleasures prove That valleys, groves, hills and fields, Woods or steepy mountain yields"? It is the beginning of The Passionate

Shepherd to His Love. In addition to poetry, he was a playwright credited with writing Tamburlaine The Great, The Tragical History of Doctor Faustus, and The Jew of Malta.

ANSWER: (Christopher Kit) Marlowe (accept Marley)

TIEBREAKER: To break a tie, use the following questions in order. The first correct answer wins the match.

In 1858, at the age of fifteen, who enrolled in the Leipzig Conservatory? Some of his best pieces include the Holberg Suite, Morning Mood, and In The Hall of the Mountain King. Name this Norwegian composer.

ANSWER: (Edvard) Grieg

Which controversial substance is often found in vermiculite? This magnesium silicate was considered useful because of its resistance to heat and fire. Its use, however, has been one of the biggest issues in our legal system over the past several years. Name this substance linked to many types of cancer which has been removed from many buildings.

ANSWER: Asbestos

Which chemical element has atomic mass 55.85, atomic number 26, and atomic symbol Fe?

ANSWER: Iron (Prompt Fe)