

Microsoft Redmond Quiz Club
Prelims

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1. She is the daughter of *Daksha* and *Prasuti*. She acquired the ability to deliver food to deities because of Her austerities. She is one of the consorts of *Lord Agni*. When performing a sacrificial fire (*homa*), at the end of a mantra an oblation is offered after chanting her name because it is believed that *Agni* would not deliver that part of the oblation until it was offered in her name. Enough with clues already — just name her.

2. Fill in the blank in this famous verse taken from *James Joyce's* equally famous book — *Finnegans Wake*:

*Three _____ for Muster Mark!
Sure he has not got much of a bark
And sure any he has it's all beside the mark.
But O, Wreneagle Almighty, wouldn't un be a sky of a lark
To see that old buzzard whooping about for uns shirt in the dark.*

3. This term is a colloquialism used to describe a type of song performed (but not necessarily written) by a hard rock or heavy metal band that is atypical of the songs defined by the hard rock and heavy metal genres. Typically, it is characterized by having a slower tempo, longer voiced notes, acoustic guitars generally in place of electric guitars, and deemphasized percussion and bass; but some sections of the song may include strong percussion and bass that are more typical of the hard rock and heavy metal genres for increased emotional effect, and often the electric guitar comes back in the song's climax in order to give more emotional emphasis and charge to the song. Common themes include (but are not limited to) emotional heartache, need, love and loss. What term?
4. It is an alkaloid found in the nightshade family of plants (Solanaceae) with biosynthesis taking place in the roots, and accumulating in the leaves. It functions as an antiherbivore chemical with particular specificity to insects; therefore it was widely used as an insecticide in the past. What is this compound — having chemical formula $C_{10}H_{14}N_2$ — named for the sixteenth-century diplomat who first introduced medicinal use of this substance into France?
5. Due to its Urban Growth Boundary legislation, this city is often cited as an example of a well planned city. After a best-of-three series coin toss, the city was named after the founder's home town in New England. The seat of Multnomah county, it is divided into five *quadrants* that contain such attractions such as the *Rose Garden* and *Cascade College*. Name this city, straddling the Willamette river, the titular place of a Loretta Lynn and a Jack White song.

6. In his famous thought experiment, this person tried to measure simultaneously the position and momentum of an electron by shooting a photon at it. He postulated that if the photon has a short wavelength, and therefore a large momentum, the position can be measured accurately. But the photon will be scattered in a random direction, transferring a large and uncertain amount of momentum to the electron. If the photon has a long wavelength and low momentum, the collision will not disturb the electron's momentum very much, but the scattering will reveal its position only vaguely.

Mathematically, he expressed this relation as:

$$\Delta x \Delta p \geq \frac{h}{4\pi}$$

Identify this person, famous for his eponymous principle.

7. He was born in Milwaukee, Wisconsin and was an excellent student through his school years. He attended college at *Case Institute of Technology* where he had a difficult time choosing physics over music as his major. For his doctoral thesis in 1962, he computed Euler's constant to great accuracy. He is the author of the font-designing program, *Metafont*.

He is known for his professional humour and pays a finder's fee of \$2.56 for any typographical errors or mistakes discovered in his books, because *256 pennies is one hexadecimal dollar*. He is also famous for once warning users of his software, '*Beware of bugs in the above code; I have only proved it correct, not tried it.*'

Can you name this computer scientist and mathematician, who is also author of the typesetting system using which this Prelims Questionnaire has been set?

8. Let's put your math skills to the test for this one. You travel at a speed of 60 miles per hour for the first mile. How fast must you cover the second mile in to average 120 miles per hour for your entire trip?
9. A rebuilt Church of Saint Mary is found on Prenzlauer street in this city, which also contains the Fernsehturm television tower on Alexanderplatz square. Home of Humboldt University and Charlottenburg Palace, it lies south of Tegeler Lake on Spree River. Its most famous street lines the Mitte with linden trees, while its most famous landmark featured Checkpoint Charlie. There is an urban legend according to which JFK once mistakenly called himself a jelly doughnut in one of his speeches made to the people of this city. Which city?

10. The exact etymology of the name of this text is uncertain, but the name is considered a derivation from Middle Persian *abestāg* meaning *praise*. This text was deciphered mainly through linguistic comparisons with the *Rigveda*. Over three quarters of it was lost when Alexander the Great conquered Persia, and what remains is a Pahlavi translation assembled during the Sassanian period. Name this text which contain hymns, called *Gathas*, which are said to be the words of Zoroaster.

11. His *Treatise on the Art of Fencing* was the only of his books to be never placed on the *Index of Prohibited Books*. As a schoolboy, he had convinced his Jesuit schoolmasters never to wake him before eleven; indeed he later claimed all his great works in philosophy, science and math were composed in bed. Legend has it that once when he lay awake in bed, he noticed a fly walking around on his ceiling. In an attempt to figure out whether the fly is ever at the same location twice, he came up with a way to describe the location of the fly. The rest is history. Who was this man and what did he come up with?

12. Telamon, Melampus, Mopsus, Peleus, Admetus, the lynx-eyed Lynceus, his quarrelsome brother Idas, Calais, Zetes, Acastus, his father Pelias, Orpheus, Atalanta, Castor, Pollux, Heracles, Jason and thirty-three others make up what band of heroes in Greek mythology?

13. A common example of this is the discounting of airplane seats, because once the fixed costs are paid you only have to pay for drinks and food for the rest of the seats. This is because when calculating this economic variable, fixed costs are not allocated to the unit, but rather to the group as a whole. Just name this common economic term for the cost of producing one extra unit?

14. The soft and medium varieties of this item are readily available, but the firm variety is surprisingly hard to find. Historically people used sticks in place of this item to create a similar product. In the first modern one, Siberian hog bristles were used fastened to a bamboo stick. With the advent of nylon, which stayed firmer and did not spoil, nylon bristles replaced the hog hair. Simple one, what's the item that's being referred to here?

15. In its generalized form, it states that:

If f is a function from a finite set X to a finite set Y , for any positive integer k , if the order of X is greater than k times the order of Y , then there exists a p in Y such that p is the image of at least $k + 1$ distinct elements of X .

Name this principle, first stated by *Dirichlet*, which in its more famous form states that if n objects are to be placed in $n - 1$ boxes, then 2 objects must be placed in 1 box.

16. This special operations unit was planned along with the establishment of the NSG counter-terrorism unit in 1986. It currently has a strength of 2,000 personnel who have undertaken operations such as *Operation Pawan* in Sri Lanka and *Operation Cactus* in the Maldives. They are locally known as the *Dadiwalli Fauj* since even the non-Sikh recruits are permitted to maintain beards. Name this special operations unit.
17. A French government frigate flounders off the west African coast; the captain and officers seize lifeboats for themselves and cast adrift 149 passengers and crew. French Romantic Delacroix observed the work in progress and even posed for the dying youth in the foreground. Name this 1819 painting by Theodore Gericault.
18. Connect the following:
- A fictional, independent espionage agency commonly employed by the US Government — of which Ethan Hunt is a member.
 - A United Nations Agency responsible for currency stabilizing loans to many countries.
19. Visual Question: What is this? Put Fundaes.
20. Visual Question: This graph was part of a very famous open letter to the Kansas School Board. It stated:
- You may be interested to know that global warming, earthquakes, hurricanes, and other natural disasters are a direct effect of the shrinking numbers of Pirates since the 1800s. For your interest, I have included a graph of the approximate number of pirates versus the average global temperature over the last 200 years. As you can see, there is a statistically significant inverse relationship between pirates and global temperature.

What was the significance of this letter, and what was a direct result?