

# Cerebrum Redux

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05 April 2020

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## Format

- 1 The quiz has a total of 21 questions, of which 20 can be answered for points.
- 2 The format will be explained in the warm-up question to follow.
- 3 The rules will be explained shortly.
- 4 If you need a break, don't hesitate to ask!

## Warm-Up Question

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`**Quebec**' is just yellow, which used to signify a certain practice until `**Lima**' came up. The usage of `**Quebec**' is now reversed in modern times. `**Lima**' is a 2 × 2 checkerboard of alternating yellow and black squares.

What are these? And, what was/is the usage?

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What are these? And, what was/is the usage?

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**International Maritime Signal Flags; Quebec is for contagion and Lima is for quarantine.**

*All the best!*

# Rules

- 1 The quiz will follow a normal pounce format.
- 2 +1 for each correct answer, - 1 for wrong answers on pounce, except on one question which will have a different marking scheme to be told later.
- 3 No half-points will be awarded on pounce.
- 4 No hints will be given out after the first pounce is received, or if the team who have the direct question asks not to.
- 5 Since there is no control, so most of the questions are deliberately made vague to inhibit cheating.
- 6 Science (more so, mathematics) tend to be exact, so should be your answers if you want points.

# Question 1



## Question 1

**Enrico Fermi** received the 1938 Nobel Prize in Physics for his "demonstrations of the existence of new radioactive elements produced by neutron irradiation, and for his related discovery of nuclear reactions brought about by slow neutrons".

Why was this a **wrong citation**?

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**The transuranic elements that he had partly been awarded the Nobel Prize for discovering had not been transuranic elements at all, but fission products. This was shown in the famous work of Meitner-Frisch/Hahn-Strassmann in December 1938.**

## Question 2

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One of the most imitated and mostly parodied picture in science is **X**, which represented a **discredited view of evolution**, the view that organisms used some internal mechanisms to achieve a **pre-destined goal through evolution**.

However, this has not stopped the picture from becoming one of the most iconic 'scientific' images of all times. What?

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**March of Progress.**

## Question 3

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arXiv.org > cond-mat > arXiv:2003.14321

Condensed Matter > Mesoscale and Nanoscale Physics

## Novel approach to Room Temperature Superconductivity problem

Ivan Timokhin, Artem Mishchenko

*Submitted on 31 Mar 2020*

A long-standing problem of observing Room Temperature Superconductivity is finally solved by a novel approach. Instead of increasing the critical temperature  $T_c$  of a superconductor, the temperature of the room was decreased to an appropriate  $T_c$  value. We consider this approach more promising for obtaining a large number of materials possessing Room Temperature Superconductivity in the near future.

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Cite as: arXiv:2003.14321 [cond-mat.mes-hall]  
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**IISc researchers' claim of room temperature superconductivity.**



## Question 4

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**X** is now mostly remembered as a mathematician in quizzing circles, thanks to a **famous bridge**. But at the age of 21, still an undergraduate he was made the Royal Astronomer of Ireland.

**X** also has a **mechanics** named after him, which is a reformulation of classical mechanics in a more abstract setting.

It is curious to note that **X** and **Y** both have a 'walk' named after them in **graph theory**. **Y**'s walk is related to the more famous bridge in quizzing circles.

Give **X** and **Y**, as well as what is their connections with the bridges.

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**X=William Rowan Hamilton, Y=Leonhard Euler; X's Broom bridge where he got the idea of quaternions, Y's work with the Königsberg bridges.**

## Question 5

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There are two places in **Firenze** where one would find 'body parts' of **X**, one is the **Museo X** and the other is the **Basilica di Santa Croce**, which also contains several other famous people.

**X** is more famously associated with **another city Y** in the public's mind. Who is **X**, widely known for a series of **dialogues** between three people held over four days?

Also identify **Y** and the dialogues.

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**X=Galileo Galilei, Y= Pisa; Dialogo sopra i due massimi sistemi del mondo (Dialogue Concerning the Two Chief World Systems).**

## Question 6

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**Amazon** has a system where sellers can **automatically adjust prices** based on the price of the same product from other sellers.

There were two sellers **A** and **B** selling **C**. Seller **A** tried to sell **C** at 99:83% the price of **B**'s, which made **B** increase it's price by 27%, which in turn made **A** increase it's price to maintain the 99:83%. This process continued until at one point, **C** had the largest asking price for anything of it's type.

What was **C**? (Very specific answer.)



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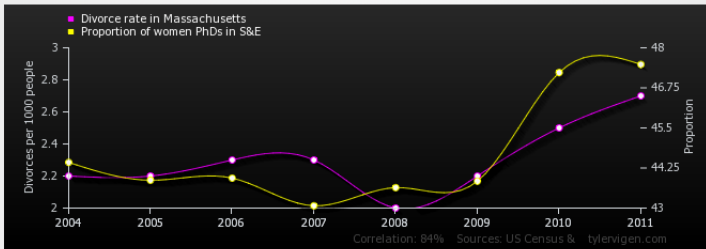
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**The Making of a Fly; the highest priced item on Amazon at one point (\$23:6 million).**

## Question 7

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### Divorce rate in Massachusetts correlates with Proportion of women PhDs in S&E



Upload this image to [imgur](#)

	2004	2005	2006	2007	2008	2009	2010	2011
<i>Divorce rate in Massachusetts Divorces per 1000 people (US Census)</i>	2.2	2.2	2.3	2.3	2	2.2	2.5	2.7
<i>Proportion of women PhDs in S&amp;E Proportion (%)</i>	44.4248093	43.8681438	43.9345094	43.0722399	43.6381167	43.8398719	47.2268197	47.4807712
<b>Correlation: 0.843408</b>								

What is the intended message?

## Question 7

This is an example of a spurious correlation, where statistics seems to suggest correlation between two 'obviously' non-related subjects.

## Question 8

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One of the most iconic 'rivalries' in some sense existed between **W** and **X**, **not to be mistaken** with that between **W** and **Y**. It was said that **W** slashed a painting of **X** when he became the President of the **Z**. But this was debunked in 2012 by the **Z**.

**W** has come into the public consciousness recently (although some would say he never left) because of something he did while he was **in a position similar to us now**.

Identify **W**, **X**, **Y** and **Z**. Also what did **W** do?

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**W = Sir Issac Newton, X = Robert Hooke, Y = Gottfried Wilhelm Leibniz, Z = Royal Society; X invented calculus when Cambridge University was closed due to the plague.**

## Question 9



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The first full-length book by George Orwell, 'Down and Out in Paris and London' was recommended by the **Royal Society of Chemistry** (RSC) as the ideal book to read while having **X**.

According to the RSC, a better alternative to making **X** was to use the **microwave oven instead of the traditional means**. It also told never to use polystyrene 'utensils' to have **X** and to have it ideally between 60 - 65 Celsius.

What is **X**? (Very specific answer.)

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What is **X**? (Very specific answer.)

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**The perfect cup of tea.**

## Question 10

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Identity her.

## Question 10



Identity her.

**Maria Goeppert-Mayer; second female Nobel laureate in physics.**

## Question 11

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The **X Y** Challenge is a challenge to encourage more research into the **computational aspects of number theory**, because **X** relies heavily on such research. There were cash prizes associated with these challenges, starting from \$100 to \$200;000 for the last.

The first challenge was solved almost immediately after launch. The challenge was officially ended in 2007 by **X**, but number theorists have continued to work on the unsolved challenges even now, the latest (23rd) was solved this year, while 31 others still remain open.

Identify **X Y**.

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Identify **X Y**.

**X Y = RSA Factoring.**



## Question 12

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Below are some answers of the very pertinent question Why did the chicken cross the road?, just identify who might have answered.

- 1 The chicken found a similar chicken on this side of the road to be repellent.
- 2 I don't know. But I'm glad it did, because as it waddled across, it was kind enough to sweep the area of the road with its wings. And it did so at an astonishingly consistent rate.
- 3 Forget about why. I'll show you how it can get there in the least amount of time.
- 4 It appears to be a white chicken. Sorry, I deal only with black bodies.
- 5 Strange, it seems to move faster the farther away it gets.
- 6 She didn't, she just got back to where she started.

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- 1 The chicken found a similar chicken on this side of the road to be repellent. **Coulomb**
- 2 I don't know. But I'm glad it did, because as it waddled across, it was kind enough to sweep the area of the road with its wings. And it did so at an astonishingly consistent rate.  
**Kepler**
- 3 Forget about why. I'll show you how it can get there in the least amount of time. **Fermat**
- 4 It appears to be a white chicken. Sorry, I deal only with black bodies. **Planck**
- 5 Strange, it seems to move faster the farther away it gets.  
**Hubble**
- 6 She didn't, she just got back to where she started. **Möbius**

## Question 13

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(More details to follow.)

## Question 13

These plants are very common in **the UK** and almost every house entrance has some of these, including the one where we are staying at the moment. Give me the common name as well as the scientific name **X Y**, where **X** is the **Latin for plant** and **Y** is a **mathematical twisting shape**.

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**English ivy or common ivy, X Y = Hedera helix.**

Question from Khimpi Dutta.

## Question 14



## Question 14

Whose tweet?

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Whose tweet?

**Francis Arnold.**

## Question 15

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These lamps are used for a specific purpose, the **flowchart** of which is something like: **lamps ! camera ! server ! consumer**. Where would one find these lamps and what is their purpose?

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**Cloud are offices in San Francisco, to generate random numbers for encryption.**

## Question 16

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**X** started out as a joke programming language where the syntax is read only via **three characters in the keyboard which produces a X**. It ignores all other characters. This makes it a **polyglot language**, which means code written in **X** can easily be run in other languages which reads non **X** characters that might be contained in the code.

What is **X**?

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What is **X**?

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**Whitespace, produced by space, tab and enter/return.**



## Question 17

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Unlike other types of this product, **X** has a **thick creamy head** which is due to the mixture of **Y** and **Z**. While **Z** is **always present in products of this type**, **Y** is not as common. This was not always the case and the practice started only in the 1950s.

The mechanism is controlled in the products sold in supermarkets via a **widget**, which allows the **Y** to dissolve slowly in the product as it is opened. **X** is also the name of a very **famous series of books**.

Identify **X**, **Y** and **Z**. (**X** should be very specific for points.)

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Identify **X**, **Y** and **Z**. (**X** should be very specific for points.)

**X = Guinness dry stout, Y = Nitrogen, Z = Carbon dioxide.**

## Question 18

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**A start** with a 1 means the information is in process, 2 means your request has been successful and will be executed in the manner intended, 3 means you have to provide missing information and will be sent somewhere else, 4 means you have made some mistake while 5 means the intended recipient has made some mistake.

What are these? (Very specific answer for points.)

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**HTTP status codes. Usually three digits.**

## Question 19

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**11 Indian women scientists after whom new STEM chairs were launched for women.**

## Question 20

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A documentary called '**Losing X**' is trying to remove **X** from use in a certain sector, where the **gender-gap is really high**. The original use of **X** was certainly illegal in the sense that it was protected by copyrights which the first users never bothered to look into, let alone get consent from **X**.

**X** appears in the documentary and a still used as an image has the caption '**Dear Y, I've retired. - X**'. The first use of **X** was in the 1970s when the users wanted a human face for use, and **X** just happened to be available on a **popular magazine**.

Identity **X** and **Y**.

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**X = Lena, Y = Internet.**

**The End!**