

# VETO 2015 - Tardigrade Trio

## Tossups

1. Operation Margarethe involved the occupation of this country by German troops towards the end of World War II. This country's foundation myth describes a great white stag leading the 2 sons of Nimrud, legendary king of Mesopotamia, to settle in a bountiful land called Scythia. The westward expansion of an early tribal federation in this nation was stopped after they were defeated at the battle of Lechfeld by an army led by Otto the Great. That tribal federation was established by Prince Arpad, now considered the father of this nation. Ruled by Admiral Horthy and the fascist Arrow Cross Party during World War II, for 10 points, name this homeland of the Magyars, with its current capital at Budapest.

## Hungary

2. His first novel, which he published at the age of 25, begins with a letter addressed to "My dearest Barbara Alexievna." In 1849, this author was arrested for his involvement in the Petrashevsky Circle and ultimately sentenced to exile in Siberia, an experience which would serve as inspiration for a novel published after his release. For 10 points, name the Russian literary icon who wrote such works as *The Brothers Karamazov* and *Crime and Punishment*.

## Fyodor Dostoyevsky

3. Sails often carried their images in ancient Greece and St.Elmo's fire was considered by sailors to be a symbol of their protection during a storm. This belief stemmed from an incident involving them and Orpheus while on an expedition, which also saw the killing of Amycus, king of the Bebryces by one of them. In addition to sailing on the Argo, they were responsible for the installation of Menestheus on the throne of Athens and the abduction of Aethra in retaliation for Theseus' kidnapping of Helen. They were of particular importance to the Spartans as symbols of their system of dual kings. After one of them was slain by Idas, the other shared his own immortality with him. For 10 points, name these sons of Leda who were immortalized as the constellation Gemini.

**the Dioscuri [or the Tyndaridae or Castor and Pollux or Castor and Polydeuces or Gemini before it is mentioned]**

4. Some members of this group reached Meroe as part of a recon mission to find the source of the Nile, prior to a planned invasion of Ethiopia. In battle, their standards and shields often depicted the scorpion, the birth sign of the man who established their most famous place of residence. In 312 AD, a famous victory by Constantine the Great resulted in the destruction of that place outside the Servian wall, and in the dissolution and scattering of this group throughout the empire. Prior to fighting for Maxentius at Milvian bridge, this group murdered Pertinax, after which they auctioned off the empire to Didius Julianus. Led by prefects such as Tigellinus, Titus and Sejanus, for 10 points, name this elite unit, initially created by Augustus Caesar, which served as the bodyguard of the Roman emperors and was housed in the Castra Praetoria.

**The Praetorian Guard** [Prompt on stuff like “Roman Emperor’s bodyguards”]

5. Sugar fermentation these organisms proceeds via a pyroglycolytic pathway, which produces less energy per sugar molecule than conventional glycolysis and lacks phosphorylated intermediates. Complete genome sequencing shows that nearly half of their genes have no match to any previously known ones, with many of the unique genes being responsible for methanogenesis. Earlier, phylogenetic evidence from 16S rRNA homology and the presence of ether lipids in their cell walls rather than the ester lipids found in bacteria led their discoverer, Carl Woese, to classify them as a new domain of life. Many of these organisms live in extreme conditions, such as the methanogens and the halobacteria, and they are thought to be among the oldest life-forms on earth. For 10 points, identify this domain of unicellular prokaryotes, distinct from bacteria, whose name is derived from the Greek word for ancient.

**Archaea or Archaeobacteria** [Prompt on **methanogens** or **halobacteria** before they are mentioned, do not prompt on or accept bacteria]

6. Evidence for the wide ranging impact of this work includes the finding of a Kawi version of it in Bali and the depiction of specific events taken from it, such as the battle of Kurukshetra, on sculptured walls at Angkor Wat. Considered to be a text about both dharma as well as itihasa, its 18 parvans include descriptions of pilgrimage places, the romantic legends of Damayanti and Savitri and an extensive conversation between Arjuna and Krishna in the *Bhagavad Gita*. The author of this work of nearly 100,000 couplets, Vyasa makes a cameo appearance in it as the grandfather of two feuding sets of cousins, the Kauravas and the Pandavas. For 10 points, identify this Hindu epic poem whose Sanskrit title can be translated to mean “Great epic of the Bharata dynasty”.

**The Mahabharata**

7. The discovery of this subatomic particle resulted in the award of a Nobel Prize in Physics to Carl David Andersen in 1936. Detection of this particle plays an important role in the diagnostic imaging of the human body, as its emission by radioactive compounds such as fluorodeoxyglucose allows for measurement of the metabolic function of different tissues. Produced as a by-product of beta-plus decay, for 10 points, name the subatomic particle which is the antimatter counterpart of the electron.

**Positron** or **antielectron**

8. Founded in 1878, this team was originally called Newton Heath LYR Football Club, before receiving its current name in 1902. It recorded its largest ever competitive victory in 1956, a 10-0 rout of Belgian champions Anderlecht. Home fans traditionally congregate in the Stretford End, a stand at the west end of the team's stadium which contains a statue of club legend Denis Law. For 10 points, name this English soccer (football) club, coached by Louis Van Gaal and captained by Wayne Rooney, which has won a record 20 top-flight domestic titles.

**Manchester United Football Club**

9. This leader, who served as president of his country for 31 years, was described by Time magazine as "the archetypal African dictator." He seized power in 1965 from President Joseph Kasa-Vubu, and received substantial backing from the United States over the next few decades. A notorious kleptocrat, he built a lavish palace in his home village of Gbadolite. A promoter of a policy of Africanization, he was famous for wearing a leopard-skin hat and for changing his own name and that of the country he ruled. For 10 points, name the president of Zaire who was overthrown in 1997 during the First Congo War.

**Joseph-Desire Mobutu or Mobutu Sese Seko Kuku Ngbendu Wa Za Banga**

10. First translated into English by Willa and Edwin Muir in 1930, this novel was unfinished at the time of its author's death. Its characters include the elusive bureaucrat Kamm, the bumbling assistants Arthur and Jeremiah, and the mysterious messenger Barnabas; the novel is centred around the frustrated attempts of an alleged land-surveyor to crack the bureaucratic barriers in his new town of residence. For 10 points, name the work by Franz Kafka, in which the protagonist is known throughout only by the name K.

**The Castle or Das Schloss**

11. One precursor of this event was a busted plot targeting Moshe Golan, the Israeli trade consul. Operation Bricole during this event was the focus of later investigations including the Keable and the McDonald commissions, which uncovered unlawful entry and removal of documents from the news agency office of ALPQ. During this event, in return for the release of James Cross, safe passage was arranged to Cuba for Marc Carbonneau and Jacques Lanctôt. At the urging of John Drapeau and Robert Bourassa, the War Measures Act was invoked in peacetime by Pierre Trudeau. For 10 points, name this 1970 crisis sparked by the kidnapping of government officials by members of the Front de liberation du Quebec.

**FLQ crisis or October crisis**

12. At Victoria College in the University of Toronto, he was a student editor of the college's literary journal, *Acta Victoriana*; his portrait now hangs in the college's E.J. Pratt Library. He delivered the prestigious Massey lectures in 1962, in a series entitled *The Educated Imagination*. An eponymous festival in his honour is celebrated each year in Moncton. For 10 points, name this Canadian literary theorist whose works include *Fearful Symmetry* and *The Anatomy of Criticism*.

**(Herman) Northrop Frye**

13. This city was originally a community called Rat Portage, originally established as a trading post by the Hudson's Bay Company. It was the subject of a territorial dispute between Manitoba and Ontario which was eventually settled by the Privy Council of England in 1884. The Backus-Brooks paper mill played a major role in its economic vitality during the 20<sup>th</sup> century. For 10 points, name the city of 15000 people situated on the pristine Lake of the Woods.

**Kenora**

14. Founded in 1991 and gaining its current name in 1993, this political organization was established in opposition to the Maastricht Treaty. The party logo is a violet pound sign on a yellow background. It has been an outspoken opponent of the first-past-the-post electoral system, under which it won only a single seat in the 2015 UK general election despite receiving the 3<sup>rd</sup> highest vote count. For 10 points, name the Eurosceptic British political party currently led by Nigel Farage.

**United Kingdom Independence Party or UKIP or the Anti-Federalist League**

15. A 2015 production of this work by the Canadian Opera Company marks 199 years since the work's debut. In addition to the title character, the main characters are the lovers Almaviva and Rosina, as well as Rosina's guardian Bartolo. Based on a Beaumarchais play, it shares many of these characters with a Mozart opera. The work's overture will be most familiar to cartoon fans from a 1950 Looney Tunes short starring Bugs Bunny and Elmer Fudd. For 10 points, name this enduringly-popular 1816 opera buffa by Rossini.

**The Barber of Seville or Il barbiere di Siviglia**

16. This city was founded by Welshman John Hughes in 1869 as "Hughesovka". Since then it has changed names to "Stalin" and "Stalino", before finally being renamed after the river which runs through it. Shakhtar, the football team based in this city, won the UEFA cup in 2009, but currently has to play its home games in Lviv. The fifth-largest city in the Ukraine, it has historically been a centre of heavy industry and coal mining. For 10 points, what is this city, now the center of a separatist "people's republic" in the Eastern Ukraine?

**Donetsk**

17. Empirical support for it include velocity measurements in the Coma cluster, X-ray observations of the Bullet cluster and anisotropies in the cosmic microwave background radiation. Alternative theories of gravity such as MOND and TEVES have been postulated to explain discrepancies in the mass of large astronomical entities without relying on its existence. It was first postulated by Fritz Zwicky and is thought to be made up of particles such as axions, MACHOs and WIMPS. For 10 points, name this non-luminous substance that is thought to account for 25% of the universe's density and is named for its lack of electromagnetic interactions.

### **Dark Matter**

18. The earliest written texts in this language date from the 10th century BC. Originally written using a derivative of the Phoenician script, this language in turn formed the bases for the Kharosthi and Brahmi scripts from which the writing system of India are derived. From 700BC to about 200AD this language was the lingua franca of the New-Assyrian, New-Babylonian, Achæmenid Persian, and Parthian empires. The highest grossing R-rated film in U.S. history is largely in this language. For 10 points, which Northwest Semitic language which was Jesus' native tongue?

### **Aramaic**

19. Nanotubes made of the nitride of this element have been used to produce a giant version of the Stark effect and the Kucherov reaction hydrates acetylenic hydrocarbons in the presence of a catalyst made of this element's trifluoride. Hydrides of this element adopt structural configurations such as nido, closo and arachno that are governed by Wade's rules. The presence of this element causes addition to the double bond of alkenes in an anti-Markovnikov fashion. For 10 points name this element with a single electron in its 2p shell, with atomic number 5 and symbol B.

### **Boron**

20. Born in Freiburg in 1942, this man was first elected to the Bundestag in 1972. He rose through the ranks of the Christian Democratic Union, and as Interior Minister he was instrumental in the reunification process. He succeeded Helmut Kohl as CDU leader, but had to resign in 2000 due to a campaign finance scandal. Called the most hated man in Europe, for 10 points, who is the German Finance Minister?

### **Wolfgang Schäuble**

21. Born in Hukvaldy in 1854, this man trained in choral music, piano, and composition in Brno and Prague. Chamber works by him include the string quartets The Kreutzer Sonata (1923) and Intimate Letters (1928). His best known operas include Jenufa (1904) and The Cunning Little Vixen (1924). Due to it's importance in Haruki Murakami's 1Q84, this composer's Sinfonietta (1926) has become extremely popular in Japan. For 10 points, who is this Czech composer, who is not Antonín Dvořák?

### **Leoš Janáček**

22. A 1955 Belgian law requires that this be at least 80% fat. Ambrose Bierce described this as “One of the sauces which serve the French in place of a state religion.” The origin of the sauce's name is uncertain, but it may derive from the Minorcan city of Mahon. The essential ingredients are egg yolks and oil, although typically lemon juice, mustard, or other spices are added to make it more interesting.

### **mayonnaise**

23. This ruler was involved in the Three-Chapter controversy with Pope Vigilius and was responsible for a series of economic reforms implemented by Peter Barysmes. After military defeat at Callinicum, he agreed to the Eternal Peace Treaty with Khosrau I. Notable military victories under his reign included Tricamarum over the Vandals, Busta Gallorum over the Ostrogoths and the suppression of the Nika revolt in by Belisarius and Narses in his capital of Constantinople . For 10 points, name this great Byzantine emperor who reconquered Italy and North Africa and Spain and authored a famous namesake legal code.

### **Justinian the Great**

24. According to Jewish tradition, he died a martyr after the tree he was hiding in was sawn in two according to orders of King Manasseh. Earlier, had loved through the siege of Jerusalem by the Assyrians under Sennacherib and foretold Israel's eventual victory under Hezekiah. Noted for prophesying the coming of the Jewish Messiah, for 10 points identify this Old Testament prophet, the author of a namesake book of 66 chapters, that is placed between Song of Songs and Jeremiah.

### **Isaiah**

## Bonuses

1. Answer these questions about Canadian provincial premiers for 10 points each:

a. This political party has held power in Manitoba for the past 16 years, winning 4 consecutive elections. This party's premiers have included Gary Doer, Canada's current ambassador to the USA, and Greg Selinger.

**NDP (or New Democratic Party)**

b. Consistently rated the most popular premier in the country over the last few years, this leader of the Saskatchewan party has been in power since 2007. He was prominent in opposing the foreign takeover of Potash Corp. by the Anglo-Australian company, BHP Billiton.

**Brad Wall**

c. This leader of the Alberta NDP became premier after a historic landslide victory in May 2015. Her win ended an 80 year streak of centre-right governments in Alberta.

**Rachel Notley**

2. Answer these questions about the Roman Catholic papacy for 10 points each:

a) This pope, recognized by the Roman Catholic Church as St. Peter's immediate successor, shares his name with a character from the Peanuts cartoon series.

**(Saint) Linus**

b) Prior to the election of Pope John Paul II, the last non-Italian pope of the Roman Catholic Church was Pope Adrian VI, who was born in 1459 in what is now this country.

**The Netherlands**

c) The 22<sup>nd</sup> Catholic pope of this name reigned from 1316-1334. The 23<sup>rd</sup> would not be elected until more than 600 years later, in 1958.

**John**

3. Their name comes from the Greek for purple and they also obey Huckel's rule. Answer these questions about some aromatic compounds with important biological functions for 10 points each.

a) Name this class of cyclic compounds consisting of four pyrrole subunits joined by methine links. They often bind metal atoms in their centers to form complexes.

**Porphyrins**

b) These important pigments are essentially porphyrin derivatives with a Magnesium atom in the centre. Different varieties include a, b, c1, c2 and d and they are found in photosystems.

**Chlorophylls**

c) John Kendrew won a share of the 1962 Nobel for Chemistry for his work on the structure of this single chain, globular, oxygen-binding protein that contains a porphyrin-iron complex.

**Myoglobin**

4. For 10 points each, answer these questions relating to the Nobel Peace Prize.
- a) The 1948 prize was not awarded because "there was no suitable living candidate". This non-award was intended to honour which deserving figure, who never won the actual prize.

**Mohandas K. Gandhi**

- b) Two American presidents have won the Peace Prize while in office. The second one was Barack Obama in 2009. Who was the first, receiving recognition for his role in ending the Russo-Japanese war?

**Theodore Roosevelt**

- c) Although Lester Pearson is the only Canadian individual to win the Prize, the 1995 Peace Prize did recognise a Canadian organisation and its efforts towards nuclear disarmament. Give the name of the Nova Scotia town from which the organisation takes its name.

**Pugwash Conferences on Science and World Affairs**

5. For ten points each, answer these questions about the Booker Prize.

- a) Only four people have won both the Booker Prize and the Nobel Prize for Literature. Name any one of them.

**J. M. Coetzee** (Booker 1983 & 1999, Nobel 2003), **William Golding** (Booker 1980, Nobel 1983), **Nadine Gordimer** (Booker 1974, Nobel 1991), **V. S. Naipaul** (Booker 1971, Nobel 2001)

- b) The winning author in 1978, for *The Sea*, *The Sea* was married to the 2005 winner for *The Sea*. In the movie based on their marriage, she was played by Kate Winslet and Judi Dench, while he was played by Hugh Bonneville and Jim Broadbent. Name either one of these Booker-winning authors.

**Iris Murdoch, John Banville**

- c) Three Canadians have won the Booker Prize. One (of course) was Margaret Atwood. Name either of the other two Canadian winners (from 1992 and 2003).

**Michael Ondaatje, Yann Martel** (Note: If a team answers Eleanor Catton, point out that while Canadian-born, the Prize Committee considered her to be a New Zealander.)

6. For 10 points each, answer these opera-related questions, dedicated to the memory of Jason Dickson.

- a) The aria "Che gelida manina" ("What a cold little hand") is from which 1896 opera?

**La bohème**

- b) Who composed the music for *La bohème*?

**Giacomo Puccini**

- c) The plot of *La bohème* was updated by Jonathan Larson for which 1996 musical?

**Rent**

7. Every pantheon needs a trickster god. Given the description, identify the god for 10 points each:
- a) In the mythology of the tribes of the Pacific Northwest, such as the Haida, this bird is both the creator of the world as well as being the one who stole fire and gave it to humans.

**Raven**

b) Among the tribes of the Great Plains and the American Southwest, this animal serves much the same role as Raven, creating the world in some legends and stealing fire in others.

**Coyote**

c) In West Africa and the Caribbean, this trickster god is also responsible for creating the world. His name is from the Akan word for "spider".

**Anansi**

8. Art from the Napoleonic era for 10 points each:

a) One of the most famous paintings from the Napoleonic wars is this Goya work depicting the execution of Spanish rebels by a French firing squad.

**The Third of May 1808: The Execution of the Defenders of Madrid**

b) In this idealized portrait of the French emperor by Jacques-Louis David, the names Hannibal and Charlemagne can be seen inscribed on rocks, as Napoleon traverses the titular location on horseback.

**Napoleon crossing the Alps [or Napoleon at the Saint-Bernard Pass or Bonaparte crossing the Alps]**

c) This French romantic painter, David's student and successor, created several notable paintings of Napoleon's exploits including *Napoleon on the Bridge at Arcole*, *Napoleon Visiting the Pesthouse at Jaffa* and *Napoleon on the Battlefield at Eylau*.

**Baron Antoine-Jean Gros**

9. Answer these questions about changes in DNA sequence for 10 points each:

a) This is a type of DNA sequence variation in which a single base A, T, G or C differs between 2 individuals of a species. These variants are important in the comparison of genomes by the process of genotyping.

**Single Nucleotide Polymorphism [or SNPs]**

b) This kind of genetic change involves the transfer of a chromosomal segment from its usual position to a new position in a non-homologous chromosome. Different types of this process include reciprocal and Robertsonian.

**Chromosomal Translocation**

c) This is an example of a translocation linked to cancer, in which a reciprocal exchange between chromosomes 9 and 22 fuses the *BCR* and *ABL* genes. This chromosomal abnormality is present in more than 90% of patients with chronic myelogenous leukemia, and is named after its city of discovery.

**Philadelphia chromosome**

10. For 10 points each, answer these questions about penguins in literature.

a) Explorers discover an ancient city inhabited by giant blind albino penguins in this 1931 novella by H. P. Lovecraft.

**At the Mountains of Madness**

b) A Kiev zookeeper adopts a penguin in this 1996 black comedy by Andrey Kurkov, whose English-language title is a play on the title of a 1990 Ariel Dorfman work.

**Death and the Penguin** [the original Russian title, *Смерть постороннего*, "Death of an outsider", is not a play on Dorfman's title]

c) Bill the Cat's presidential running-mate was this penguin, made famous by Berke Breathed.

**Opus**

11. For 10 points each, identify these famous economists engaged in studying the effects of economic inequality.

a) 2001 Nobel Prize winner and author of "The Great Divide: Unequal Societies and What We Can Do About Them", and "Globalization and Its Discontents".

**Joseph Stiglitz**

b) French economist best known for the inequality " $r > g$ " and his 2013 opus "Capital in the 21st Century".

**Thomas Piketty**

c) Indian economist and 1998 Nobel winner, he has studied the effects and causes of famines, and was influential in the creation of the U.N.'s Human Development Report.

**Amartya Sen**

12. For 10 points each, identify the left-handed artists who produced these works of art (please see second file for images alone without answers). See *VETO 2015 - Tardigrade Trio - Multimedia.pdf* for images

a) *show image of man with sphere to team*

**M.C. Escher** or **Maurits Cornelis Escher**

b) *show image of brownish geometric shapes*

**Paul Klee**

c) *show image of Frank Sinatra to team*

**Leroy Neiman** or **Leroy Leslie Runquist**

13. Answer these questions about the members of the Socialist International (SI) for 10 points each.

a) This Palestinian political party has been a full member of the SI since 2012.

**Fatah**

b) SWAPO, led by Sam Nujoma for 37 years, is an SI representative from this African country.

**Republic of Namibia**

c) Israel has two full member organizations in the SI. One is the Labour party, the other, this party founded in 1992 and led by Zehava Gal-On.

**Meretz**

14. Answer these questions about a recently concluded Asian civil war for 10 points each.
- a) Name this nation which experienced more than 25 years of conflict between the Sinhalese majority government and an armed Tamil rebel group, based in the north and east of the country.  
**Democratic Socialist Republic of Sri Lanka**
- b) Identify the separatist rebel organization that fought for an independent nation for the Sri Lankan Tamils. It was banned as a terrorist organization by many countries including Canada, the USA, UK and India for its use of suicide bombings in political assassination attempts.  
**the Liberation Tigers of Tamil Eelam** (Accept **LTTE** or **Tamil Tigers**)
- c) Carrying the title of President and Prime minister of Tamil Eelam, but also known as Thambi or little brother, this man was the leader of the LTTE and was killed in combat at the war's end in 2009.  
**Velupillai Prabhakaran**
15. For 10 points each, identify these Iranian politicians.
- a) The current president of Iran.  
**Hassan Rouhani**
- b) The president of Iran from 1981-89, who now holds the position of Supreme Leader  
**Ali Khamenei**
- c) The Iranian foreign minister, who led the nation's recent nuclear negotiations.  
**Mohammed Javad Zarif**
16. Answer these questions about the lanthanide series of chemical elements for 10 points each.
- a) This densest member of the lanthanide series is also the one with the highest atomic number.  
**Lutetium**
- b) The 151-isotope of this element is the beta decay product of samarium-151.  
**Europium**
- c) The name of this element, atomic number 59, is derived from the Greek for "green twin."  
**Praseodymium**
17. For 10 points each, answer these questions about African countries whose common names begin with the letter S.
- a) The capital of this country shares a name with the capital of Gabon; in English, however, rather than in French.  
**Republic of Sierra Leone**
- b) Administrative states of this newest sovereign state in Africa include Jonglei, Unity and Warrap.  
**Republic of South Sudan** (do not accept **Southern Sudan**)
- c) With a population just over 100000, the city of Manzini, rather than the capital, is the largest in this landlocked African country.  
**Kingdom of Swaziland**

18. For 10 points each, identify these Canadian tennis players.

a) Known for his powerful serve, this player made it as far as the Wimbledon semifinals in 2014, but lost out in the third round this year.

**Milos Raonic**

b) The second-ranked male player in Canada, his pair won the Wimbledon doubles title in 2014.

**Vasek Pospisil**

c) Nicknamed "Hurricane", she was the best Canadian woman player of the late 80s and early 90s, getting as far as the quarter-finals at the 1988 French Open.

**Helen Kelesi**

19. Answer these questions about the works of the Bronte sisters for 10 points each.

a) Despite being written before her celebrated novel *Jane Eyre*, this Charlotte Bronte novel was not published until 1857, two years after her death at the age of 38.

**The Professor**

b) This novel was published as part of a three-volume set along with *Wuthering Heights*.

**Agnes Grey**

c) This novel centres on the life of Lucy Snowe, who moves to the continent to work at a boarding school, in a plot which takes inspiration from the author's own experiences in Belgium.

**Villette**

20. Answer these questions about Soviet secret police agencies for 10 points each.

a) The first iteration of the Soviet secret police, the Cheka, was led by this man, born in what is now Belarus.

**Felix Dzerzhinsky**

b) The Soviet Union had many names for its secret police agencies through the years; during World War II, the main player was the People's Commissariat for Internal Affairs, known by this acronym for its name in Russian.

**NKVD**

c) The current president of Russia, Vladimir Putin, had a storied career in the KGB; during the 1980s, he was situated abroad as a KGB agent in this East German city.

**Dresden**

21. For 10 points each, identify these historic counties of Ontario.

a) Until its dissolution in 1969, this was the county surrounding the city of Ottawa. It takes its name from a British soldier who served in the Seven Years war and the American Revolutionary war, as well as being governor of Quebec.

**Carleton**

b) Originally the county which included Toronto, it was dissolved in 1971 and became a regional municipality with the same name. It takes its name from a city in England.

**York**

c) Originally the county including Kitchener-Waterloo, it was dissolved in 1973 and became a regional municipality with the same name. It takes its name from a town in Belgium.

**Waterloo**

22. Answer these questions about black holes for 10 points each.

a) What is the name of the theoretical boundary in space around the black hole beyond which no light or other radiation can escape?

**Event Horizon**

b) Give the name of the rotating disk of matter often seen around a black hole and formed due to its strong gravitational influence

**Accretion disk**

c) According to this theorem of astrophysics, mass, angular momentum and electric charge are the only externally observable properties possessed by a black hole

**No hair theorem**