

## Tossups

1. While working at Göttingen, Johann Nikuradse did seminal experiments in varying this quantity with sands. For open channels, a coefficient named for this quantity is found in the denominator of the formula for the Chézy coefficient and the denominator of Manning's formula, in both cases also being called Manning's *n*. This quantity is divided by about 3.7 times hydraulic diameter in an equation valid only for turbulent flow that's used to calculate the Darcy (\*) friction factor. The relative form of this quantity is given by dividing its absolute value, represented epsilon, by the inside diameter of the pipe. It is plotted against the Reynolds number in a Moody diagram. For 10 points, give this measure of the surface imperfections or irregularities of pipe walls that is disregarded when considering smooth pipes.

ANSWER: internal pipe roughness

2. The speaker of one of this poet's works invites the dark to come upon him like the moment when an underground train "stops too long between stations" and the passengers realize the "growing terror of nothing to think about." This man used the analogy of "a bit of finely filiated platinum" in the presence of oxygen and sulfur dioxide to introduce his idea of the poet's mind as a catalyst for producing poetry. One of his poems describes a yellow (\*) fog rubbing its back on window panes. This author of *Tradition and the Individual Talent* wrote a poem whose speaker asks "Do I dare / Disturb the universe?" and which begins "Let us go then, you and I". For 10 points, name this poet who included "East Coker" in his *Four Quartets* and wrote "The Love Song of J. Alfred Prufrock."

ANSWER: T.S. Eliot [or Thomas Stearns Eliot]

3. This ruler's successor was ensured power after this man's wife forged his will along with Publius Acilius Attianus. After the death of Rabell II Soter this ruler annexed the Nabataean Kingdom. This ruler justified war with Osroes I of Parthia after the ascension of Axidares as King of Armenia, and sent Lusius Quietus to suppress a Jewish uprising known as the Kitos War. Apollodrus of Damascus built his namesake (\*) bridge east of the Iron Gates of Transylvania. This ruler defeated Decebalus at the Battle of Sarmisegetusa, which allowed his annexation of Dacia. This emperor ruled from 98 to 117, when the Roman Empire reached its greatest extent. For 10 points, name this Roman Emperor whose ashes are found in his namesake column.

ANSWER: Trajan [or Caesar Marcus Ulpius Nerva Traianus]

4. The third movement of the ninth of these works by this composer opens with a solo trumpet playing the notes B – C sharp – G. The fifth movement of the third of these works by this composer opens with a boys' choir chanting "Bimm bamm" over bells. The third movement of the ninth of them is a "Rondo-Burlesque", and the second movements of the first, second, and ninth ones are (\*) Ländler. The fourth of these works opens with flutes and sleigh bells, and features a soprano singing the lied "Das himmlische Leben" in its finale. The sixth of these, in A minor, contains a theme named for the composer's wife, Alma. For 10 points, name these orchestral works by an Austrian composer, which include ones nicknamed *Tragic*, *Titan*, and *Resurrection*.

ANSWER: symphonies by Gustav Mahler [prompt on partial answers]

5. One of this philosopher's works was dated a decade earlier than previously thought in a landmark 1960 edition by Peter Laslett. This philosopher invented a term for a category of names that group abstract general ideas according to their natural similitude; those are called "sortals". He argued that there must exist an indefinable, quality-less base to which qualities called "accidents" must adhere. That notion of "pure (\*) substance in general" was postulated by this secretary to Anthony Ashley Cooper, Earl of Shaftesbury. The first part of a work by him attacks the *Patriarcha* of Robert Filmer. In that work, he proposed that whatever a man has "mixed his labor with" is his property. For 10 points, name this philosopher of *An Essay Concerning Human Understanding* and *Two Treatises of Government*.

ANSWER: John Locke

6. **One of these entities in Africa is being 3D modeled by the International Atomic Energy Agency using krypton-81 isotopes. The USGS suggests that in North America there are five types of these entities, including a “carbonate-rock” type found in the Ozarks and one that contaminates easily in regions of karst topography. Fractures and bedding planes provide most of the flow paths in the (\*) sandstone type of these entities, whereas intergranular porosity is more common in their alluvial type. They often exhibit anisotropic hydraulic conductivity. Those that hold their contents for thousands or millions of years are said to contain “fossil water.” For 10 points, name these entities that hold water underground.**  
ANSWER: aquifer [or fossil water aquifer or sandstone aquifer until “five” is read]
7. **This thinker contrasted the “rational demographic composition” of America with the parasitic classes of Europe in a work. That work also contains the story of a creature that tears off its own testicles to save itself, the “Fable of the Beaver”. He described the political party as an organism in which “the modern prince” has taken form. This author of “Americanism and (\*) Fordism” drew upon the work of Labriola to develop his “philosophy of praxis” and described how the state holds control over the subaltern in his theory of cultural hegemony. His most influential works were written after he was placed in the Regina Coeli by his country’s fascist government. For 10 points, name this author of the *Prison Notebooks*, an Italian Marxist sociologist.**  
ANSWER: Antonio Gramsci
8. **One character in this novel states that he wants to pen a “History of Coincidences,” but later attributes most of life’s events to fate. Another character in this novel frequently interrupts a tennis match by reading aloud sections of a book by Joseph Emmery Prank while four other characters play. The protagonist embraces her love-interest near a fountain after they witness a knife-fight, and then later again amid a field of (\*) violets. The protagonist of this novel gets lost near the Santa Croce church while travelling with Eleanor Lavish. Cecil Vyse loves the main character of this novel, who tours Italy with her aunt Mrs. Bartlett and falls in love with George Emerson. For 10 points, name this novel about Lucy Honeychurch by E.M. Forster.**  
ANSWER: A Room With a View
9. **A labor movement in this country was supported by a retelling of Cinderella called *The Radiant Path*. The “Decree on Factions” was used against the Opposition in this country, prior to the adoption of an effort supported by the slogan “2 + 2 = 5” developed by Gosplan. This country endured the economic “scissors crisis.” Two major newspapers in this country were named after the words for (\*) “truth” and “news.” In this country, workers called *zeks* were used in labor camps. After the abandonment of the NEP, this country underwent a period of de-kulakization and forced collectivization. For 10 points, name this communist country that was led by Josef Stalin.**  
ANSWER: USSR [or Soviet Union]
10. **In a vision, the path to this object is bordered by a rod of iron, and a building full of sinners jeers at those walking the path. The prophet Lehi has a vision of this object in the Book of Mormon. At the end of Revelation, this object appears on either bank of a crystal-clear river. In Jewish mysticism, the diagram of the ten (\*) Sefirot is given the name of this object. It is debatable whether one example of this object was the same as its counterpart, which granted knowledge of good and evil, and whether its environment’s two inhabitants ate its fruit. For 10 points, name this tree, which, in Christian tradition, stood in the Garden of Eden.**  
ANSWER: The Tree of Life [prompt on “Etz Chaim” or “(fruit) tree”]

11. An 18th-century captain who aided refugees in what is now this country lends his name to a market town here with the world's longest natural sandy beach, Cox's Bazar. The 1952 Language Movement is commemorated at the Shaheed Minar in this country, which is home to the "Rickshaw Capital of the World." The documentary *My Architect* features this country's parliament building, which was designed by (\*) Louis Kahn. Innovations in microfinance at this country's Grameen Bank won Mohammed Yunus the Nobel Peace Prize. Most shipping is conducted through the city of Chittagong in this country, where the Padma River is formed from the Meghna, Jamuna, and Ganges. For 10 points, name this nation consisting of the former East Pakistan.

ANSWER: People's Republic of Bangladesh

12. In this film, rapid TV channel changes alternate with shots of a couple rolling over a remote as they have sex. After being asked to pray before an electric Christ attached to a bathroom door, this film's protagonist bolts out of a Bible thumper's apartment. This film includes a nightmare sequence that cuts in and out of color, in which the protagonist's ex-girlfriend Annie is yanked out of a car and raped. An unusual couple hand its protagonist a flier to a psychedelic party where many (\*) Warhol superstars make cameos. It includes an unscripted scene in which a man yells "I'm walkin' here!" after a cab nearly runs over him. This film focuses on the con artist Ratso and Joe Buck, a Texan who moves to New York to become a prostitute. For 10 points, identify this 1969 John Schlesinger film, the only X-rated movie to win Best Picture.

ANSWER: Midnight Cowboy

13. If this quantity is a finite polynomial in the activity,  $z$ , its zeroes on the complex  $z$  plane only occur as conjugate pairs or for negative, real  $z$ , so there is a singularity or branch cut for positive, real  $z$  as shown by Lee and Yang. It can be found by taking the Laplace transform of the density of states or the trace of the density matrix. Each quadratic degree of freedom in a system's Hamiltonian contributes  $\frac{1}{2} k_B T$  over a constant to this quantity. The expected value for the energy of a system is the negative partial derivative of its (\*) log with respect to  $1/k_B T$ . Its reciprocal often appears as a normalization factor, such as in the probability of a microstate. For 10 points, name this function from statistical mechanics that is symbolized  $Z$  and can be used to find most of the macroscopic properties of a system.

ANSWER: grand partition function [or Z until it is read; prompt on Q, xi, Y]

14. This work claims that only people of limited intellect can be men of action, since only they will have the lack of doubt needed to act. The protagonist of this work smacks a carriage driver in the neck while imagining dramatically slapping a man in the face, but then realizes that he stole this idea from a play. That event in this work occurs after the protagonist gets himself invited to a farewell (\*) dinner he can't afford to pay for, honoring a former classmate that he hates, named Zerkov. The narrator of this work refuses to see a doctor to treat his liver pain, out of spite. At the end of this work, the narrator humiliates a prostitute named Liza. For 10 points, name this novella narrated by an unnamed, misanthropic character, a work by Fyodor Dostoevsky.

ANSWER: Notes from the Underground [or Letters from the Underworld; or Zapiski iz podpol'ya]

15. This party passed the Twenty Fourth Amendment to its country's constitution in order to overturn the decision in the Golaknath case, and responded to secession attempts in a province with the Terrorist and Disruptive Activities Act. In response to an assassination, a leader of this party gave a speech proclaiming "The light has gone out of our lives." This party implemented a sterilization campaign during a period when it imposed martial law, the (\*) Emergency. On the eve of independence, this party's leader gave the "Tryst with Destiny" speech. Another of its leaders issued Operation Blue Star and was assassinated by her Sikh bodyguards. For 10 points, name this party that won independence from Britain under Jawaharlal Nehru and which has included various members of the Gandhi family.

ANSWER: Indian National Congress party [or INC; or Bharatiya rastriya kangresa]

16. This figure once plucked out his nerves and used them to play a song praising the god he favored. After raping the nymph Rambha, he was cursed to have his head explode if he ever violated another woman. One of his brothers was a giant who would wake up every six months and eat everything in sight. This figure's son earned his name by capturing a storm god. In addition to his siblings Vibhisana and Kumbakarna, this man had a sister, (\*) Surpanakha, whose nose and ears were cut off. Hanuman used his tail to light this rakshasa's city on fire. He utilized a golden deer as a distraction to kidnap Sita, the wife of Rama. For 10 points, name this demon king of Lanka, the antagonist of the *Ramayana*.  
ANSWER: Ravana
17. During this decade, Andrew Myrick was found dead with grass stuffed in his mouth, presumably as revenge for his suggestion that a certain people "eat grass or their own dung" if they were hungry. Later, during this decade, the U.S. Army fought the so-called "Hayfield" and "Wagon Box" battles, but suffered a grievous loss at the "Fetterman Fight." The largest one-day mass execution in American history occurred during this decade at Mankato, in which thirty-eight American Indians were killed. This decade was when both (\*) Red Cloud's War and the Dakota War in Minnesota were fought. John Pope was sent to fight the Sioux during this decade after losing the second Battle of Bull Run. For 10 points, name this decade in American history that is also when the Civil War was fought.  
ANSWER: 1860's [prompt on "60s"]
18. This artist illustrated an incident that occurred two days before his retrospective at the Grand Palais in Paris by painting white arrows pointing to a man doubled over in pain over a toilet and a sink. A painting by this man depicts a figure with a deformed spherical body arching its neck towards the viewer to reveal a face that is covered by a blindfold and has snarling teeth. He used a burnt orange background for that painting, which was inspired by the Furies and a (\*) still of a nurse with broken glasses on the Odessa steps in *The Battleship Potemkin*. This artist painted many heads surrounded by sides of beef, and distorted a Velasquez image of Innocent X so that it looks agonized. For 10 points, name this Irish painter whose grotesque output includes *Three Studies for Figures at the Base of a Crucifixion* and screaming popes.  
ANSWER: Francis Bacon
19. Mutations in the adenine synthesis pathway of this organism can result in production of a red pigment, and mutations in its mitochondrial genes are known as "petite" mutations. This organism is used in a technique in which two vectors encode different domains of a transcription factor linked to "bait" and "prey" domains. That method of screening for protein interactions is this organism's "two-hybrid" screen. Parental and non-parental ditypes can be found when analyzing this organism's (\*) tetrads. This organism has two mating types, *a* and *alpha*, but can also undergo asexual reproduction. This organism is useful for its ability to convert sugars to carbon dioxide and ethanol. For 10 points, name this unicellular fungus commonly known as baker's yeast.  
ANSWER: Saccharomyces cerevisiae [or baker's yeast until it is read; prompt on "*Saccharomyces*"]
20. During a debate, one character in this play states that the advocates, demagogues, and tragic poets are all "broad-arses." A character in this play tries to teach the protagonist about the gender of nouns by inventing words to describe a female chicken. In this play, the protagonist's son tries to disprove the notion that a day may be both old and new and is taught by two quarreling figures called (\*) "Just" and "Unjust." At the end of this play, the protagonist and his slave Xanthias begin to burn down the school in which he enrolled his son to avoid paying his debts. For 10 points, identify this play by Aristophanes about Strepsiades, who enrolls his son Pheidippides in the Thinkery run by Socrates.  
ANSWER: *The Clouds* [or Nephelai]

## Bonuses

1. Name these painters from Victorian England, for 10 points each.  
[10] Early in the reign of Victoria, this Romantic landscape painter depicted the power of a roaring train in *Rain, Steam, and Speed* and showed a decorated ship-of-the-line being tugged to its berth in *The Fighting Temeraire*.  
ANSWER: JMW **Turner** [or Joseph Mallord William **Turner**]  
[10] This man painted unimportant impressionistic canvases such as *Rocks in Unrest*, but is better known for defending the reputation of Turner in *Modern Painters*, and for penning many other works of art criticism.  
ANSWER: John **Ruskin**  
[10] This artist of German extraction painted *Queen Elizabeth Discovers she is no longer Young*, and depicted the ruination visited upon the family of an English adulteress in his triptych *Past and Present*.  
ANSWER: Augustus Leopold **Egg**
2. Difficulties in the northern part of this island were known as “The Troubles.” For 10 points each:  
[10] Name this island, which was finally granted Home Rule by the British after World War I, centuries after its subjugation by Oliver Cromwell.  
ANSWER: **Ireland** [or **Eire**; or **Hibernia**]  
[10] This is the name usually given to the class of Protestant overlords that governed Ireland during the period of British domination, including the absentee landlords of the Land War.  
ANSWER: Protestant **Ascendancy**  
[10] This Conservative politician gained the nickname “Bloody” for his suppression of agrarian riots in Ireland. This man promoted the creation of a “national home” for a certain peoples in a letter bearing his name.  
ANSWER: Arthur **Balfour** [or Arthur James **Balfour**]
3. The right-hand side of this equation contains terms for the differential of vorticity advection, thermal advection, and diabatic heating. For 10 points each:  
[10] Name this meteorological equation that describes the vertical velocity, whose mathematical variable names it.  
ANSWER: quasi-geostrophic **omega** equation [or QG **omega** equation]  
[10] The thermal advection and diabatic heating terms in the omega equation have this operator applied to them. It's the divergence of the gradient and is thus applied to scalar functions.  
ANSWER: **Laplacian** [or **Laplace** operator]  
[10] The vertical velocity can be defined in terms of height or this quantity. On weather maps, isobars are lines of equal values for this quantity.  
ANSWER: **pressure** [or **P**]
4. The protagonist of this novel is fascinated with the armpits of a body named Omi. For 10 points each:  
[10] Name this novel about the Japanese boy Kochan's struggles with hiding his true self and his sexuality.  
ANSWER: **Confessions of a Mask**  
[10] *Confessions of a Mask* is by this Japanese author of the *Sea of Fertility* tetralogy, who committed *seppuku* after leading a failed coup to restore the emperor.  
ANSWER: Yukio **Mishima** [accept names in either order]  
[10] This American author reacted to the Mishima coup in his *Reflections on the Death of Mishima*. This author was the subject of a controversy that was documented in the essay “Inside the Whale” and which led to the court cases *Besig v. United States* and *Grove Press, Inc. v. Gerstein*.  
ANSWER: Henry **Miller** [or Henry Valentine **Miller**]

5. This concept titles a 2013 book by their formulator, Daniel Dennett, who calls misleading variants of these concepts “boom crutches”. For 10 points each:  
[10] Give this term that Dennett introduced in *Elbow Room* to describe thought experiments designed to elicit instinctual thought processes.  
ANSWER: **intuition pumps**  
[10] Daniel Dennett applied the term “boom crutch” to a thought experiment by John Searle that attempts to refute computationalism, in which a man uses books to translate statements in this language.  
ANSWER: **Chinese**  
[10] Many of Dennett’s intuition pumps, such as “The Wine-Tasting Machine”, attempt to disprove the existence of these entities, which are isolated incidences of subjective, conscious experience, such as how cauliflower tastes.  
ANSWER: **qualia** [or **quale**]
6. Her face is described as looking out from the wall, “where round its head / The night-lamp casts a halo of pale light”, in a poem written eighteen years after her death. For 10 points each:  
[10] Name this woman about whom it was written that a “soul more white / Never through martyrdom of fire was led / To its repose” in a poem describing a cross of snow in the ravines of a mountain.  
ANSWER: Henry Wadsworth **Longfellow’s wife** [or **Frances Longfellow**]  
[10] Longfellow wrote an epic poem about this Native American hero, who fights the magician Pearl-Feather and loves Minnehaha.  
ANSWER: **Hiawatha**  
[10] In this Longfellow poem, the skipper and his daughter perish on the title ship, which crashes onto the reef of Norman’s woe.  
ANSWER: “The **Wreck of the Hesperus**”
7. This economist names a term referring to a sudden collapse in the value of major assets during business cycles. For 10 points each:  
[10] Name this economist who argued that long-term macroeconomic stability tends to heighten the risk of instability during crises, as part of his financial instability hypothesis.  
ANSWER: Hyman Philip **Minsky**  
[10] Similarly to Minsky, this school of economics argues that macroeconomic booms and busts are generally produced by monetary phenomena. Proponents of this school include Ludwig von Mises and Friedrich Hayek.  
ANSWER: **Austrian** school of economics  
[10] In Austrian economic theory, this value coordinates production across time and reflects the time-preference of individuals. Varieties of this value are calculated using the Fisher equation.  
ANSWER: **interest rates** [prompt on “i”]
8. The longest of these chapters is the second, known as “The Cow”. For 10 points each:  
[10] Name these chapters of the Qur’an, whose verses are known as *ayat*.  
ANSWER: **suras**  
[10] This important *ayat* from “The Cow” sura describes a never-slumbering God’s knowledge extending over the heavens and the Earth.  
ANSWER: **Throne Verse** [or *ayat ul-kursi*]  
[10] Some Muslims interpret the popular act of pinning papers with the Throne Verse on them to newborns as an example of this kind of idolatry. This term literally means “sharing” with more than one God.  
ANSWER: **shirk**



9. For a hard-sphere gas, one of these numbers is equal to two-thirds pi times Avogadro's number times the cube of the diameter. For 10 points each:  
[10] Name these numbers, interrelated through a Mayer cluster expansion, which are divided by successive powers of the molar volume in an equation introduced by Heike Kamerlingh Onnes.  
ANSWER: **virial coefficients**  
[10] The virial equation is one of these relations between thermodynamic quantities like pressure, temperature, and internal energy. Examples include the unimportant Dieterici equation and a well-known one named for van der Waals.  
ANSWER: **equations of state**  
[10] Most equations of state are complicated since they work when this condition is absent, like in real gases. The relation  $PV = nRT$  holds for gases which display this condition.  
ANSWER: **idealness**
10. Answer the following about various proposals and compromises at the American Constitutional Convention.  
[10] William Paterson, a delegate from this state, proposed a plan which would create a unicameral legislation with one vote per state. It was intended to protect the interests of the smaller states.  
ANSWER: **New Jersey**  
[10] Infamously, the delegates reached a compromise saying that for purposes of determining a state's total population, slaves would only count as this fraction of a person.  
ANSWER: **three-fifths**  
[10] This Pennsylvania delegate nominated George Washington for President. Known as the "financier of the Revolution," this man became Superintendent of Finance in the early 1780's and later recommended Alexander Hamilton for the Secretary of Treasury position.  
ANSWER: Robert **Morris** Jr. [do NOT accept "Gouverneur Morris"]
11. This term originally referred to Yuan Shikai and his cronies. For 10 points each:  
[10] Give this term for descendants of prominent Chinese Communist Party officials, such as current President Xi Jinping, who have used nepotism and cronyism to gain high political and economic positions.  
ANSWER: **princelings** [or the **Crown Prince Party**]  
[10] This other prominent princeling, who developed a partnership with British businessman Neil Heywood, served as secretary of the CCP's Chongqing branch.  
ANSWER: **Bo Xilai** [prompt on "Bo"]  
[10] During his time leading Chongqing, Bo Xilai made attempts to revive "culture" associated with this Communist-friendly color, which also names groups of "Guards" prominent during the Cultural Revolution.  
ANSWER: **red**
12. One of this man's plays opens with Almeria, the princess of Granada, stating that "Music has charms to soothe a savage breast." For 10 points each:  
[10] Name this author of *The Mourning Bride* and *Love for Love*. He wrote of Mirabell's schemes to wed Lady Wishfort's niece Millamant in *The Way of the World*.  
ANSWER: William **Congreve**  
[10] William Congreve, along with William Wycherley, revived this genre of play after the English Restoration. Traditional plays in this genre, such as Shakespeare's *As You Like It*, end with weddings.  
ANSWER: **comedy** [or word forms]  
[10] In this Restoration comedy by Irishman George Farquhar, Aimwell tries to marry Dorinda for her money as his friend Archer poses as his servant. They're also caught up in a plot to rob Lady Bountiful's house.  
ANSWER: *The **Beaux's Stratagem***

13. The twelfth of these is a one-movement work in C minor that wasn't performed until 1867, 39 years after the composer's death. For 10 points each:  
[10] Name these fifteen chamber works. The thirteenth draws on the composer's incidental music to *Rosamunde* and the fourteenth draws on his *lied* "Death and the Maiden".  
ANSWER: **string quartets** by Franz **Schubert** [prompt on partial answers]  
[10] Schubert may be better known for this symphony in B minor, which gets its nickname from the fact that it has only two movements, instead of the usual four.  
ANSWER: Symphony No. **8** in B minor, D. 759 "**Unfinished**" [accept either underlined part]  
[10] Schubert's so-called "third" song cycle is this posthumous collection of poetry by Ludwig Rellstab, Heinrich Heine, and Johann Gabriel Seidl. It contains his "Serenade" and "Der Doppelgänger".  
ANSWER: **Schwanengesang**, D. 957 [or **Swan Song**]
14. This event called into question Britain's policy of giving political asylum to refugees. For 10 points each:  
[10] Give the common name for the political crisis caused by an Italian radical's attempt to assassinate Napoleon III by placing a bomb under his carriage.  
ANSWER: **Orsini** affair [or any answer including Felice **Orsini**]  
[10] The Orsini affair brought down the government of this British Prime Minister. This man gave the *civis romanus sum* speech after the Don Pacifico affair to justify the blockade of Piraeus.  
ANSWER: Henry John **Temple**, 3rd Viscount **Palmerston** [accept either]  
[10] This British political party was led by Palmerston, as well as by William Gladstone and David Lloyd George. This opponent of the Conservative Party generally supported *laissez-faire* economics in the 19th century.  
ANSWER: **Liberal** Party
15. **Note to moderator: do not read the alternate answers to the first part.**  
Opportunistic infection with *Pneumocystis carinii* is common in "hyper-[this protein] syndrome," caused by mutated CD40L leading to a defect in class switching. For 10 points each:  
[10] Name this very large protein consisting of two heavy and two light chains, which forms intermolecular disulfide bonds, aggregating into pentamers. It is produced in the immediate response to an antigen.  
ANSWER: **IgM** [or **Immunoglobulin M**; prompt on "immunoglobulin" or "antibody"]  
[10] IgM is the largest isotype of these Y-shaped proteins produced by B cells, which specifically recognize and bind to antigens.  
ANSWER: **antibody** [or **immunoglobulins**; or word forms]  
[10] IgM turning up in an ELISA for this disease, which is part of the TORCH complex, indicates recent infection. Patent ductus arteriosus and "blueberry muffin" skin lesions appear in babies with the congenital form of this disease, which you don't have because you were given the MMR vaccine. . . right?  
ANSWER: **rubella** [or **German measles**; or **three-day measles**; for the love of God, do NOT accept or prompt on "measles"]
16. Joshua Rifkin and William Bolcom led a revival of this musical style in the 1970's. For 10 points each:  
[10] Name this musical style whose "classic" "Big Three" includes Joseph Lamb and James Scott. Its "novelty" form was popularized by "Zez" Confrey.  
ANSWER: **ragtime** [or **rags**]  
[10] This most-famous ragtime composer wrote the pieces "The Entertainer" and "Maple Leaf Rag".  
ANSWER: Scott **Joplin**  
[10] Joplin's piece "Solace" is a serenade inspired by the music of this country, the place of origin of *ranchera* and *banda* music and of guitar-like instruments called *jaranas*.  
ANSWER: **Mexico**



17. This theorem is pretty much the most important one in differential geometry, as it connects the geometry of a manifold with its topology. For 10 points each:  
[10] Name this theorem that most generally states that the surface integral of the curvature over a compact, oriented Riemannian 2-manifold is equal to two pi times the Euler characteristic of the manifold.  
ANSWER: **Gauss-Bonnet** theorem  
[10] An easy application of the Gauss-Bonnet theorem is deriving Gauss's law by interpreting the curvature as field strength and noting that the surface integral must evaluate to this topological invariant, which is measured in Coulombs.  
ANSWER: electric **charge** [or **Q**]  
[10] Due to charge conservation, the negative time derivative of the charge density must equal the divergence of this quantity, which is equal to conductivity times electric field in an analog of Ohm's law. It's typically seen in equations as J.  
ANSWER: **current density**
18. He included stories about his life as a chemist and as an anti-Fascist partisan in the collection *The Periodic Table*. For 10 points each:  
[10] Name this Italian-Jewish writer who described his imprisonment in Auschwitz in *If This is a Man*.  
ANSWER: Primo **Levi**  
[10] This Romanian-Jewish author wrote of his experiences in Auschwitz and Buchenwald in the book *Night*, which forms a trilogy with *Dawn* and *Day*.  
ANSWER: Elie **Wiesel**  
[10] This novel, purportedly by Jerzy Kosiński, describes the wanderings of an unnamed Jewish boy in Poland during WWII. It remains unclear if Kosinski actually wrote the book, and to what degree it is autobiographical or fiction.  
ANSWER: *The **Painted Bird***
19. This goddess, who was sometimes conflated with Rhea or Gaia, was honored by the drenching of a follower in the gush of blood from a slaughtered bull in the *taurobolium* ritual. For 10 points each:  
[10] Name this lover of Attis, a Near Eastern goddess of fertility who was later worshipped in Rome.  
ANSWER: **Cybele** [or **Magna Mater**; prompt on "Mater"]  
[10] This act was done by priests of Cybele in Rome to honor the mythic disfigurement of Attis. Cronus did this to his father Uranus using a sickle.  
ANSWER: self-**castration**  
[10] This kind of object, apparently containing Magna Mater, was moved from Pessinos in Asia Minor to Rome around 200 BCE to "adopt" her. Elagabalus's sun god was worshipped at this sort of object in Emesa.  
ANSWER: a **black rock** [or **black stone**; or **meteorite**; or **baetylus**]
20. This dynasty was brought to an end by the rebellion of Li Zicheng and the subsequent invasion of the Manchus, who established the Qing dynasty. For 10 points each:  
[10] Name this dynasty founded by Zhu Yuanzhang, whose Yongle emperor send Zheng He on a number of voyages throughout the Indian Ocean. It was noted for its porcelain production.  
ANSWER: **Ming** dynasty  
[10] This group of Mongols captured the Zhengtong emperor of Ming during the Tumu Crisis. This tribe's historical confederation was composed of four tribes.  
ANSWER: **Oirats**  
[10] A Ming dynasty eunuch with this surname was responsible for the disastrous campaign that resulted in the Tumu Crisis. A different man with this surname was targeted by the Red Eyebrows rebellion.  
ANSWER: **Wang** [or **Wang** Zhen; or **Wang** Mang]