**HSAPQ Tournament #53**

**Packet 12 Tossups**

1. **This group of organisms curiously lacks the fatty acid synthetase enzyme. The cell membrane of this group of organisms is comprised mostly of ether lipids. This group contains the only known organisms capable of methanogenesis. It was first distinctly defined by a phylogenetic analysis of 16S ribosomal RNA performed by Carl Woese and George Fox. This (\*)** domain is popularly thought to consist mainly of extremophiles that live in hot springs or salt lakes. For 10 points, name this third domain of life that shares characteristics with both Eukarya and Bacteria.

ANSWER: **Archaea**

2. **During a siege of Megara, Scylla fell in love with this man and presented to him a purple lock of her father’s hair. Due to the treachery of the daughters of Cocalus, this man died after searching for a man who could thread a snail shell. Like his brother Rhadamanthys (RAH-duh-MAN-this), he became a (\*)** judge of the Underworld after death. After the death of Androgeus, this man forced Athens to send seven youths and seven maidens to a labyrinth built by Daedalus, which held a son of Pasiphae. For 10 points, name this Cretan king whose wife gave birth to the Minotaur.

ANSWER: **Minos**

3. **In one of this man’s stories, Mr. Xxx believes that a group of visitors are hallucinations and kills them. In another of his stories, Spender, an archeologist, supports a group of people who are devastated by a chickenpox epidemic. That story, “—And the Moon Shall be as Bright”, is part of his (\*)** *Martian Chronicles*. In one of this man’s novels, Mrs. Phelps cries when *Dover Beach* is read while Mildred’s “parlor walls” are off. Later in that novel by him, a mechanical hound chases the protagonist, Guy Montag. For 10 points, name this American author of *Fahrenheit 451*.

ANSWER: Ray Douglas **Bradbury**

4. **A boy holds a melon next to an elderly woman cooking eggs in one of this artist’s *bodegons*. Justin of Nassau hands over the keys to his city in another painting by this artist. He defied the Inquisition by painting the nude Venus staring into a mirror held by her son (\*)** Cupid in his *Rokeby Venus*. This court painter of King Philip IV created a portrait of Pope Innocent X, and he painted himself with a red cross in a painting that features several dwarves and the Infanta Margarita. For 10 points, name this Spanish artist of *Las Meninas*.

ANSWER: Diego **Velazquez**

5. **After spitting off a bridge, Planchet is hired to act as a servant to this character. While fighting with a man at Meung, this man’s letter of introduction to Treville is lost. On his first day in Paris, this character schedules three duels with men who eventually become his (\*)** best friends. He falls in love with both Constance Bonacieux and the treacherous Milady de Winter. For 10 points, name this man who befriends Athos, Porthos, and Aramis, the protagonist of Alexander Dumas’s *The Three Musketeers*.

ANSWER: **d’Artagnan**

6. **When this operation is performed with respect to a circle, all points on its circumference map to themselves. A function has both a left and right one of these operations only if it is a bijection. For a matrix, it is found by adjoining it to the identity and performing row operations and only exists if a matrix's determinant is nonzero. It is calculated for a function by (\*)** switching the x and y variables in the expression and solving for y. This operation exists when a function passes the horizontal line test. For 10 points, give this operation that is a number's reciprocal for multiplication.

ANSWER: **inverse** [or **inversion**]

7. **This state is home to the Medicine Bow and Gros Ventre mountain ranges. This state’s eastern portion is known as the “High Plains” The Wind River Range, which borders this state’s towns of Riverton and Lander. This state’s northeastern portion contains a national mountain consisting of a gigantic igneous intrusion, (\*)** Devils Tower. This state’s tourist hub of Jackson Hole lies near its Grand Teton National Park. For 10 points, name this US state home to most of Yellowstone National Park, with a capital at Cheyenne.

ANSWER: **Wyoming**

8. **This war's final phase effectively ended with Operation Frequent Wind. It featured massive aerial assaults in two different operations code-named Linebacker. Wayne Morse and Ernest Gruening were the only two Senators to vote against a (\*)** resolution authorizing the President to send troops into this war. American soldiers were attacked in this war during the Tet Offensive, and U.S. involvement escalated after the Gulf of Tonkin Incident. For 10 points, name this conflict which featured American troops fighting in what was formerly French Indochina.

ANSWER: **Vietnam** War

9. **The intensity of this phenomenon is proportional to the square of the sine of the phase difference all over the phase difference. Electrons were confirmed to undergo this phenomenon in the Davisson-Germer experiment. This phenomenon is used with X-rays to study crystals in a process described by Bragg's law. It is explained by the principle that every point on a (\*)** wavefront is a source of spherical waves, which is named for Huygens. For 10 points, identify this phenomenon in which light bends around an obstacle.

ANSWER: **diffraction**

10. **In this military action, the Ranger Assault Group attacked Point du Hoc. Paratroopers involved in this action received "crickets" that made clicking noises to signify their location. A message sent to soldiers involved in this military action told them they were "about to embark upon the Great Crusade." During this event, soldiers fought at places nicknamed (\*)** "Juno", "Sword" and "Utah". Allied forces stormed Omaha Beach in, for 10 points, what June 6th, 1944 action, the Allied invasion of Nazi-occupied Europe?

ANSWER: **D-Day** Invasion [or **Normandy landing**, etc.]

11. **The third movement of this composer’s second piano concerto opens with a cello solo. Pablo de Sarasate refused to perform this composer’s D major violin concerto, which was written for his friend Joseph Joachim. An overture by this composer quotes such drinking songs such as (\*)** “Gaudeamus Igitur.” This composer’s requiem unusually quotes from the Lutheran Bible. His first symphony was mockingly called “Beethoven’s Tenth.” For 10 points, name this German composer of the *Academic Festival Overture* and a famous lullaby.

ANSWER: Johannes **Brahms**

12. **A character in this collection asks, “Who painted the lion, tell me, who?” to refute misogynist literature. Another character in this collection recounts how the clerk Absolon brands Nicholas on the bottom for sleeping with a woman whose husband believes a great flood is coming. This collection follows a party of (\*)** thirty pilgrims on the way to the shrine of Thomas Becket including the Miller and the Wife of Bath. For 10 points, name this collection of verse tales by Geoffrey Chaucer.

ANSWER: *The* ***Canterbury Tales***

13. **This musician sings that “all my walls stood tall painted blue” on the song “Everything Has Changed,” which is a duet with Taylor Swift. This musician contributed the song “I See Fire” to the soundtrack of *The Hobbit: The Desolation of Smaug*. On a song from his first album, this musician sings about a girl who is “stuck in her ()\*** daydream” and has “been this way since eighteen.” The first single from his most recent album’s chorus exhorts “I need you darling, come on set the tone.” For 10 points, name this British performer of “A Team” and “Sing.”

ANSWER: Ed **Sheeran**

14. **An example of these entities was derided as the “accursed hill” by William Cobbett and was owned by the Earl of Caledon. Another of these areas was reduced in size by coastal erosion to the village parish of All Saints, and their existence inspired 1831 riots in Nottingham. Opposed by the (\*)** Whigs, they were eliminated by the Reform Act of 1832, and examples of them were Dunwich and Old Sarum. For 10 points, name these historic British constituencies which elected members to the House of Commons despite having little to no population.

ANSWER: **rotten borough**s [or **pocket borough**s]

15. **One film in this language ends with the title conquistador attacking some monkeys and yelling "I am the wrath of God!" This language of *Aguirre* was also used in a science fiction film containing Rotwang, who animates a robot version of Maria. Count Orlok ships himself to Wisborg in a coffin in a vampire film in this language, titled (\*)** *Nosferatu*. This language of *Metropolis* was spoken by directors Werner Herzog and Fritz Lang. For 10 points, name this language used in *The Triumph of the Will*, a propaganda film celebrating Adolf Hitler.

ANSWER: **German** [or **Deutsch**]

16. **A poem in this book declares "How lovely is your dwelling place." Another poem from this book describes weeping by the rivers of Babylon. The 119th poem in this collection is an acrostic with one stanza for each letter of the alphabet. Twelve of the poems in this book are attributed to (\*)** Asaph, while almost half are attributed to David. The twenty-third entry in this book describes the "valley of the shadow of death" and declares, "The Lord is my shepherd; I shall not want." For 10 points, name this Biblical book containing 150 poems.

ANSWER: **Psalms** [or **Tehillim**]

17. **This man attempted to make John de Gray the Archbishop of Canterbury, but the Pope forced him to accept Stephen Langton instead. This ruler’s ally Otto IV abdicated as Holy Roman Emperor after Philip II defeated the pair at Bouvines. After this king’s death, rebellious noblemen deserted French king Louis VIII, turning the tide of the First (\*)** Barons’ War in favor of his son Henry III. This king tried to gain power when his brother joined the Third Crusade. He was forced to put his Great Seal on a document at Runnymede. For 10 points, name this English king who signed the Magna Carta.

ANSWER: **John** Lackland

18. **This character exclaims "what a noble mind is here o'erthrown!" upon meeting a man who addresses her with the line, "in thy orisons be all my sins remembered." In another scene, she sings "by Gis and by Saint Charity" and a song about Valentine’s Day before handing out (\*)** pansies and rosemary. This character is told to "get thee to a nunnery," and her death is avenged by Laertes, her brother. For 10 points, name this daughter of Polonius who is the beloved of Prince Hamlet.

ANSWER: **Ophelia**

19. **This thinker first defined a situation in which low interest rates cause people to hold their money in cash rather than invest it. This thinker decried the harsh financial penalties levied against Germany at the Paris Peace Conference in his *The* (\*)** *Economic Consequences of the Peace*. This economist defined the multiplier and the liquidity trap in his seminal tract *The General Theory of Employment, Interest, and Money*. For 10 points, name this British economist whose advocacy of deficit spending influenced FDR’s policies during the Great Depression.

ANSWER: John Maynard **Keynes**

20. **A class of these substances is detected using methylene blue in a colorimetric analysis method. The amphoteric class of these substances, which includes CHAPS, shares properties with zwitterions. Below the Krafft temperature, these substances form micelles. These substances, which include SDS, are used as wetting agents and emulsifiers. A "pulmonary" example of these substances is secreted by (\*)** alveoli. They are composed of both hydrophilic and hydrophobic components. For 10 points, name these reagents used to lower a solution's surface tension.

ANSWER: **surfactant**s

21. **This property is quantized in units of Planck's constant over electron charge squared in the quantum Hall effect. In AC circuits, this quantity is the real part of the impedance, and an ideal voltmeter has an infinite value for this quantity. For a wire, this quantity is proportional to the length and inversely proportional to cross-sectional area. The inverse of this quantity is (\*)** conductance, and voltage is equal to current times this quantity according to Ohm's law. For 10 points, identify this property which is high for insulators.

ANSWER: **resistance** [do not accept "resistivity"]

22. **In a play by this man, the Young Man reveals that he is the Angel of Death to Grandma. Two characters created by this man receive a telegram that informs them that their son died in a car accident while avoiding a porcupine. A play by this man is set on a single park bench and ends with Jerry impaling himself on Peter's knife. Games like (\*)** "Bringing Up Baby" and "Get the Guests" feature in one of this man's plays, which follows the rocky marriage of Martha and George. For 10 points, name this playwright of *Zoo Story* and *Who's Afraid of Virginia Woolf?*

ANSWER: Edward **Albee**

23. **A proponent of this school of philosophy stated that people deceive themselves into thinking they are "proficient enough in the art of reasoning" in his "The Fixation of Belief." Other proponents of this school include Richard Rorty and the author of *Democracy and Education*, John (\*)** Dewey. A book named after this school of philosophy was subtitled "A New Name for Some Old Ways of Thinking." For 10 points, name this school of philosophy, whose proponents include Charles Peirce and William James.

ANSWER: **Pragmatism**

**HSAPQ Tournament #53**

**Packet 12 Bonuses**

1. The title character of this book constantly thinks of Joe DiMaggio. For 10 points each:

[10] Name this novel about Santiago, who uses a harpoon to attack a large marlin.

ANSWER: *The* ***Old Man and the Sea***

[10] *The Old Man and the Sea* is by this Nobel-winning author, who also wrote *For Whom the Bell Tolls*.

ANSWER: Ernest **Hemingway**

[10] This young apprentice assists Santiago in *The Old Man and the Sea*. This boy worries about Santiago during his quest to catch the marlin.

ANSWER: **Manolin**

2. Peptides, such as somatostatin, can function as these chemicals. For 10 points each:

[10] Identify these chemicals that are responsible for relaying information throughout the nervous system.

ANSWER: **neurotransmitter**s

[10] This neurotransmitter and hormone, which is secreted by a namesake gland above the kidneys, triggers the fight-or-flight response.

ANSWER: **adrenaline** [or **epinephrine**; do not accept "norepinephrine"; do not accept "noradrenaline"]

[10] This neurotransmitter is responsible for muscle contraction. Myasthenia gravis is caused by blockage of this neurotransmitter's receptors.

ANSWER: **acetylcholine** [or **ACh**]

3. PUT A CHEMISTRY BONUS HERE

4. Answer the following about Greek prophets, for 10 points each.

[10] This Theban prophet lived for seven generations and was turned into a woman after striking a pair of snakes. Depending on the source, he was blinded by either Hera or Athena.

ANSWER: **Tiresias**

[10] The prophet Calchas advises Agamemnon to give back Chryseis in Book I of this epic, which tells the story of the Trojan War and is attributed to Homer.

ANSWER: *The* ***Iliad***

[10] This object could deliver prophecies since part of it was constructed with sacred wood from Zeus’s oracle at Dodona.

ANSWER: **Argo**

5. This tsar’s half-sister Sophia encouraged the streltsy to revolt against him. For 10 points each:

[10] Name this westernizing Tsar of Russia, whose namesake city was a “Window to the West.” This ruler learned shipbuilding while on his “Grand Embassy” across Europe.

ANSWER: **Peter the Great** [or **Peter I**; or **Pyotr the Great**; or **Pyotr I**; prompt on **Pyotr** or **Peter**]

[10] Peter the Great fought this country during the Great Northern War. This country won the Battle of Narva while led by King Charles XII.

ANSWER: **Sweden** [or Kingdom of **Sweden**; or Konungariket **Sverige**]

[10] Russian victory at this battle in the Great Northern War forced Charles XII into exile in the Ottoman Empire. Sweden lost this battle despite having help from the Cossack Ivan Mazepa.

ANSWER: Battle of **Poltava**

6. This monarch abdicated in June of 2014, passing the throne to his son Felipe VI. For 10 points each:

[10] Name this king, whose popularity was hurt by revelations that he went on a 2012 elephant-hunting safari in the middle of a recession.

ANSWER: King **Juan Carlos** I [or **Juan Carlos** Alfonso Víctor María de Borbón y Borbón-Dos Sicilias of Spain]

[10] Juan Carlos I was the monarch of this country since 1975, where he led the state back to democracy after the death of Generalissimo Francisco Franco.

ANSWER: Kingdom of **Spain**

[10] In April of 2014, the Spanish parliament rejected calls from this northeastern region to hold an independence referendum on November 9th. Its major party is Convergence and Union.

ANSWER: **Catalonia** [or **Catalunya**]

7. The protagonist of this novel fathers the illegitimate child Brigitta on his parishioner Maria. For 10 points each:

[10] Name this novel set in Mexico in which the mestizo betrays the unnamed whiskey priest.

ANSWER: *The* ***Power and the Glory***

[10] *The Power and the Glory* was written by this 20th-century British Catholic novelist of *Brighton Rock.*

ANSWER: Graham **Greene**

[10] This Greene novel follows Major Henry Scobie, a British officer in Africa who is plagued by guilt for his adulterous affair with Helen Rolt.

ANSWER: *The* ***Heart of the Matter***

8. This dictator's fifth wife was known as "Suicide Sarah," and he ousted his predecessor Milton Obote in a January 1971 coup. For 10 points each:

[10] Name this African dictator and alleged cannibal whose life was chronicled in the movie *The Last King of Scotland.*

ANSWER: Idi **Amin** Dada

[10] Idi Amin was the dictator of this country, which was the origin of the Lord's Resistance Army led by Joseph Kony.

ANSWER: **Uganda**

[10] After Amin invaded and annexed the Kagera region of Tanzania, this man, the first President of Tanzania, ousted Amin from his leadership and forced him into exile.

ANSWER: Julius Kambarage **Nyerere**

9. Name these Gioachino Rossini operas, for 10 points each.

[10] Count Almaviva employs Figaro to help him woo Rosina in this Rossini opera, which features the aria “Largo al factotum.”

ANSWER: *The* ***Barber of Seville*** [or *Il* ***barbiere di Siviglia****, ossia L’inutile precauzione*; or *The* ***Barber of Seville****, or, The Futile Protection*]

[10] In this seldom-performed opera, the title Swiss folk hero shoots an apple off his son Jemmy’s head during the aria “Sois immobile.”

ANSWER: ***William Tell*** [or ***Guillaume Tell***, or ***Gugielmo Tell***]

[10] Prince Ramiro recognizes a bracelet belonging to Angelica in this Rossini opera, an adaptation of a popular folk tale.

ANSWER: ***Cinderella*** [or *La* ***cenerentola****, ossia La bonta in trionfo*; or ***Cinderella****, or Goodness Triumphant*]

10. Followers of this denomination believe that the Imam is an infallible source of God's beliefs. For 10 points each:

[10] Name this second-largest denomination of Islam that believes in Ali being the rightful successor to Muhammad.

ANSWER: **Shi'a** Islam

[10] This largest branch of Shi'a Islam believes that the Mahdi will return as the last Imam; they oppose some beliefs of the "Fivers."

ANSWER: **Twelvers** [or **Athnā‘ashariyyah**]

[10] This mode of devotion in Islam, which included Rumi, is known for wearing wool clothing as well as their "whirling dervishes"

ANSWER: **Sufi**sm [or ***taṣawwuf***]

11. Abbe Pirard hires this character as his secretary, and he later impregnates Mathilde de La Mole. For 10 points each:

[10] Name this character who shoots Madame de Renal for revealing his previous affairs, the protagonist of *The Red and the Black*.

ANSWER: **Julien** Sorel [or Julien **Sorel**]

[10] *The Red and the Black* is a novel by this nineteenth-century French author.

ANSWER: **Stendhal** [or Marie-Henri **Beyle**]

[10] Stendhal also wrote a biography of this contemporary French Emperor.

ANSWER: **Napoleon** Bonaparte [prompt on **Bonaparte**]

12. This team has won two of the last three Stanley Cups. For 10 points each:

[10] Name this NHL team whose star players include goaltender Jonathan Quick and defenseman Drew Doughty (DOW-tee).

ANSWER: **Los Angeles** Kings [or Los Angeles **Kings**]

[10] In an attempt to win the Cup during the 1980s, the Kings acquired this player from the Edmonton Oilers. He is the NHL’s all-time leading scorer.

ANSWER: Wayne **Gretzky**

[10] At the 2014 Olympics, Quick played for the United States under this coach, who was fired by the Pittsburgh Penguins at the end of the 2013-14 season.

ANSWER: Dan **Bylsma** (BILES-muh)

13. Answer the following about simple harmonic motion, for 10 points each.

[10] For a mass and spring, one can derive the equation of motion by setting Newton's second law equal to this equation, which gives a spring's restoring force as proportional to its displacement.

ANSWER: **Hooke's law**

[10] Although the spring's total energy is constant, its potential energy is constantly changing and equals this constant times the spring constant times displacement squared.

ANSWER: one-**half** [or **0.5**]

[10] Pendulums are harder to model as simple harmonic oscillators, but it can be done by using this approximation, which sets the sine of x to be approximately x.

ANSWER: **small angle** approximation [prompt on **Taylor** series **expansion**; prompt on **power series expansion**]

14. This poem begins with the declaration, “This is the forest primeval.” For 10 points each:

[10] Name this narrative poem written in dactylic hexameter that focuses the title Acadian girl.

ANSWER: ***Evangeline***

[10] *Evangeline* was written by this American poet of “The Village Blacksmith.” He wrote a popular poem beginning, “Listen, my children, and you shall hear.”

ANSWER: Henry Wadsworth **Longfellow**

[10] The aforementioned Longfellow poem describes the “midnight ride” of this hero of the American Revolution.

ANSWER: Paul **Revere**

15. A commander at this battle dodged a charging Henry de Bohun and split his head in two with a hand axe. For 10 points each:

[10] Name this 1314 battle, a defeat for the forces of Edward II which led to the independence of Scotland.

ANSWER: Battle of **Bannockburn**

[10] This national hero of Scotland led the Scottish forces at Bannockburn.

ANSWER: **Robert I** [or **Robert the Bruce**; prompt on **Robert**]

[10] Bannockburn came seventeen years after this battle, where William Wallace held off English forces at the namesake structure.

ANSWER: Battle of **Stirling Bridge**

16. For a set with *n* elements, the number of elements in this related set is two to the *n*. For 10 points each:

[10] Name this set that is the set of all the subsets of another set and can be denoted by a capital P.

ANSWER: **power set**

[10] According to a theorem named for this mathematician, the power set of any set – even an infinite one – is strictly larger than the original set. This mathematician's namesake set can be formed by repeatedly removing the middle third of line segments, resulting in a fractal that is dense nowhere.

ANSWER: Georg **Cantor**

[10] This binary operation from set theory simply takes an input of two sets and gives an output of all the members in each set, or both sets.

ANSWER: **union**

17. The 6th of October City, which contains the "Smart Village" IT hub, is part of the greater urban area of this city. For 10 points each:

[10] Name this world capital, the largest city in the Middle East and Africa.

ANSWER: **Cairo**

[10] For its abundance of Islamic architecture, Cairo has been nicknamed the "city with a thousand" of these structures, the tall spires that often accompany mosques.

ANSWER: **minaret**s

[10] Gezira Island near downtown Cairo is home to the biggest building of this kind in Cairo. It replaced a now-demolished structure built under the orders of Khedive Ismail to celebrate the opening of the Suez Canal.

ANSWER: **opera house**

18. A woman milks a goat on the left side of this painting, and a man walks with a sickle over his shoulder near its top. For 10 points each:

[10] Name this painting dominated by the image of a sheep and a green-faced man looking at each other. A group of houses and an Orthodox church are seen in the background.

ANSWER: ***I and the Village***

[10] This Russian-born Jewish man painted *I and the Village*.

ANSWER: Marc **Chagall**

[10] Some of the houses in *I and the Village*, along with the female violinist who appears to emerge from them, have this unique quality.

ANSWER: they are **upside-down** [accept answers like **flipped 180 degrees**]

19. This term was coined by Associated Press reporter Robert Geiger, an eyewitness to the Black Sunday storm, the worst of the "black blizzards." For 10 points each:

[10] Name this period of severe storms and drought that demolished the agriculture of the prairies in the 1930s.

ANSWER: **Dust Bowl**

[10] The Dust Bowl forced many families from this affected state to migrate westward to California, a phenomenon that informed John Steinbeck's novel *The Grapes of Wrath*.

ANSWER: **Oklahoma**

[10] The Dust Bowl decisively debunked this theory advanced by property developers in the American West, which held that land cultivation in arid regions made them more humid.

ANSWER: **rain follows the plow** [accept variations in word form that preserve the words, and the temporal relationship between, **rain** and the **plow**]

20. This composer participated in a stormy affair with the writer George Sand. For 10 points each:

[10] Name this Polish-French pianist who composed the *Fantasie-Impromptu*, along with many mazurkas and polonaises.

ANSWER: Frederic **Chopin**

[10] Chopin’s Opus 10 and 25 were collections of pieces in this virtuosic form, including pieces nicknamed “Aeolian Harp”, “Black Key”, and “Revolutionary.” This word is French for “study.”

ANSWER: **etude**s

[10] One of Chopin’s most performed pieces is this solo piano composition in 12/8 time, his Opus 9, No. 2, which is in a form that was popularized by John Field.

ANSWER: ***Nocturne in E Flat*** *Major*, Opus 9 No. 2.

21. This ruler called the synod of Frankfurt to address the adoptionist heresy. For 10 points each:

[10] Name this Frankish king who was crowned Emperor of the Romans by Leo III on Christmas day. He employed Alcuin of York at his Palace School, where minuscule script was developed.

ANSWER: **Charlemagne** [or **Charles** the **Great**; or **Charles I**; or **Karolus Magnus**; prompt on **Charles**]

[10] Charlemagne defeated a king of these people named Desiderius. Rulers of these people wore the Iron Crown, and they are the namesake of a northern region of Italy.

ANSWER: **Lombard**s

[10] Charlemagne's grandchildren divided up his empire by signing this treaty, which was modified decades later by the Treaty of Meersen.

ANSWER: Treaty of **Verdun**