

2022 ACF Fall

Packet G by Toronto A, UBC B, UIUC A, UCF A, Berkeley A

Edited by Steven Liu, Arjun Nageswaran, Dean Ah Now, Raymond Chen, Jim Fan, Sean Farrell, Evan Knox, Daniel Ma, Ned Tagtmeier, Eric Yin, and Walter Zhang.

Tossups

1. In one story, Garuda helps a sparrow attack one of these locations after the loss of its eggs. Bhūmi was hidden in one of these locations by Hiranyaksha but was rescued by the boar Varāha. Vishnu took on the female avatar Mohinī to steal a substance made in one of these places where he held Mount Mandāra on his back as Kurma. One of these locations produced the halahala poison that turned Shiva's throat blue. Lakshmi and the nectar amritā were created from the churning of one of these places filled with milk. In the *Rāmāyaṇa*, monkeys build a floating bridge across one of these locations to reach the kingdom of Lanka. For 10 points, name this domain ruled by the Hindu god Vāruṇa and the Greek god Poseidon.

ANSWER: **oceans** [or **seas**; or **Samudrá**; accept **Ocean** of Milk or Kshirasāgara; accept **Garbhodaka** Ocean; prompt on bodies of water or underwater]

<Mythology>

2. A poem in this language begins “in the beginning the light and the first hour” and is addressed “to Axion Esti.” A poem in this language asks to always keep the title location “in your mind” and tells the addressee, “hope your journey is a long one.” That poem's author used this language to write about how the title people were “a kind of solution” in “Waiting for the Barbarians.” The George Seferis poem “Mythistorema” and a C.P. Cavafy poem about returning home to an island were inspired by epic works in this language's ancient form. For 10 points, name this language whose ancient form was used by Homer.

ANSWER: **Greek** [or **Elliniká**; accept ancient **Greek** or **Hellēniké**; accept Homeric **Greek** or Epic **Greek**; accept **Ionic** Greek or Hellēnikē **Iōnikē**; accept **Aeolic** Greek or **Aeolian** or **Lesbian** or **Lesbic**] (The unnamed C.P.

Cavafy poem is “Ithaka.”)

<European Literature>

3. This process's phi and psi dihedral angles are visualized on a Ramachandran plot that describes its allowable conformations. While Levinthal's paradox suggests that this process could take longer than the age of the universe, it is made energetically favorable through “hydrophobic collapse” as well as molecular chaperones. Errors in this process can cause Creutzfeldt–Jakob disease by creating prions (“PRY-ons”). During this process, formation of disulfide bridges can stabilize structures made of beta strands and alpha helices. For 10 points, name this process in which a polypeptide assumes its final three-dimensional structure.

ANSWER: **protein folding** [accept **polypeptide folding** until “polypeptide” is read; prompt on folding by asking “what is being folded?”]

<Chemistry>

4. In a story by this author, a woman slowly realizes that she is pregnant while ascending the stairs of her apartment building in the title “stroke of good fortune.” Another of this author's characters, who changes her name from Joy to Hulga to annoy her mother, ends up stranded in a barn loft after a falsely pious Bible salesman steals her prosthetic leg. A self-righteous grandmother created by this author “would have been a good woman” if she lived every minute of her life with “somebody there to shoot her,” according to an escaped criminal called the Misfit. For 10 points, name this Southern Gothic author of “Good Country People” and “A Good Man is Hard to Find.”

ANSWER: Flannery **O'Connor** [or Mary Flannery **O'Connor**]

<American Literature>

5. At Glastonbury 2022, this performer named five Supreme Court justices before performing with Lily Allen. *Jennifer's Body* inspired a Petra Collins-directed music video for a song by this performer that Paramore eventually received writing credits on. Dan Nigro (“NAI-groh”) won a Grammy for producing an album by this performer that begins with a song that claims “I’m not cool and I’m not smart” and concludes “God, it’s brutal out here.” This performer accuses an ex of being “with that blonde girl” in a song lamenting “you said forever, now I drive alone past your street.” For 10 points, name this pop singer whose album *Sour* includes the songs “good 4 u” and “drivers license.”

ANSWER: Olivia **Rodrigo** [or Olivia Isabel **Rodrigo**]

<Pop Culture>

6. German immigrants to this city published *Puck* Magazine and the *Western Post*, founded by its resident Carl Schurz. Judges in this city heard the first freedom trial of Dred Scott. In 2018, a National Park was created in this city on a site that includes the Old Courthouse. The world’s largest brewing company was founded in this city by Adolphus Busch. The supposed invention of the ice cream cone and a scandalous marathon took place in this city during the 1904 World’s Fair and Olympics. In 1976, a university added this city to its full name to distinguish itself from other universities named for Washington. A monument in this city commemorates the departure of the Corps of Discovery. For 10 points, name this Missouri city where Lewis and Clark are memorialized by the Gateway Arch.

ANSWER: **St. Louis** [or **STL**; accept Washington University in **St. Louis** or **WUSTL**]

<American History>

7. This phenomenon occurs in hollow spherical devices topped with nipples, which are named after Hermann von Helmholtz. A type of this phenomenon is only exhibited by nuclei with odd numbers of either protons or neutrons. A 4-to-2-to-1 ratio of periods characterizes a type of this phenomenon between Io, Europa, and Ganymede, known as its “orbital” type. This phenomenon, instead of aeroelastic flutter, is often incorrectly blamed for the collapse of the Tacoma Narrows Bridge. In this phenomenon, a driving frequency close to the natural frequency causes an increase in amplitude. For 10 points, name this phenomenon that can cause a wine glass to shatter.

ANSWER: **resonance** [or **resonating**; accept specific types like mechanical **resonance** or nuclear magnetic **resonance** or orbital **resonance** or Helmholtz **resonance** or Helmholtz **resonators**; accept **NMR**; prompt on **oscillations** or **vibrations**]

<Physics>

8. A former CEO of this company quipped “that must be why we’re not shipping [a certain product] yet” shortly after a failed demonstration of that product at COMDEX. One of this company’s products included a photograph taken by Charles O’Rear in Sonoma County titled “Bliss.” After a 2001 antitrust lawsuit against this company, a 2002 service pack for one of its products allowed for the use of third-party middleware. In October 2021, this company released the “11” version of its flagship software, whose previous iterations include “98” and “XP.” For 10 points, name this technology company co-founded by Paul Allen and Bill Gates, which produces the Windows operating system.

ANSWER: **Microsoft** [or **Microsoft** Corporation; accept **Microsoft** Windows; accept **Microsoft** Windows 98, **Microsoft** Windows XP, and **Microsoft** Windows 11; accept *United States v. Microsoft Corp.*; prompt on **MS**; reject “Windows” alone]

<Current Events>

9. This piece was likely inspired by theosophist Alan Leo's *The Art of Synthesis*, with which it shares several titles. In this piece's first movement, an ostinato of [read slowly] "eighth note triplets, quarter note, quarter note, two eighth notes, quarter note" is played *col legno* under a brass melody and is in 5/4 ("five-four") time. This piece's last movement ends with a door slowly closing on a wordless female choir. Another movement of this piece contains the hymn tune "Thaxted," later used for the patriotic hymn "I Vow to Thee, My Country." This piece's subtitles include "the Mystic" and "the Bringer of War." For 10 points, name this orchestral suite by Gustav Holst that depicts bodies in the solar system.

ANSWER: *The Planets*

<Classical Music>

10. This man's ship *Resolution* was the first ship to cross the Antarctic Circle and later became the first European ship to land at Nootka Sound. Based on Dr. James Lind's observations, this man pioneered the use of sauerkraut to prevent scurvy on his long-distance expeditions. This man names a self-governing island country centered on Rarotonga that, along with Niue, is in "free association" with a larger country. Captain Arthur Philip's First Fleet landed at the place where this man first set foot on a new landmass, Botany Bay. After attempting to kidnap a local chief, this man was killed in Hawai'i on his final voyage. For 10 points, name this prolific British explorer who was the first to map the coasts of Australia and New Zealand.

ANSWER: James Cook [accept Cook Islands or Kūki 'Āirani]

<Other History>

11. The value of an integral named for this quantity equals the flux through a surface by the divergence theorem. This quantity is [emphasize] *finite* for a figure made from the hyperbola "x times y equals 1" that is sometimes named for Torricelli. Depending on whether they are done parallel or perpendicular to the axis of revolution, calculations for this quantity can be simplified using the washer or shell method. This quantity can be calculated with triple integrals of a constant function. This quantity for a sphere is calculated by taking the integral of the surface area. For 10 points, name this quantity, the amount of space of a three-dimensional shape.

ANSWER: volume [accept volume integral]

<Other Science>

12. A ruler of this kingdom celebrated the failure of enemy forces to capture its capital after the 1759 Battle of Kunersdorf as a "miracle." The Sanssouci ("SAHN-soo-SEE") palace was built as a summer residence for a ruler of this kingdom who refuted *The Prince* in his essay *Anti-Machiavel*. This kingdom allied with Britain during the Diplomatic Revolution immediately before the Seven Years War. Upon the accession of Maria Theresa to the Austrian throne, a ruler of this kingdom invaded Silesia, sparking the War of the Austrian Succession. For 10 points, Frederick the Great ruled what predecessor state to Germany?

ANSWER: Prussia [or Preussen; Kingdom of Prussia; accept Brandenburg-Prussia or Brandenburg-Preußen; prompt on Brandenburg by asking "what kingdom was it in a personal union with?"; prompt on Germany or Deutschland until "Germany" is read]

<European History>

13. People from this country may return home in an observance called *mudik* that often occurs for Lebaran. The mythology of a region in this country includes the battle between Rangda and Barong. Communal feasts called *slametan* are common in an area of this country, which Clifford Geertz contrasted with Morocco in *Islam Observed*, a book that argues that in this country, Islam “appropriated” the civilization of Hindu-Buddhist states like Majapahit. In this country, 72 stupas containing golden Buddhas surround platforms at the world’s largest Buddhist temple, Borobudur. This country contains the Hindu-majority island of Bali. For 10 points, name this country that contains the island of Java.

ANSWER: **Indonesia** [or Republic of **Indonesia** or Republik **Indonesia**]

<Religion>

14. A ruler of this empire was served by a courtier who correctly deduced the mother tongue of a scholar in a legend and was named Birbal. This empire’s second ruler spent 15 years in exile before reclaiming his lands from Sher Shah Suri. Despite his illiteracy, another ruler of this empire patronized a group of scholars known as the “nine jewels” and created the syncretic religion Din-i-Ilahi. This empire was founded after its forces defeated Ibrahim Lodi (“ee-BRAH-heem LOH-dee”) at the First Battle of Panipat (“PAH-nee-putt”). A mausoleum in Agra (“AH-grah”) contains the tomb of this empire’s ruler Shah Jahan (“juh-HAHN”). For 10 points, Humayun (“hoo-mah-YOON”) and Akbar ruled what Indian empire, which built the Taj Mahal?

ANSWER: **Mughal** (“MOO-gul”) Empire [or the **Mughals**; or **Mogul** Empire]

<World History>

15. In a study of this thinker’s “Practical Philosophy,” Gilles Deleuze (“jeel duh-LOOZE”) praises this thinker’s philosophy of immanence and calls him the “Christ of philosophers.” A book by this thinker counters dualism by arguing that thought and extension were two of an infinite number of attributes. That work by this thinker argues that things continue to exist through a force called *conatus*. This philosopher used a geometric arrangement of chapters for his magnum opus, which caused him to be banished from Amsterdam’s Jewish Quarter. This philosopher theorized that God was found in the substance and attributes of nature. For 10 points, name this 17th-century philosopher whose *Ethics* reputedly promoted pantheism.

ANSWER: Baruch **Spinoza** [or Benedictus de **Spinoza**; or Baruch **Espinosa**]

<Philosophy>

16. Two artists from this modern-day country collaborated on a painting of bears climbing on a fallen tree titled *Morning in a Pine Forest*. In the essay “Avant-Garde and Kitsch,” Clement Greenberg contrasted Picasso with a realist artist from this country who painted a desolate landscape traversed by barge haulers. Traditional *lubok* prints from this country inspired works from the Cubo-Futurist and Suprematist movements. The gold and tempera icon *Trinity* was painted in this country, whose House of Fabergé produced a collection of prized jeweled eggs. A leader from this country poses on a rearing horse in the Bronze Horseman sculpture. For 10 points, name this country that contains the Hermitage museum in St. Petersburg.

ANSWER: **Russia** [or **Russian** Federation; or **Rossiya**; accept **Russian** Empire or **Rossiyskaya** Imperiya; reject “Soviet Union” or “USSR”] (Ivan Shishkin and Konstantin Savitsky painted *Morning in a Pine Forest*. Ilya Repin painted *Barge Haulers on the Volga*.)

<Painting/Sculpture>

17. A poem about this event describes an “encumbered sleeper” whose “dead smile” indicated that “we stood in Hell.” This event is the subject of “Strange Meeting” and a poem that depicts men who are “bent double, like old beggars under sacks” and participate in “an ecstasy of fumbling.” Characters who “felt dawn” and “saw sunset glow” appear in a poem inspired by this event that describes a place where “poppies blow / between the crosses, row on row.” Another poem about this event is titled for a quote from Horace’s *Odes* that translates to “it is sweet and fitting to die for one’s country.” For 10 points, what conflict inspired John McCrae’s “In Flanders Fields” and Wilfred Owen’s “Dulce et Decorum Est”?

ANSWER: **World War I** [or **WWI** or the **First World War** or the **Great War**; accept Second Battle of **Ypres**; prompt on **chlorine** gas attack or chemical **warfare** by asking “during what event?”]
<British Literature>

18. Fish that live in habitats where this quantity is low have polypeptides known as AFPs that depress a certain value non-colligatively (“non kuh-LIG-uh-tiv-lee”). To prevent a decrease in this quantity, dolphins and porpoises use countercurrent exchange among blood vessels in their flippers. Stress due to high values of this quantity causes corals to expel their symbiotic algae. To prevent this quantity from decreasing, aquatic birds use preening oil to keep their down feathers dry. Marine mammals keep this quantity roughly constant thanks to thick layers of blubber. For 10 points, name this physiological variable that is internally regulated by warm-blooded animals.

ANSWER: **temperature** [accept **heat**; accept body **temperature**; prompt on **T**] (The first line refers to antifreeze proteins.)
<Biology>

19. This musician died before he was able to study with his neighbor, the electronic music composer Edgard Varèse. This musician’s “Scraple from the Apple” contains a section based on “Honeysuckle Rose.” This musician turned blues harmony into a series of repeated ii-V (“two-five”) chords in his “Blues for Alice.” This musician used the alias “Charlie Chan” and played a plastic saxophone on a live album recorded at Massey Hall. The Ray Noble song “Cherokee” inspired this musician to compose “Ko-Ko.” This musician used the chord progression of “How High the Moon” for “Ornithology.” A nickname of this musician names New York City’s Birdland jazz club. For 10 points, name this saxophonist who, alongside Dizzy Gillespie, created bebop.

ANSWER: Charlie **Parker** [or Charlie **Parker** Jr.; prompt on **Bird** or **Yardbird** until “Birdland” is read]
<Other Fine Arts>

20. At the end of this novel, a character reads a Sanskrit manuscript that prophecies that he will die in a wind storm the moment he finishes reading it. That manuscript was written by a character in this novel who introduces magnets to a town founded by the inhabitants of Riohacha. That town in this novel experiences an insomnia plague and declines after a massacre of banana plantation workers. At the beginning of this novel, a general remembers the time his father took him to see ice while facing a firing squad. For 10 points, José Arcadio, Aureliano, and other members of the Buendía family live and die in the Colombian town of Macondo in what magical realist novel by Gabriel García Márquez?

ANSWER: *One **Hundred Years of Solitude*** [or ***Cien años de soledad***] (The unnamed character is Melquíades.)
<World/Other Literature>

Bonuses

1. This work theorizes that because desires can be caused both by appetites and aversions, a man jumping off a sinking ship is making a free choice. For 10 points each:

[10m] Name this 17th-century book that defines the fundamental law of nature as “to seek Peace, and follow it” but subordinates it to the right of nature, by which every person has the right to use their powers to survive.

ANSWER: **Leviathan** [or **Leviathan** or *The Matter, Forme and Power of a Commonwealth Ecclesiasticall and Civil*]

[10e] This philosopher advocated for the absolute power of the sovereign in democracies, aristocracies and monarchies alike in books like *Leviathan*.

ANSWER: Thomas **Hobbes**

[10h] Hobbes argued that religious authority derives solely from scripture because these events “now cease.” Hobbes specifies that these events must be rare and derive solely from the power of God.

ANSWER: **miracles**

<Philosophy>

2. This moon is covered by frozen sulfur compounds due to frequent volcanic eruptions, which are responsible for its lack of impact craters. For 10 points each:

[10m] Name this moon, the most volcanically active body in the solar system.

ANSWER: **Io** [accept, but DO NOT OTHERWISE REVEAL, **Jupiter I**]

[10e] Plasma emitted from Io’s volcanoes causes elongation of this planet’s magnetic field. Io is one of four Galilean moons that orbit this planet.

ANSWER: **Jupiter**

[10h] Jupiter’s magnetic field is thought to result from the motion of a layer of this material around its rocky core. This highly conductive material is also predicted to exist deep within Saturn.

ANSWER: **metallic hydrogen** [prompt on liquid **hydrogen**; reject “H₂”]

<Other Science>

3. The Ottoman Empire has influenced the development of European cuisine in unexpected ways. For 10 points each:

[10m] According to legend, the kipferl, a predecessor of the croissant, was invented by bakers inspired by the Ottoman flag during a 1683 siege of this city. Jan Sobieski (“soab-YESS-kee”) helped relieve that siege of this city.

ANSWER: **Vienna** [or **Wien**; or **Beç** or **Bécs**; accept 1683 Siege of **Vienna** or Battle of **Vienna** or Odsiecz **wiedeńska** or Bitwa pod **Wiedniem** or **Beç** Kal’ası Muḥāşarası or İkinci **Viyana** Kuşatması]

[10h] Meatballs allegedly first arrived in Sweden after this monarch fled to the Ottoman Empire after losing the Battle of Poltava (“poll-TAH-vuh”). This monarch led Sweden during the Great Northern War.

ANSWER: **Charles XII** [or **Carl XII**; or **Carolus Rex**; prompt on **Charles** or **Carl** or **Carolus**]

[10e] The popularity of this caffeinated beverage in the Ottoman Empire led to its sale in European “houses” that became important social clubs during the Enlightenment.

ANSWER: **coffee** [or **kahve**; accept **coffeehouses**]

<European History>

4. From 2015 to 2021, David Chipperfield led a refurbishment of this architect's New National Gallery in Berlin to fix structural issues with its steel and glass design. For 10 points each:

[10m] Name this International Style architect of Illinois Tech's Crown Hall. In 2009, Krueck + Sexton restored the curtain wall facade of this architect's 860-880 Lake Shore Drive Apartments.

ANSWER: Ludwig **Mies** van der Rohe [or Ludwig Mies **van der Rohe**; accept Maria Ludwig Michael **Mies**]

[10h] Major flooding has required this Mies building to be repaired several times. This house in Plano, Illinois embodies Mies's concept of "universal space" with surrounding windows and no supporting walls.

ANSWER: **Farnsworth** House

[10e] By limiting furnishings and supporting walls, the Farnsworth House demonstrates this stripped down style of architecture that uses basic repeating elements. Mies's maxim "less is more" promotes this style.

ANSWER: **minimalism** [accept word forms such as **minimalist** architecture]

<Other Fine Arts>

5. In a play by this author, Haemon commits suicide after being unable to choose his lover over his father. For 10 points each:

[10m] Name this playwright who depicted an argument over the passage of chariots at a crossroad in a different play. This writer's Theban plays include one titled for a character "at Colonus."

ANSWER: **Sophocles**

[10e] Sophocles's Theban plays are centered around this king, who fulfills a prophecy when he kills his father Laius and then later marries his widowed mother Jocasta.

ANSWER: **Oedipus** [accept **Oedipus the King** or **Oedipus Rex** or **Oedipus Tyrannus**; accept **Oedipus at Colonus** or **Oedipus Coloneus** or **Oidipous epi Kolōnōi**]

[10h] In *Oedipus at Colonus*, Creon attempts to guarantee that this action will be performed for Oedipus just outside of Thebes. Oedipus's daughter Antigone attempts to perform this action for Polynices despite Creon forbidding it.

ANSWER: **burial** [or word forms like being **buried**; or **burial** rites; or descriptions of placing a corpse in a **grave** or **tomb** or **crypt** or **catacomb**; accept the improper **burial** of Oedipus; accept the **burial** of Polynices; prompt on **death** or **dying** or equivalents]

<World/Other Literature>

6. In a copy of this artwork, Jef Van der Veken included the likeness of Leopold II to differentiate it from a lost section that depicts Philip the Good in a crowd of people on horseback. For 10 points each:

[10h] Name this artwork that once featured a section titled *The Just Judges*. A pregnant nude woman stands in a niche beside an organ-playing angel at the upper right of this work.

ANSWER: **Ghent Altarpiece** [or *The Adoration of the Mystic Lamb* or *The Lamb of God* or *De aanbidding van het Lam Gods*]

[10e] The *Ghent Altarpiece* in Saint Bavo's Cathedral was painted by two brothers with this surname. Vasari credited the invention of oil paint to one of those artists with this surname, who created the Arnolfini Portrait.

ANSWER: **van Eyck** [accept Jan **van Eyck**; accept Hubert **van Eyck** or Huybrecht **van Eyck**]

[10m] The *Ghent Altarpiece* was influenced by the "International" phase of this art style. Jan Van Eyck's paintings often contrasted Romanesque interiors with this style characterized by pointed arches and ribbed vaults.

ANSWER: **Gothic** [accept International **Gothic** or Late **Gothic**]

<Painting/Sculpture>

7. In this play, two characters reminisce over a disputed penalty kick in a soccer match between Tottenham Hotspur and Aston Villa. For 10 points each:

[10m] Name this Harold Pinter play in which the hitmen Ben and Gus argue over the semantics of the phrase “light the kettle” and receive orders from their boss Wilson through the title device.

ANSWER: *The **Dumb Waiter***

[10e] Harold Pinter also wrote a play titled for one of these events held for Stanley. In *The Great Gatsby*, Gatsby is known for throwing extremely extravagant examples of these events.

ANSWER: **parties** [or **party**; accept **celebrations** or **festivities** or **shindigs** or equivalents; accept *The Birthday Party*; accept Gatsby’s **parties**]

[10h] This other Harold Pinter play uses reverse chronology to detail an affair that Emma has with her husband Robert’s “close friend” Jerry.

ANSWER: **Betrayal**

<British Literature>

8. Production of this molecule is inhibited by uncoupling agents such as 2,4-dinitrophenol (“di-nitro-phenol”). For 10 points each:

[10m] Name this molecule that is generated by the motion of beta subunits in a rotor-shaped synthase protein complex that uses chemiosmosis.

ANSWER: **ATP** [or **adenosine triphosphate**; accept **ATP** synthase; reject “adenosine” alone]

[10e] ATP is produced during cellular respiration, which consumes this molecule to break down molecules like glucose. This molecule is carried by red blood cells using hemoglobin.

ANSWER: **oxygen** [or **O₂**]

[10h] Adenylyl cyclase converts ATP into this molecule at the beginning of a signaling cascade. This second messenger activates protein kinase A.

ANSWER: **cAMP** (“camp”) or **cyclic AMP** [or **cyclic adenosine monophosphate**; reject “AMP” or “adenosine monophosphate”]

<Biology>

9. Answer the following about droughts throughout history, for 10 points each.

[10e] The “Millenium” drought of the 2000s was the longest that this country has faced since British colonization. In 1967, drought struck this country’s state of Tasmania.

ANSWER: **Australia** [or Commonwealth of **Australia**]

[10m] A drought known as the Grande Seca (“GRUN-jee SECK-ah”) may have hastened the process of implementing this policy. Brazil became the last country in the Western Hemisphere to implement this policy when the Golden Law was signed.

ANSWER: **abolition** of slavery [or **emancipation** of the enslaved; or descriptions of the **end** of **slavery** in Brazil]

[10h] A 1983 to 1985 drought in this country’s province of Tigray (“tig-RAI”) contributed to one of the worst famines in history. The Live Aid concert was held to raise money for this country.

ANSWER: **Ethiopia** [or Federal Democratic Republic of **Ethiopia** or **Ītyōppya** or **Ītiyop’iya** or **Itiyoophiyaa** or **Itoobiya**]

<World History>

10. Answer the following about texts written by ancient Indian sages, for 10 points each.

[10m] Sages called rishi wrote hymns for these texts, whose authority is affirmed by the six āstika schools. The ancient yajña (“yug-nyaa”) ritual dedicated to Agni was first detailed in these texts.

ANSWER: **Vedas** [accept specific Vedas, such as the *Rigveda*]

[10h] A collection of sutras on this “eight-limbed” discipline by Patañjali (“puh-TAAN-juh-lee”) was the most translated Sanskrit text by medieval authors. Swami Vivekananda named a fourth “rāja” form of this discipline while popularizing it in the 1890s.

ANSWER: **yoga** [accept *Yoga Sutras of Patañjali*; accept Rāja **yoga**]

[10e] The most translated Sanskrit text of all time is this 700-verse scripture compiled by Vyāsa. In this section of the *Mahābhārata*, Krishna explains dharma to his charioteer Arjuna.

ANSWER: *Bhagavad Gītā* [or the **Gītā**; or Śrīmadbhagavad**gītā**]

<Religion>

11. In a poem by this author, he describes himself as “the darker brother” who “they send...to eat in the kitchen.” For 10 points each:

[10m] Name this author who described how he “sing[s] America” in “I, Too.” Another poem by this author describes hearing a singer on Lenox Avenue play “a drowsy syncopated tune.”

ANSWER: Langston **Hughes** [or James Mercer Langston **Hughes**] (The second poem is “The Weary Blues.”)

[10e] Langston Hughes participated in this upper Manhattan neighborhood’s namesake “Renaissance” in the 1920s and ‘30s.

ANSWER: **Harlem** [accept **Harlem** Renaissance]

[10h] This Jamaican-born Harlem Renaissance poet declared “If we must die,” let it be “pressed to the wall, dying, but fighting back.” This author also wrote the novel *Home to Harlem*.

ANSWER: Claude **McKay** [or Festus Claudius **McKay**]

<American Literature>

12. Nephthys and Isis took the form of kites to watch over the first person to undergo this process. For 10 points each:

[10e] Name this ritual process that used canopic jars protected by four sons of Horus. Osiris underwent this process of embalming and wrapping after he was chopped up by Set.

ANSWER: **mummification** [or word forms like creating a **mummy**]

[10m] During Osiris’s mummification, this deity branded Set with leopard spots while guarding the embalming room. This illegitimate son of Nephthys is often depicted with the hybrid crocodile-lion Ammit.

ANSWER: **Anubis** [or **Anpu**; or **Inpu**]

[10h] Serket, another protector of embalmers, was a healing goddess who took this animal form. After a rich woman rejected Isis during her pregnancy, seven of these animals belonging to Serket attacked the woman’s son out of spite.

ANSWER: **scorpions** [accept **deathstalker** scorpion; prompt on **arachnids** or **arthropods**]

<Mythology>

13. In 2020, a university in this country began a center for its first inhabitants, the Khoekhoe (“koy-koy”) and San peoples. For 10 points each:

[10e] Name this country where Khoi (“koy”) and San activists have attempted to reclaim Cape Town.

ANSWER: **South Africa** [or Republic of **South Africa** or **RSA** or Republiek van **Suid-Afrika**; or iRiphabhuliki yase**Ningizimu Afrika**; or iRiphabliki yo**Mzantsi Afrika**]

[10h] The name of this natural region comes from a Khoekhoe word meaning “vast place.” The coast of this geographical region is called the Skeleton Coast due to its many animal remains and shipwrecks.

ANSWER: **Namib** Desert

[10m] Khoi and San activists have also tried to reclaim this mountain that overlooks Cape Town. Tourists often ride a cable car to the flat top of this mountain.

ANSWER: **Table** Mountain [or **Hoerikwagga** or **Tafelberg**]

<Geography>

14. This character discovers he can fly in the last play he appears in, in which he takes the title *Stroll in the Air*. For 10 points each:

[10h] Name this everyman character who tries to talk down a murderer in the “radiant city” in *The Killer* and remains the only person not to turn into the title animal in *Rhinoceros*.

ANSWER: **Bérenger**

[10m] This Romanian-French playwright of *Rhinoceros* wrote about Bérenger in *The Killer*. This playwright also wrote *The Bald Soprano*.

ANSWER: Eugène **Ionesco** [or Eugen **Ionescu**]

[10e] Bérenger takes on this occupation in his third appearance. In a Luigi Pirandello play, an aristocrat madly believes that he is Henry IV, who held this occupation in Germany and Italy.

ANSWER: **king** [accept Holy Roman **Emperor** or **Imperator** Romanorum or **Kaiser** der Römer; accept **King** of the Romans or **Rex** Romanorum or **König** der Römer; accept **King** of Italy; accept *Exit the **King** or Le **Roi se meurt***]

<European Literature>

15. Trace amounts of this compound are detected using a Karl Fischer titration. For 10 points each:

[10h] Name this compound that hygroscopic (“hai-groh-SCOP-ick”) materials have a high affinity for.

ANSWER: **water** [or **H₂O** (“H-2-O”)]

[10e] Water is nicknamed the “universal” one of these substances due to its ability to take in many solutes.

Other polar examples of them include ethanol and DMSO.

ANSWER: **solvents** [accept “universal **solvent**”]

[10m] Water has a negative slope on this kind of diagram, as its solid form is less dense than its liquid form.

The Clausius–Clapeyron equation gives the slopes of lines on these diagrams.

ANSWER: **phase** diagrams

<Chemistry>

16. Answer the following about the intersection of religion and medicine in the late 19th century U.S., for 10 points each.

[10e] Mary O'Connell, who took the name Sister Anthony, was known as the “angel of the battlefield” at Shiloh for serving in this medical profession, which was also held by Clara Barton during the Civil War.

ANSWER: **nurses** [or **nursing**]

[10h] Antoinette, who had this married surname, was the first female ordained minister in the U.S. This was the surname of Elizabeth, the first woman to receive a medical degree in the U.S.

ANSWER: **Blackwell** [accept Elizabeth **Blackwell** or Antoinette Brown **Blackwell**] (The two were sisters-in-law.)

[10m] Mary Baker Eddy founded this sect based on her experiences with spiritual healing. This sect runs Reading Rooms and publishes the *Monitor* newspaper.

ANSWER: **Christian Science** [or Church of **Christ, Scientist**; accept *The **Christian Science** Monitor*; prompt on **CSM** by asking “what does that stand for?”]

<American History>

17. This theory predicts the blueshifting of downwards-traveling light, as confirmed by the Pound–Rebka experiment. For 10 points each:

[10m] Name this theory whose prediction that light passing by massive objects takes longer to reach its destination is known as the Shapiro time delay.

ANSWER: **general relativity** [or **GR**; prompt on **relativity**; reject “special relativity” or “SR”]

[10h] The magnitude of the Shapiro time delay can be calculated using a metric named for this physicist, who also names a quantity that represents the region where escape velocity equals the speed of light.

ANSWER: Karl **Schwarzschild** (“SHVARTS-shilt”) [accept **Schwarzschild** radius or **Schwarzschild** metric]

[10e] The first confirmation of Shapiro time delay was conducted with the Haystack Observatory, which operates in this part of the electromagnetic spectrum that has the longest wavelength and is used by AM and FM transmitters.

ANSWER: **radio** waves [accept **radio** astronomy]

<Physics>

18. A musical work in this form begins with both hands playing a mordent on A, followed by a descending D minor scale. For 10 points each:

[10h] Name this musical form that features fast-moving, virtuosic passages. This form’s name derives from the idea that playing it would let the player “touch” the keyboard in its full range of capabilities.

ANSWER: **toccat**

[10m] This composer’s surviving toccatas tend to feature virtuosic playing with both hands over sustained pedal notes. This composer’s *Canon in D* has the continuo play the same eight-note bass line throughout.

ANSWER: Johann **Pachelbel** [accept **Pachelbel**’s Canon]

[10e] Pachelbel also composed a keyboard collection, one of the first ever to consist of variations on original themes, which was partially titled for this Greek god of music and the lyre.

ANSWER: **Apollo** [accept *Hexachordum **Apollinis***; prompt on **Phoebus**]

<Classical Music>

19. A series of figures constructed by this civilization were unearthed by Matthew and Marion Stirling. For 10 points each:

[10m] Name this civilization whose art frequently featured the were-jaguar motif. Colossal stone heads constructed by this civilization were found at sites such as San Lorenzo and La Venta.

ANSWER: **Olmec** civilization [or **Olmecs**]

[10e] The Olmecs were based in this modern-day country, whose capital is situated atop the historic city of Tenōchtitlan (“ten-oach-TEET-lon”).

ANSWER: **Mexico** [or **México**; or United **Mexican** States or Estados Unidos **Mexicanos**]

[10h] The name “Olmec” comes from a mistaken association with the Nahuatl name *Olmecatl*, which references a later culture’s use of this material. The central object used in tlachtli, or “pok-a-tok,” is made of this material.

ANSWER: **rubber** [accept **latex**] (Pok-a-tok is an English corruption of the Mayan name for the Mesoamerican ballgame, which the Aztecs called tlachtli.)

<Other History>

20. Mechanism design is often called the “reverse” of this subfield since the former analyzes rules in light of strategies. For 10 points each:

[10e] Name this subfield that studies the behavior of rational agents using situations such as the prisoner’s dilemma. Nash equilibria commonly arise in situations in this subfield.

ANSWER: **game theory**

[10m] Garrett Hardin coined the term for this situation, in which the Nash equilibrium results in a public resource such as grazable land being depleted since everyone acts in their own self-interest.

ANSWER: **tragedy of the commons** [prompt on free-rider problem; prompt on negative externality or market failure]

[10h] An elimination process named for this adjective solves for Nash equilibria in games with dominated strategies. This adjective names an extension of the prisoner’s dilemma whose strategies include tit-for-tat and grim trigger.

ANSWER: **iterated** [or **iterative**; accept **iterated** prisoner’s dilemma or **repeated** prisoner’s dilemma; accept **iterated** elimination of dominated strategies]

<Social Science>