

2022 ACF Fall

Packet H by Editors

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Tossups

1. The earliest records about this modern-day country refer to a kingdom here as “Wa.” In the first study of this country’s prehistory, shell mounds were excavated by Edward Morse. This country’s earliest period with recorded history is named for giant keyhole-shaped tomb mounds called “kofun.” “Cord-marked ware” names this country’s earliest period, the Jōmon. A traditional construction date of 4 BCE is ascribed to this country’s Ise (“EE-say”) Grand Shrine. Agriculture entered this country during its Yayoi period from Korea, prior to the ascendancy of this country’s militaristic Yamato state. For 10 points, name this country whose early history was centered on the Kansai Plain, the modern site of Ōsaka and Kyōto.

ANSWER: **Japan** [or **Nippon**-koku or **Nihon**-koku]

<Other History>

2. Pantone collaborated with Pierpaolo Piccioli (“pee-air-PAO-loh pee-CHO-lee”) to debut a shade of this color called “PP” at Valentino’s Fall/Winter ‘22 show. As part of the “line for line” system, Chez Ninon produced a bouclé (“boo-CLAY”) jacket and skirt of this color that were famously worn with a pillbox hat. A shade of this color called “shocking” was Elsa Schiaparelli’s (“SCAP-uh-rell-ee’s”) signature color. Lirika Matoshi designed a puff-sleeve tulle dress of this color covered in glitter strawberries that went viral in summer 2020. A Chanel lookalike suit of this color was worn by Jackie Kennedy on the day of JFK’s assassination. Crochet and knit hats of this color with cat ears were worn in the 2017 Women’s March. For 10 points, name this color whose shades include “hot” and “Barbie.”

ANSWER: **pink** [accept Valentino **Pink** PP; accept **raspberry**; accept shocking **pink**; accept shades of pink like light **pink** or hot **pink** or Barbie **pink** or **fuschia**; reject “red”]

<Other Fine Arts>

3. During the War of 1812, the holder of this office resigned to become Secretary of War but acted in this capacity anyway. Chief Justice John Marshall decided a case that stemmed from Marshall himself earlier holding this office and failing to deliver judges’ appointments. A Kentucky senator was appointed to this office in the supposed “Corrupt Bargain” of 1824. This office was once seen as a stepping stone to the presidency, as three of the first six presidents held this office immediately prior to becoming president. Luis de Onís negotiated a treaty with John Quincy Adams while the latter held this office under James Monroe. For 10 points, name this cabinet position that oversees foreign policy, whose first holder was Thomas Jefferson.

ANSWER: **Secretary of State** [or United States **Secretary of State**] (The first sentence refers to James Monroe.

The second sentence is about *Marbury v. Madison*.)

<American History>

4. Planck’s constant over the quantity “four times [this value]” is less than or equal to “delta x times delta p” in a statement of Heisenberg’s uncertainty principle. The reciprocal of “four times [this value] times epsilon-naught” is equal to Coulomb’s constant. Dividing Planck’s constant by twice this value gives the reduced Planck’s constant, denoted h-bar. The period of a pendulum equals two times this value times the square root of L over g . Performing an integral from 0 to this value covers an angle of 180 degrees, as there are twice this many radians in a revolution. For 10 points, the circumference of a circle divided by its diameter equals what irrational number?

ANSWER: **pi** [accept **3.141592...**]

<Physics>

5. The name of this art movement appears multiple times in a work that attacks a “beer-belly cultural epoch.” Raoul Hausmann and Sophie Taeuber created wooden heads as part of this movement, whose events at the Cabaret Voltaire inspired collages by Jean Arp. An artwork from this movement asks “why not sneeze?” to an artist’s female alter-ego, whose name puns on the French idiom *c’est la vie* (“say-la-VEE”). This movement’s founder popularized “anti-art” with works like *L.H.O.O.Q.*, which depicts the Mona Lisa with a mustache. This movement’s New York branch was inspired by the readymade *Fountain*, an upside-down urinal signed “R. Mutt.” For 10 points, name this absurdist post-World War I art movement associated with Marcel Duchamp.

ANSWER: **Dadaism**
<Painting/Sculpture>

6. This is the [emphasize] *heavier* of two elements found in tetrahedral units that can form sheets in phyllite (“FILL-ite”) and chains in pyroxene (“pai-ROCK-seen”). This element names a class of rubber-like polymers used in sealants and flexible cookware. The rarity of chiral (“KAI-ruhl”) compounds made of hydrogen and this element likely prevents it from acting as the basis of life, despite this third-period element’s ability to have up to four covalent bonds. Packets of this element’s namesake water-absorbing “gel” are often used to keep food fresh. This is the second-most abundant element in Earth’s crust, behind oxygen. For 10 points, name this element using what metalloid symbolized Si (“S-l”)?

ANSWER: **silicon** [accept **Si** until read; accept **silicon**-based life; prompt on **silica gel** or **silicone** or **silicates**]
<Chemistry>

7. According to Ovid, Atlas was killed with one of these objects after misinterpreting a prophecy given by Themis. Agave learned of her son’s death after showing Cadmus one of these objects thought to be taken from a lion. While returning from a quest for one of these objects, a hero killed the sea monster Cetus. Iolaus (“ai-oh-LAH-uss”) helped to bury an immortal one of these objects after a battle in Lerna where he used a torch to prevent them from regrowing. Using an ax, Hephaestus cleaved open one of these objects from which Athena was born fully-grown. Perseus gave Athena a petrifying one of these objects taken from a Gorgon. For 10 points, name these objects using many regrowing versions of what body part?

ANSWER: **heads** [accept **skulls**; accept fore**heads**; accept **faces**; accept Gorgon’s **head** or Medusa’s **head**; accept Hydra’s **head**; prompt on **neck**; prompt on **body parts** until read]
<Mythology>

8. In a story from this collection, a woman puts a block of wax in a set of scales to discover what another character is weighing. In that story from this collection, boiling oil is used to kill a group of men who attempt to kill the master of the slave Morgiana. In the second of seven trips, a character from this collection reaches a valley of diamonds by hanging onto the leg of a giant bird called a roc. This collection describes a treasure-filled cave accessed with the phrase “open sesame” and another that contains a magic lamp. The stories in this collection are told to Shahryar to prevent him from executing a new bride every night. For 10 points, name this collection of stories that includes “Ali Baba and the Forty Thieves” and “Aladdin”?

ANSWER: the **Arabian Nights** [or **One Thousand and One Nights** or *One Thousand and One Arabian Nights* or *The Arabian Nights’ Entertainment* or *Kitab ‘Alf laylah wa-laylah*]
<World/Other Literature>

9. A pluralistic variant of this philosophy that is oriented towards the good was developed by G.E. Moore. This philosophy works best when enacted by elites and rejected by the public according to Henry Sidgwick. A book titled for this philosophy addresses the “doctrine of swine” objection. A pragmatic version of this philosophy based on generally beneficial principles is called its “rule” form. In the *Principles of Morals and Legislation*, a founder of this philosophy created six categories, including intensity and duration, for evaluating the pleasure and pain caused by an action. For 10 points, name this view in ethics pioneered by Jeremy Bentham and John Stuart Mill, which advocates the greatest good for the greatest number.

ANSWER: utilitarianism [accept utilitarian ethics; accept rule utilitarianism]

<Philosophy>

10. This author created a character who sings “Now the day is over / Night is drawing nigh-igh” after a ledger directs him to “box three, spool five.” In that play by this author, the title character carefully eats a banana before listening to a recording of himself made at age 39. This author created a character who wears a rope leash and delivers a monologue with the nonsense phrase “quaquaquaqua.” In a play by this author, two characters discuss hanging themselves from a tree, which is the only onstage prop. This author of *Krapp’s Last Tape* wrote a play in which Pozzo and Lucky encounter Vladimir and Estragon, who never meet the title character. For 10 points, name this Irish author of *Waiting for Godot*.

ANSWER: Samuel Beckett [or Samuel Barclay Beckett]

<British Literature>

11. A specialized form of this protein is found alongside mucins (“MYOO-sins”) in hagfish slime, making it stretchable. While studying this protein, William Astbury discovered a 5.1-ångström repeating motif that he termed the alpha helix. As they die, epidermal cells are filled with this protein in a process called cornification. In animal cells, this protein makes up the most common type of intermediate filament. This protein contains 18 percent cysteine (“SIS-teen”), resulting in many disulfide bonds that hold together this protein’s coiled coils. “Beta-” analogues of this protein make up spider silk and bird feathers. For 10 points, name this structural protein that makes up horns, nails, and hair.

ANSWER: keratin [accept alpha-keratin; accept beta-keratin]

<Biology>

12. This symbol’s similarity to the Kagome crest inspired P. Y. Saeki’s unlikely theory that Japan’s Hata clan descends from exiles of the Neo-Assyrian Empire. On a national flag, this symbol is placed between stripes chosen to resemble a *tallit*. A sketch of this symbol surrounds an eye in the logo of Taglit-Birthright. The campus group Hillel led a social media campaign to increase the visibility of this symbol, which was codified at an 1898 congress in Basel chaired by Theodor Herzl. This symbol was colored yellow on discriminatory badges emblazoned with the word “Jude” (“YOO-duh”). For 10 points, Solomon’s father names what six-pointed symbol on the flag of Israel?

ANSWER: Star of David [or Magen David or Shield of David or Davidstern; accept Judenstern or Jewish star; prompt on hexagram or sexagram; prompt on stars or kochavim or Sterne; prompt on shields or magenim] (The Hillel campaign was #OwnYourStar.)

<Religion>

13. This constellation's namesake dwarf spheroidal galaxy is currently colliding with the Milky Way. The Big Ear telescope observed a strong narrowband emission from this constellation dubbed the Wow! signal. Karl Jansky discovered a complex radio source in this constellation in which extreme stellar velocities surround a central object. In 2022, the Event Horizon Telescope released a donut-shaped image of that supermassive black hole in this constellation, which is denoted A* ("AY star") and lies at the Milky Way's center. For 10 points, identify this zodiac constellation represented by a centaur, whose name is the Latin word for "archer."

ANSWER: **Sagittarius** [accept **Sagittarius** A or **Sagittarius** A*; accept **Sagittarius** Dwarf Spheroidal Galaxy or **Sagittarius** Dwarf Elliptical Galaxy]

<Other Science>

14. After Arcangelo Corelli's standardizations, a *sonata da chiesa* ("K'YAY-zah") had its fast movements in this form instead of the dances of the *sonata da camera*, as seen in Bach's violin sonatas. The theme of a work in this form supposedly originated from a cat walking on Domenico Scarlatti's harpsichord. Two pieces in this form called "ricercars" in *The Musical Offering* are among the earliest works written for piano; one of those pieces was improvised on a theme by Frederick the Great. An example of this form "in three subjects" was left unfinished at an entry of a B-A-C-H theme and is part of a collection titled "The Art of [this form]." For 10 points, name this form of imitative counterpoint around a theme, contrasted with a canon.

ANSWER: **fugue** [accept *The Art of **Fugue*** or *The Art of the **Fugue*** or *Die Kunst der **Fuge***]

<Classical Music>

15. At the end of this poem, the speaker fears for his soul while staring into eyes that "have all the seeming of a demon's that is dreaming." A phrase in this poem is considered by the speaker as "only stock" that was "caught from some unhappy master." A creature in this poem that is referred to as "wretch" and "prophet" is asked "is there balm in Gilead?" while it sits on top of a "pallid bust of Pallas." This poem opens with the speaker recalling a nap being interrupted by "rapping, rapping at [his] chamber door," which he initially mistakes for his "lost Lenore." For 10 points, the speaker is tortured by the title bird repeating "Nevermore!" in what poem by Edgar Allan Poe?

ANSWER: "The **Raven**"

<American Literature>

16. This object is obtained at the end of a tool-assisted "beta showcase" at Summer Games Done Quick 2022. In a game, shards of this object are dredged from the Great Sea by the King of Red Lions. This object is placed in the Sacred Realm after being created by the goddesses Din, Nayru, and Farore. This object is found on the Royal Crest of Hyrule and is often depicted on the lower blade of the Master Sword. This object is divided into power, courage, and wisdom portions which, in games like *Ocarina of Time*, are distributed to characters like Ganondorf and Link. For 10 points, what relic from the *Legend of Zelda* series takes the shape of three golden triangles?

ANSWER: **Triforce** [or **Toraiōsu**] (The first two games are *Ocarina of Time* and *Wind Waker*.)

<Pop Culture>

17. For her efforts to spread Christianity, a ruler from this city was buried by her grandson in its Church of the Tithes. A state named for this city was defeated by the generals Jebe ("zev") and Subutai at the Battle of the Kalka River. This city's Golden Gate was constructed by Yaroslav the Wise, who also compiled a legal code known as his *Pravda*. Nestor's *Primary Chronicle* describes how a state based in this city was founded by the Rurikid dynasty. After supposedly refusing to convert to Islam because of its ban on alcohol, this city's first "grand prince," Vladimir the Great, converted its people to Orthodox Christianity. For 10 points, the Rus' people were initially governed from what city in modern-day Ukraine?

ANSWER: **Kyiv** [or **Kiev**; accept **Kievan Rus'** or **Kyivan Rus'**]

<European History>

18. In a play by this author, a character sings to a little lamb about going to the sea. That character created by this author rebelliously wears a green dress and is proclaimed to have died a virgin after she commits suicide. In a play by this author, the Moon issues a warning in the guise of a woodcutter. This member of the Generation of '27 wrote the "Rural Trilogy," which includes a play in which Leonardo and the Groom kill each other. In another play by this author, the title matriarch mandates an eight-year period of mourning among her daughters. For 10 points, name this Spanish playwright of *Blood Wedding* and the *House of Bernarda Alba*.

ANSWER: Federico García **Lorca** [or Federico del Sagrado Corazón de Jesús García **Lorca**; prompt on **García**]
<European Literature>

19. A "green" version of this quantity is one of many proposed replacements from a 2009 book by Fitoussi, Sen, and Stiglitz titled "Mismeasuring our Lives." A predecessor to this quantity was proposed by Simon Kuznets from the Bureau of Economic Analysis. A related quantity calculated using the production approach was deprecated in favor of this quantity after the Bretton Woods Conference. The expenditure approach to calculating this quantity adds consumption, investment, government spending, and net exports. For 10 points, name this economic quantity defined as the total value of goods and services produced within a given country.

ANSWER: **GDP** [or **gross domestic product**; accept real **GDP** or nominal **GDP**; prompt on **aggregate demand**; reject "GNP" or "gross national product"]
<Social Science>

20. In this country, Sani Abacha's military dictatorship executed nine members of its Ogoni people who protested against the practices of Royal Dutch Shell. A famine in the southeast of this country after a civil war inspired the formation of Doctors Without Borders. This country's current president, who previously led it after a coup d'état that ended its Second Republic, is Muhammadu Buhari ("moo-hah-MAH-doo boo-HAH-ree"). The breakaway state of Biafra was formed as a result of persecution of one of this country's ethnic groups. In 2014, over 200 schoolgirls were kidnapped from Chibok in this country's majority-Muslim north, which has been plagued by attacks from the terrorist group Boko Haram. For 10 points, the Hausa and Yoruba are prominent ethnic groups from what country, whose largest city is Lagos?

ANSWER: **Nigeria** [or Federal Republic of **Nigeria** or Jamhuriyar Tarayyar **Najeriya** or Orilẹ̀-èdè Olómìniira Àpapò **Nàìjíríà** or Ọ̀hàńjìkò Ọ̀hànézè **Naijíríyà**; accept **Nigerian** Civil War; accept **Biafra** or **Biafran** War until read]
<World History>

Bonuses

1. Candomblé initiates have blood and herbs poured on their heads while engaging in a form of this process called mounting for the first time. For 10 points each:

[10e] Name this process in which loa and other spirits take control of one's body. Exorcisms are performed to reverse unwanted forms of this state, such as those involving demons or jinn.

ANSWER: spirit **possession** [or word forms like being **possessed**; accept being **ridden** by a spirit]

[10h] To cultivate *aché*, members of this religion facilitate spirit possession using batá drums blessed with omiero herb mixtures. "Feeding" ceremonies in this religion often mix omiero with chicken blood from matanza sacrifices.

ANSWER: **Santería** [or **Regla de Ocha**; or **Regla de Lucumí**]

[10m] The trances induced in Jamaican myal possessions influenced Leonard Howell's ritual use of drumming and this herb. The Bobo Ashanti enhance a life force called livity by consuming this herb in the presence of Jah.

ANSWER: **marijuana** [or **cannabis**; or **ganja**; accept slang terms such as **weed**]

<Religion>

2. In a novel set in this country, the university student Lata rejects a renowned poet and a Muslim cricketer to marry the title "suitable boy." For 10 points each:

[10e] Name this birth country of Vikram Seth. Arundhati Roy was born in this country, whose national anthem is "Jana Gana Mana."

ANSWER: **India** [or Republic of **India** or **Bhārat** Gaṇarājya]

[10m] "Jana Gana Mana" was composed by this Indian poet, who wrote "thou hast made me endless, such is thy pleasure" in his collection *Gitanjali*.

ANSWER: Rabindranath **Tagore** [or Rabindranath **Thakur**; accept **Gurudev**; prompt on **Biswakobi** or **Kobiguru**]

[10h] In a Tagore play named for one of these places, the chronically ill Amal makes friends from his window while stuck in his room. In a Eudora Welty story, Stella-Rondo fights with her family and moves into one of these places.

ANSWER: a **post office** [accept *The Post Office* or *Dak Ghar*; accept "Why I Live At The **P.O.**"; accept **postal** stations or **post houses** or **postal** houses]

<World/Other Literature>

3. The graph of any single-variable function with a fixed point must intersect the graph of this function, which has a slope of one. For 10 points each:

[10e] Identify this linear function whose output always equals its input.

ANSWER: **y equals x** [or **f of x equals x**; or **x equals y**; or **identity** function]

[10m] Performing this operation on a function produces a graph equivalent to reflecting over the line "y equals x." This operation cannot be done on a function that fails the horizontal line test.

ANSWER: **inverting** a function [or word forms like taking the **inverse**]

[10h] For the function "y equals x plus the quantity 1 over x," the line "y equals x" is an asymptote of this type. For a rational function, this kind of asymptote occurs when the numerator is one degree greater than the denominator.

ANSWER: **oblique** asymptote [or **slant** asymptote]

<Other Science>

4. Country-wide protests in September 2022 erupted in response to the death of Mahsa Amini after she was arrested by “morality police” for failing to wear this article. For 10 points each:

[10e] Name this article of clothing whose mandatory use in Iran has been the subject of several protests during the 2010s and 2020s. Like the niqāb and burqa, this headscarf is typically worn by women in Islamic countries.

ANSWER: **hijāb** [prompt on **veil**; prompt on **chador**]

[10m] Wajeha al-Huwaider started a movement in 2011 to allow this activity for women. Activists who performed this activity have remained under arrest, though King Salman allowed this practice for women in 2018.

ANSWER: **driving** a car [or word forms like to **drive**; accept **operating** a motor **vehicle** or equivalents]

[10h] Activists in the Middle East have decried the yearly deaths of hundreds of women due to this practice. Family members often perform this practice, which targets divorcees, rape victims, and perceived sources of “disgrace.”

ANSWER: **honor killings** [or **shame killings**; prompt on **femicide** or **violence** against women or equivalents]

<Current Events>

5. A member of this family named Imelda had a notorious collection of over 3,000 pairs of shoes. For 10 points each:

[10m] Name this family that left a legacy of embezzlement and excessive spending. This family’s patriarch Ferdinand was advised by a group known as the Rolex 12 during a nine-year period of martial law.

ANSWER: **Marcos** family [accept Ferdinand **Marcos** or Ferdinand Emmanuel Edralin Marcos Sr.; accept Imelda **Marcos** or Imelda Romualdez **Marcos** or Imelda Remedios Visitacion Trinidad **Romualdez**]

[10e] Ferdinand Marcos was a longtime leader of this Southeast Asian archipelago governed from Manila.

ANSWER: **Philippines** [or Republic of the **Philippines** or Republika ng **Pilipinas**]

[10h] Marcos was overthrown during this revolution, which occurred after he fraudulently declared victory in a 1986 snap election. Corazon Aquino (“core-uh-SONE ah-KEE-noh”) was sworn in as the first female president in Asia after this event.

ANSWER: **People Power** Revolution [accept **EDSA** Revolution or **Yellow** Revolution; prompt on **February** Revolution]

<World History>

6. After tracing the root of his syphilis back to Christopher Columbus, this character refers to it as a “necessary ingredient.” For 10 points each:

[10m] Name this character, a tutor in the castle of Baron Thunder-ten-Tronckh whose outlook was a parody of optimistic philosophers.

ANSWER: Dr. **Pangloss** [or Professor **Pangloss**]

[10e] Pangloss appears in *Candide*, a novella by this French Enlightenment writer.

ANSWER: **Voltaire** [or François-Marie **Arouet**]

[10h] Near the end of *Candide*, Pangloss agrees with Candide’s assertion that they must take care of this kind of location, since “man was not born to be idle.”

ANSWER: **garden** [or **jardin**; accept “We must cultivate our **garden**” or “Il faut cultiver notre **jardin**”]

<European Literature>

7. In this composer's aria "Unser dummer Pöbel meint," a Qalandar sings that he is not the Catonian ascetic the public sees but rather enjoys "a hundred dishes" and a "cellar of wine." For 10 points each:

[10h] Name this German-Bohemian composer of *La rencontre imprévue*, who reformed early Classical opera by breaking the standards of *opera seria*. He composed *Orfeo ed Euridice* ("your-ih-DEE-che") and *Iphigénie* ("i-FIH-jeh-nee") *en Tauride*.

ANSWER: Christoph Willibald **Gluck** [or Christoph Willibald Ritter von **Gluck**]

[10e] This other composer improvised the first version of his variations on "Unser dummer Pöbel meint" at a concert with Gluck in attendance. *The Magic Flute* was the last-premiered opera by this composer of *Don Giovanni*.

ANSWER: Wolfgang Amadeus **Mozart** [or Joannes Chrysostomus Wolfgangus Theophilus **Mozart**]

[10m] The Qalandar's wealth comes from serving this state's ruler in *La rencontre imprévue*, which likely inspired Mozart's opera set in this state, *The Abduction from the Seraglio*. This historical state names a percussive style inspired by its military bands.

ANSWER: **Ottoman** Empire [or Sublime **Ottoman** State or Devlet-i 'Alīye-i '**Osmāniye** or **Osmanlı** İmparatorluğu; accept the **Turkish** Empire; reject "Turkey" or "Türkiye"] (The military bands were janissary bands.)

<Other Fine Arts>

8. Answer the following about American mountains that have been rechristened with Indigenous names, for 10 points each.

[10e] This Alaskan mountain's name means "the high one" in the Koyukon language. This tallest mountain in the U.S. was previously named after a president.

ANSWER: **Denali** [prompt on Mount **McKinley**]

[10m] This national park renamed one of its peaks "First Peoples Mountain" in June 2022. In the 1990s, gray wolves were reintroduced to this park, where they prey on the elk and bison population.

ANSWER: **Yellowstone** National Park

[10h] A mountain near Idaho Springs in this state was renamed to honor translator Mestaa'ëhehe ("mess-taw-HET"). Another candidate for renaming, Mount Evans, is one of this state's 53 "fourteener" summits.

ANSWER: **Colorado** [or **CO**]

<Geography>

9. The Russian Soviet Republic became the first state in the world to legalize this practice, though it was later outlawed over concerns about declining population growth. For 10 points each:

[10e] Name this medical procedure in which a woman terminates a pregnancy.

ANSWER: **abortion**

[10h] To protest for abortion rights in this country, 343 women signed a manifesto declaring that they had obtained an illegal abortion. This country legalized abortion with the 1975 Veil ("VAY") Law.

ANSWER: **France** [or **French** Republic or République **française**; prompt on **Fifth Republic** or **Cinquième République**]

[10m] To boost his country's population, this longtime Romanian dictator restricted abortion access with Decree 770. The decree was revoked after this leader was overthrown and executed on Christmas Day, 1989.

ANSWER: Nicolae **Ceausescu** ("chao-SHESH-koo")

<European History>

10. Answer the following about cyanobacteria, for 10 points each:

[10e] Cyanobacteria are often misleadingly called the “blue-green” type of these organisms. These photosynthetic protists can produce colorful “blooms” and include kelps and seaweeds.

ANSWER: **algae** [accept **algal** blooms; accept blue-green **algae**]

[10m] Cyanobacteria perform the light reactions of photosynthesis within these membrane-bound compartments. These round, stack-like structures are also found on the inside of chloroplasts.

ANSWER: **thylakoids** (“THY-luh-koyds”) [accept **thylakoid** membrane]

[10h] Colonies of cyanobacteria perform this process in specialized anaerobic cells called heterocysts (“hetero-sists”). Organisms capable of this process are known as diazotrophs (“dai-AZZ-uh-trofes”).

ANSWER: **nitrogen fixation** [or **fixing nitrogen**; accept N_2 in place of “nitrogen”]

<Biology>

11. Figurines of Portuguese traders appear on an ivory one of these items created to honor the Benin Kingdom’s dead Queen Mother Idia. For 10 points each:

[10m] Name these often elaborately carved items that many African cultures use to evoke ancestral spirits. King Tut is depicted on a golden funerary artifact of this type discovered in his tomb.

ANSWER: **masks** [accept funerary **masks**; prompt on **sarcophagus**]

[10h] The Luba people’s Master of Buli carved ancestor caryatids into several of these objects made to hold the spirits of chiefs. The spirits of Ashanti kings reside in these objects, which are blackened upon their deaths.

ANSWER: **stools** [or **seats**; or **thrones**; or **asesedwa** or **gwa**; accept Golden **Stool** or Sika **Dwa** Kofi]

[10e] Deceased royals from the Benin Kingdom were honored with heads made of brass or this alloy. The British Museum houses a set of looted Benin plaques named for this alloy, which is composed of tin and copper.

ANSWER: **bronze** [accept Benin **Bronzes**]

<Painting/Sculpture>

12. Hideki Yukawa won a 1949 Nobel Prize for predicting the lightest of these particles, the pion (“PAI-on”). For 10 points each:

[10h] Name this class of particles that also includes the kaon (“KAY-on”) and consists of a quark–antiquark pair.

ANSWER: **mesons** [accept pi **mesons** or K **mesons**]

[10m] The quark and antiquark that make up a meson must have opposite values of this quantity. A “confinement” effect named for this quantity traps quarks within composite particles.

ANSWER: **color** charge [accept **color** confinement; reject “charge”]

[10e] Pions transmit the “residual” type of this force between particles in atomic nuclei. This most powerful fundamental force binds together quarks.

ANSWER: **strong** force [or **strong** interaction or **strong** nuclear force]

<Physics>

13. In this play, Roy Cohn boasts to Joe Pitt that he was responsible for the execution of Ethel Rosenberg. For 10 points each:

[10m] Name this “Gay Fantasia on National Themes” by Tony Kushner. At the end of this play’s first part, “Millennium Approaches,” Prior Walter is visited by a character who tells him “the Great Work begins.”

ANSWER: **Angels in America** [or **Angels in America: A Gay Fantasia on National Themes**]

[10e] Prior Walter is afflicted with this disease in *Angels in America*. Randy Shilts’s 1987 book *And the Band Played On* focuses on inaction during the epidemic of this disease, since it was seen as mostly affecting gay people.

ANSWER: **AIDS** [or **acquired immunodeficiency syndrome**; accept **HIV** or **human immunodeficiency virus** infection]

[10h] In *Angels in America*, Heaven is compared to this city, where Lawrence Ferlinghetti founded City Lights Bookstore.

ANSWER: **San Francisco** [or **SE**]

<American Literature>

14. The Faircloth Amendment limited the number of units that could be owned by PHAs, which are administered by this department. For 10 points each:

[10h] Name this cabinet department that “revitalized” “severely distressed” locations under the HOPE VI (“six”) program.

ANSWER: **Housing and Urban Development** [or **HUD**; or United States Department of **Housing and Urban Development**]

[10m] Starting in 1995, HUD demolished this city’s Cabrini-Green Homes, which are widely cited as a failed project. This city’s Housing Authority built many projects in its Bronzeville neighborhood.

ANSWER: **Chicago**

[10e] The Department of Housing and Urban Development was established under this president, who also declared the “War on Poverty” as part of his Great Society agenda. This president succeeded John F. Kennedy.

ANSWER: Lyndon Baines **Johnson** [or **LBJ**]

<American History>

15. Molecules with this geometry have only two rotational degrees of freedom instead of three. For 10 points each:

[10m] Name this molecular geometry possessed by CO₂ (“C-O-two”), which is nonpolar despite having two polar bonds. This geometry is also present in acetylene, or C₂H₂ (“C-two H-two”).

ANSWER: **linear** [or **linear** molecular geometry]

[10e] In contrast, water has a bent geometry because there are two lone pairs of these particles on the central oxygen. An atom’s valence shell can usually hold up to eight of these particles.

ANSWER: **electrons** [or **e⁻** (“e minus”); prompt on **e**]

[10h] A molecule’s geometry, as predicted by VSEPR (“vesper”) theory, can be described with this notation, which represents the number of bonded atoms and lone pairs using a three-letter abbreviation.

ANSWER: **AXE** (“axe”) notation

<Chemistry>

16. Answer the following about very early archaeological sites in Western Asia, for 10 points each.

[10m] This city may be the oldest in the world, as it includes a wall and 28-foot tower from 8000 BCE that is the earliest known stone building. This city's walls may have fallen when trumpets were blown after a seven-day siege.

ANSWER: **Jericho**

[10e] Jericho is the type site for the A and B subphases of the "Pre-Pottery" this period in the Fertile Crescent. Agriculture developed in a "revolution" during this period, whose name means "New Stone Age."

ANSWER: **Neolithic** [accept **Neolithic** Revolution; accept Pre-Pottery **Neolithic**]

[10h] This Late Neolithic site in Turkey used rooftops as streets and had houses entered from ladders. Corpulent female figurines found at this site include a "Seated Woman" named for it.

ANSWER: **Catalhöyük** ("chah-TAHL-hoo-yook") [accept Seated Woman of **Catalhöyük**]

<Other History>

17. An animated sequence in *A Boy Named Charlie Brown* shows Schroeder playing this piece on the toy piano, facing a bust of its composer, while dreaming about the composer's era. For 10 points each:

[10h] Name this piano sonata. Its second movement is marked "Adagio cantabile" ("ah-DAH-joh kahn-TAH-bee-lay") and begins with the theme [read slowly] "C B-flat long E-flat, short D-flat C" over slow sixteenth notes.

ANSWER: **Pathétique** Sonata [or Sonata **Pathétique**; accept, but DO NOT OTHERWISE REVEAL, **Beethoven's eighth** piano sonata or **Beethoven** Piano Sonata No. **8**; prompt on Piano Sonata No. **8**]

[10e] The *Pathétique* Sonata is by this composer, whose fifth symphony begins with a "fate knocking on the door" motif.

ANSWER: Ludwig van **Beethoven** [accept **Beethoven's** Fifth Symphony]

[10m] The remaining movements of the *Pathétique* Sonata are in this key, which is also the key of Beethoven's Fifth Symphony. It is associated with many of Beethoven's moody and emotional works.

ANSWER: **C minor** [prompt on **C**]

<Classical Music>

18. A way of classifying these things differentiates between imitating humans and achieving ideal rationality in cognition and behavior. For 10 points each:

[10e] Name these things that include IBM's Watson and Google DeepMind's AlphaGo. The hypothetical "strong" versions of these things are fabricated persons where the "weak" versions merely simulate human thought.

ANSWER: **artificial intelligence** [or **AI**; accept symbolic **AI**; prompt on **computers**; prompt on **intelligent** beings; prompt on **consciousnesses** or **minds**]

[10m] In a thought experiment that questions humans' ability to detect consciousness in AI, John Searle imagined a man in a certain "room" who uses a rulebook to hold a written conversation in this language despite not knowing it.

ANSWER: **Chinese** [or **Zhōngwén** or **Hànyǔ**; accept specific Chinese languages like **Mandarin** or **Cantonese** or **Guānhuà** or **Yue**; accept **Chinese** room argument]

[10h] Searle denied that AI is capable of evil in a rebuttal to Nick Bostrom, who created a thought experiment in which an artificial intelligence attempts to turn all matter into these objects.

ANSWER: **paperclips** [accept **paperclip** maximizer]

<Philosophy>

19. In a satirical poem by this author, questions like “was he happy?” and “was he free?” are considered “absurd” because “we should certainly have heard.” For 10 points each:

[10m] Name this author of “The Unknown Citizen.” This author wrote about “the old Masters” and portrayed Icarus falling into the ocean in “Musée des Beaux Arts.”

ANSWER: W. H. **Auden** [or Wystan Hugh **Auden**]

[10h] An Auden poem repeats the line “she looked over his shoulder” and notes that this “iron-hearted” figure “would not live long.” In that poem, this figure’s mother looks for “marble well-governed cities” in the title object.

ANSWER: **Achilles** [or **Achilleus**; accept “The Shield of **Achilles**”]

[10e] Auden’s poem “The Age of Anxiety” won this award administered by Columbia University. This award also recognizes journalism categories like investigative reporting and is named for an American newspaper publisher.

ANSWER: **Pulitzer** Prize [accept Joseph **Pulitzer** or **Pulitzer** József]

<British Literature>

20. In Book Two of the Popol Vuh (“vookh”), Seven Macaw claims to preside over the wooden people in this role by citing his turquoise teeth. For 10 points each:

[10m] Name this role held by five Aztec deities, including Tezcatlipōca and Tlāloc. Tezcatlipōca sabotaged other holders of this role by turning humans into monkeys and sleeping with Tlāloc’s wife.

ANSWER: the **sun** [accept Five **Suns** or Fifth **Sun**; accept **sun** god or **sun** goddess; accept **sun**-moon; prompt on the **moon**]

[10h] The Hero Twins humbled Seven Macaw by knocking out his teeth with one of these weapons. In the Bat House, Hunahpu is decapitated while hiding in one of these weapons, after which his head is used for the ballgame.

ANSWER: **blowgun** [or **blowpipe** or **blow tube**; prompt on **gun** or **pipe**]

[10e] The Hero Twins also use their blowgun as a canoe while journeying to Xibalba, the underworld of this culture. The Popol Vuh documents the myths of this culture, whose god Kukulcan is equated with the Aztecs’ Quetzalcoatl.

ANSWER: **Maya** culture [or **Mayan** civilization; accept **K’iche** Maya or Yucatec **Maya**]

<Mythology>