

Brookwood Invitational Scholars' Bowl

Round 3

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Tossups

1. After this politician died in office from Parkinson's disease, his embalmed body didn't fit in the crystal coffin. He was the *subject* of the quote, "Seven parts good, three parts bad." The Four Modernizations were implemented after this man's death. Two years after this man's death, a longtime ally died in a Mongolian plane crash. After his death, the (\*) socialist market economy was introduced. This man's widow and the rest of the Gang of Four were purged after his death. This man's chosen successor, Hua Guofeng [HWAH GWAH-fung], was replaced by Deng Xiaoping [DUNG SHOW-ping], who opposed this leader's Cultural Revolution. For 10 points, name this Chinese Communist leader.

ANSWER: Mao Zedong [or Mao Tse-Tung; prompt on Zedong; prompt on Tse-Tung]

2. A Cubist reinterpretation of this painting depicts two small blue children running around their pregnant mothers. Edouard Manet [ed-WARD man-AY] imitated this painting in a series that shows Emperor Maximilian wearing a sombrero. *The Charge of the Mamelukes* is set the day before this work. A large box lamp lights its center. In this painting, a man in gray lies (\*) sprawl-eagled, covered in blood, imitating the posture of a man wearing a white shirt and yellow pants. A Christ figure faces a firing squad in this painting set during the Napoleonic conquest of Spain. For 10 points, name this painting by Goya titled for a date in 1808.

ANSWER: *The Third of May, 1808* [or *El Tres de Mayo, 1808*; or *Los Fusilamientos de Tres de Mayo*]

3. This poet wrote "He did not wear his scarlet coat" in a poem "in memoriam" for Charles Thomas Wooldridge. The poem "Two Loves", written *about* this author, coined the phrase "the love which dares not speak its name." This poet wrote "The coward does it with a kiss" after declaring "Each man (\*) kills the thing he loves". He wrote a letter to lover Lord Alfred Douglas titled *De Profundis*, and after his release from prison for indecency, wrote "The Ballad of Reading Gaol [JAIL]." This author created Basil Hallward and Sybil Vane in a novel about a sinful man who remains eternally young. For 10 points, name this writer of *The Picture of Dorian Gray*.

ANSWER: Oscar Wilde

4. Because of its zero-point energy, this element has no melting point. This element and nitrogen are the most common carrier solvents in semiconductor manufacturing and in gas chromatography. It has the highest first ionization energy. The plus-one cation of this element can be modelled by the Rydberg [RIDE-berg] equation. The liquid form of this element exhibits (\*) superfluidity. This element was discovered as a yellow spectral line during a solar eclipse. In the gold foil experiment, Rutherford fired nuclei of this element, or alpha particles, at the foil. For 10 points, name this lightest noble gas, which has atomic number 2.

ANSWER: helium [or He]

5. In a music video by this artist, he portrays a superhero saving a boy from the evils of rap music. His incident with bouncer John Guerrero is mentioned in his song "Sing for the Moment," which sampled Aerosmith's "Dream On." He complained that, "I'll probably never get the props I feel ever deserve" in (\*) "Till I Collapse," which was featured in the trailer for *Call of Duty: Modern Warfare 2*. His highest-charting song won the Oscar for Best Original Song in *8 Mile* and describes B-Rabbit vomiting "his mom's spaghetti." For 10 points, name this Detroit rapper with hits such as "Without Me" and "Lose Yourself."

ANSWER: Eminem [or Marshall Bruce Mathers, III; or Slim Shady]

6. A photograph taken during this event shows Marcy Borders in an all-yellow room covered in dust. Two huge waterfalls inside oak forests were designed by Michael Arad after this event. A composition about this event uses a tape recorder that repeats the word “Missing” and reads a list of (\*) names. After it, 88 searchlights were installed to make the Tribute in Light. Daniel Liebskind designed a tower with triangular facades after this event. John Adams’ “On the Transmigration of Souls” was written in response to it. The “Falling Man” photo was taken during it. For 10 points, name this event memorialized by the Freedom Tower at Ground Zero.  
ANSWER: September 11th terrorist attacks [or 9/11; or the attacks on the World Trade Center or the attacks on the Twin Towers; or any other equivalents]

7. Anti-Müllerian [MULE-air-ee-an] hormone prevents the formation of this organ from the para-mesonephric ducts. The Doppler effect is used on this organ to diagnose pre-eclampsia [eck-LAMP-see-uh]. The zona pellucida [pell-OOS-id-uh] breaks down inside of this organ, allowing the trophoblast [tro-FOH-blast] to bind to this organ’s decidua. Tissue from this organ implants elsewhere in (\*) endometriosis. Gastrulation takes place entirely within it. The morula transforms into the blastocyst as it is migrating toward this organ. The amniotic sac forms inside of it. The placenta receives nutrients from the wall of this organ after implantation. For 10 points, name this organ where the fetus develops.  
ANSWER: uterus [prompt on cervix; prompt on endometrium]

8. A character created by this author is nearly killed by a blue beetle, a car full of teenagers driving at 130 mph. Two children feed their parents to some lions in their nursery in a story by this author. A novel by this author compares mankind to a phoenix, after the protagonist vows to memorize Ecclesiastes. Jim and Will save their town from Mr. Dark’s (\*) carnival in his novel *Something Wicked This Way Comes*. Mildred obsesses over her four-wall TV in a novel by this author of *The Martian Chronicles*. He created the Mechanical Hound and Guy Montag. For 10 points, name this author who described book-burning firemen in *Fahrenheit 451*.  
ANSWER: Ray Bradbury

9. Malabar Christians are named for this Biblical character. According to tradition, this man arrives late to the Assumption of Mary and receives her girdle. This man is known as Didymus, or “the Twin.” His namesake Gnostic Gospel, and a book named for him “the Contender” were discovered in Coptic at Nag Hammadi. He is told, “Blessed are they that have not seen, and yet have (\*) believed” after thrusting his hand into another man’s side. This man became the patron saint of India after establishing many churches there. This man says, “My Lord and my God” upon seeing Jesus’ nail wounds. For 10 points, name this “doubting” apostle.  
ANSWER: Saint Thomas the Apostle [or Didymus until it is read]

10. The fifth emperor of this name got the epithet “the dung-named” for defecating during his baptism. An emperor of this name allegedly turned into marble and will be resurrected from his cave under the Golden Gate. That eleventh emperor of this name was the last Byzantine emperor. An emperor of this name apparently granted Pope Sylvester I all his territory in a faked (\*) donation. The first emperor of this name ended the Tetrarchy, called the Council of Nicaea, and beat back Maxentius at the Battle of Milvian Bridge after seeing a cross in the sky. For 10 points, give this common name, shared by the first Christian Roman emperor.  
ANSWER: Constantine

11. A team led by Nevil Maskelyne used one of these objects to calculate the density of the Earth. These objects were once used to calculate the momentum of a speeding bullet. The differential equation “ $d^2\theta/dt^2 = -g/L \sin\theta$ ” describes these objects; that equation is then solved by assuming  $\sin\theta$  equals (\*)  $\theta$ . One of them placed at the dome of the Pantheon was used to demonstrate the rotation of the Earth by Foucault. Their periods are independent of mass. For 10 points, name these simple harmonic oscillators which consist of a bob on a string, used in grandfather clocks.  
ANSWER: pendulums [or pendula; or ballistic pendulum; or Foucault’s pendulum]

12. The current holder of this office claimed in 2014 that it's good karma for women to wait for a raise. The Omni-Processor and the "Reinvent the Toilet" challenge are sponsored by a man who held this office until 2000. Three months after retiring from it, the second person to hold this office purchased the LA Clippers after the (\*) Donald Sterling controversy. The current holder of this office is Satya Nadella. The first person to hold this position retired in order to lead the world's largest private foundation, which is co-named for his wife Melinda. For 10 points, name this office held by Steve Ballmer until 2014, the leader of a company founded by Bill Gates.  
ANSWER: CEO of Microsoft [or Chief Executive Officer of Microsoft Corporation]

13. A poem by this author attests, "I have lived like a foot/For thirty years, poor and white/Barely daring to breathe or Achoo." One of this author's characters regrets not being able to choose a single fig from a tree, and hears her heart beating "I am I am I am" at Joan's funeral. That character constantly feels encased in a stifling glass (\*) container. This author wrote, "You do not do, you do not do" and "Every woman adores a Fascist" in a poem from *Ariel*. This author of "Daddy" published a novel under the name Victoria Lucas about a failed writer who attempts suicide several times. For 10 points, name this wife of Ted Hughes, the author of *The Bell Jar*.  
ANSWER: Sylvia Plath

14. During this war's *Annus mirabilis*, the Duke of Brunswick won at Minden. After Czarina Elizabeth died during this war, a nation avoided surrender by the "miracle of the House of Brandenburg." Britain was allied with Prussia during this war as a result of the recent Diplomatic Revolution. In this war's Carnatic theater, the British took a fort at Pondicherry in (\*) India. In this conflict, the Marquis de Montcalm and James Wolfe died near Quebec City, on the Plains of Abraham. The treaty of Paris ending this war gave Britain all territory east of the Mississippi. For 10 points, name this 1756 to 1763 war, called the French and Indian War in America.  
ANSWER: Seven Years' War [prompt on French and Indian War until it is read]

15. The namesake "prey restraint" model was proposed for the predation of these creatures due to their similarity with acciptrids [ack-SIP-trids]. These smaller cousins of *Achillobator* [uh-KILL-oh-bait-or] were members of the *dromaeosaurid* [drow-MAY-oh-sore-id] family. A fossil of one of these creatures, of type species *mongoliensis*, was buried alive in a sandstorm while battling a Proto-ceratops. Quill knobs on fossils of these creatures indicate that, although not (\*) birds, they possessed feathers. This close relative of the Deinonychus [dino-NYE-kus] had a very long straight skull and was actually about the size of a chicken. For 10 points, name these bipedal, clawed, predatory dinosaurs whose name means "speedy thief".  
ANSWER: velocirraptors [or Velociraptor mongoliensis; accept dromaeosaurids until it is read; accept Deinonychus until it is read; prompt on dinosaurs]

16. In this novel's opening scene, a swineherd claiming to be the son of Beowulf intentionally gives a travelling party bad directions. In this novel, a descendant of Harold Godwinson gets up out of his coffin during his funeral. A duel in this novel, fought to determine if a Jew was a witch, ends anticlimactically when Bois-Guilbert [BWAH GEEL-bear] dies of a seizure. In a memorable scene of this novel set at Ashby-de-la-Zouche, (\*) Robin of Locksley wins at archery, and Desdichado cleans up at a jousting tournament. After the return of King Richard, Lady Rowena marries the title ex-crusading knight of this novel. For 10 points, name this adventure by Sir Walter Scott.  
ANSWER: Ivanhoe

17. The son of the man who tied the Gordian Knot possessed this ability. It's not immortality, but an object which granted this ability was created as part of the Magnum Opus. A man who possessed this ability lost it when he bathed in the river Pactolus. This ability was taught by a syncretized version of Hermes and Thoth named Trismegistus. A worshipper of Pan who once had this ability received (\*) donkey ears for siding against Apollo in a music contest. This ability was granted to a man who hosted the satyr Silenus. This power was given by the mythical Philosophers' Stone. For 10 points, name this ability which Dionysus granted to Midas.  
ANSWER: turning objects into gold [or transmutation; or alchemy; or chrysopoeia; or the Midas touch; or obvious equivalents; prompt on King Midas]

18. A cadenza layered with *ossia* highlights the opening *Allegro ma non tanto* movement of a work by this composer, which he said was written for elephants. A C-minor solo work by this man starts with crescendo-ing chords that resemble a bell tolling. This composer of four piano concerti was inspired by an Arthur Böcklin [BOCK-lin] painting to write *The (\*) Isle of the Dead*. One of his preludes is sometimes referred to as “The Bells of Moscow.” This composer premiered many of his piano works himself, including a set of 24 variations on the “24th Caprice” for violin. For 10 points, name this Russian composer of *Rhapsody on a Theme of Paganini*.

ANSWER: Sergei Rachmaninoff

19. This equation is the 2-norm form of a general expression named for Minkowski. In one dimension, this equation defines the residual in an ordinary least-squares regression. The mean value theorem is applied to this equation to get the integral formula for arclength. This equation defines the metric for Euclidean space. This equation’s spherical analog uses a great (\*) circle as the geodesic. This equation calculates the square root of the overall sum of the squared difference in each coordinate, directly applying the Pythagorean theorem to Cartesian coordinates. For 10 points, name this formula that computes how far apart two points are.

ANSWER: Euclidean distance formula [prompt on Pythagorean theorem until it is read]

20. William Leddra became one of the “Martyrs” of this city after his hanging. Mary Dyer died in this city. Simon Bradstreet led a rebellion which forced governor Edmund Andros out of this city. An event in this city was inspired by the passage of the anti-smuggling Indemnity Act by Thomas Hutchinson. James (\*) Otis railed against “writs of assistance” in this city’s State House. The first committee of correspondence was created in this city by Samuel Adams. The Intolerable Acts were established after a protest in this city’s harbor led by the Sons of Liberty. For 10 points, name this city in colonial Massachusetts, the site of a namesake tea party.

ANSWER: Boston, Massachusetts

TB: One of this author’s speakers says, “I’d like to get away from earth awhile/And then come back to it and begin over.” This poet wrote, “Then leaf subsides to leaf/And Eden sank to grief” in a poem beginning, “Nature’s first hue is gold.” This author declared, “I think I know enough of hate/To say that for destruction (\*) ice/is also great/And would suffice.” In a poem set on the “darkest evening of the year”, he wrote about a speaker who has “miles to go before I sleep.” Another poem by this author says “Something there is that doesn’t love a wall” and “Good fences make good neighbors.” For 10 points, name this New England poet of “The Road Not Taken.”

ANSWER: Robert Frost

## Bonuses

1. A character spends most of this play reading a newspaper, pointing out headlines like a child of eleven killing a cat, or an 87-year old man getting hit by a carriage while crossing the street. For 10 points each:

[10] Name this play which ends with one character walking back onstage from out of the kitchen, but without his jacket, waistcoat, and revolver. Most of this play involves one character screaming into a speaking-tube.

ANSWER: *The Dumb Waiter*

[10] *The Dumb Waiter* was written by this modern English playwright and actor who wrote comedies of menace like *The Birthday Party*.

ANSWER: Harold Pinter

[10] Pinter often gets “-esque” appended to his name, in homage to this Czech-German author of similarly eerie tales. Pinter adapted this author’s novel *The Trial*.

ANSWER: Franz Kafka

2. Moderator note: Read the first part of the following bonus, slowly.

Consider the logical statement: “if P, then Q.” For 10 points each:

[10] If we assume that the conditional statement is true, then this other conditional statement, its contrapositive, must also be true by *modus tollens*. Give your answer as an if-then statement involving P and Q.

ANSWER: “if not Q, then not P” [answer must be word-for-word exact]

[10] In a biconditional statement, the inverse and converse will also be true if the conditional is true. Biconditional statements are usually written using this four-word English phrase between the two logical statements.

ANSWER: if and only if [or P if and only if Q]

[10] Syllogisms are often depicted visually using these diagrams, which consist of at least one pair of intersecting circles, and are named for an English logician. These diagrams are helpful for analyzing sets.

ANSWER: Venn diagrams

3. Assuming elevation doesn’t change, differences in this quantity are identical to differences in absolute pressure. For 10 points each:

[10] Name this type of pressure caused by forces other than the weight of the air above you.

ANSWER: gauge pressure

[10] If the gauge pressure is negative, then an object may exist in one of these low-pressure regions which attract matter. Space is a common example of one.

ANSWER: vacuum [or word forms]

[10] The common way to measure gauge pressure is with a manometer, which uses this substance as a working fluid. A millimeter of this material, which is much denser than water, is a common unit of pressure.

ANSWER: mercury [or Hg]

4. The Long Walls connected this city all the way to its port at Piraeus. For 10 points each:

[10] Name this city. The *propylaea* [pro-puh-LIE-uh] gated the entrance to a massive plateau in the center of this city that was home to the Erechtheion [uh-RECK-thee-on].

ANSWER: Classical Athens

[10] This other building in ancient Athens was a temple to Athena on the Acropolis. The original site of the Elgin marbles, it was constructed during Pericles’ reign.

ANSWER: Parthenon

[10] Roman Emperor Hadrian had one of these buildings named for him built on the Acropolis. Nineveh once was the home of one of these buildings named for the Assyrian king Ashurbanipal [ash-oor-BAN-uh-pawl].

ANSWER: libraries [or library of Ashurbanipal; or Hadrian’s library]

5. A painting by this artist is an allegory which shows a man playing a lute while others drink and vomit. For 10 points each:

[10] Name this artist of the satirical *Ship of Fools*. He painted Adam and Eve near a lake in Eden, and sinners being eaten by birds, in his best-known painting.

ANSWER: Hieronymus Bosch

[10] Many of Bosch’s lasting works, including *The Garden of Earthly Delights*, are works in this form. Altarpieces are often in this art form which, as its name suggests, consists of three separate panels.

ANSWER: triptych [or altarpiece triptych; prompt on “polyptych”]

[10] The Dutch tradition of painting satirical allegories continued with this Pieter Brueghel the Elder painting. This work, originally called “The Blue Cloak,” literally depicts sayings like “Banging one’s head against a brick wall.”  
ANSWER: Netherlandish Proverbs [or Flemish Proverbs; or The Topsy-Turvy World]

6. This poetic form is used in Goldsmith’s *The Deserted Village* and throughout *Absalom and Achitophel*. For 10 points each:

[10] Name this poetic form mastered by John Dryden, which consists of rhyming pairs of lines, one after the other.  
ANSWER: heroic couplet [prompt on couplet]

[10] The heroic couplet was further leveraged by this witty 18th century poet, who wrote classic lines like “Fools rush in where angels fear to tread” and “A little learning is a dangerous thing” in *An Essay on Criticism*.

ANSWER: Alexander Pope

[10] Dryden also translated this author’s epic poem, the *Aeneid*, into heroic couplets.

ANSWER: Virgil [or Publius Virgilius Maro]

7. Operation Triton, the successor to Operation Mare Nostrum, was initiated to aid the plight of migrants across this body of water. For 10 points each:

[10] Name this body of water, where thousands of refugees from the Middle East have drowned while crossing over into Europe in the last two years.

ANSWER: Mediterranean Sea

[10] The most common crossing point is from this country to Italy. A civil war currently fought in this country is contested between the Muslim Brotherhood backed “Dawn”, and the Tobruk government backed by the West.

ANSWER: State of Libya

[10] This EU agency established Operation Triton to assist the handling of the migrants. This group is responsible for the border security of the European Union member states.

ANSWER: Frontex

8. Dense bodies inside of platelets serve as reservoirs for this compound. For 10 points each:

[10] Name this low-energy compound which is converted into a high-energy counterpart by coupling the synthesis to diffusion of protons during chemiosmosis. It is the substrate in substrate-level phosphorylation.

ANSWER: ADP [or adenosine diphosphate; do not accept or prompt on “ATP” or “adenosine triphosphate”]

[10] Synthesis of ATP from ADP takes place in the inner membrane of this organelle, which is called the “powerhouse” of the cell because the second half of cellular respiration takes place inside of it.

ANSWER: mitochondria [or mitochondrion]

[10] The chemiosmotic [KEEM-ee-oz-mawt-ic] gradient is created with energy from electrons carried by FADH<sub>2</sub> [F-A-D-H-two] and this other electron shuttle, a derivative of niacin. Two molecules of it are formed during glycolysis.

ANSWER: NADH [or nicotinamide adenine dinucleotide hydride]

9. Fill in the blanks in these Winston Churchill speeches, for 10 points each:

[10] During the worst days of the Battle of France in 1940, Churchill remarked that, “if the British Empire and its Commonwealth last for a thousand years, men will still say that this was <this three-word phrase>.”

ANSWER: “their finest hour”

[10] At a speech in Missouri in 1946, Churchill quipped that one of these structures has “descended across the Continent”, from “Stettin in the Baltic to Trieste in the Adriatic.” This barrier divided NATO from the Warsaw Pact.

ANSWER: an iron curtain

[10] In the same speech, Churchill declared that one of these bonds exists between the British Commonwealth and the United States. This two-word term is colloquially used to refer to the close ties between those two countries.

ANSWER: a “special relationship”

10. A work by this composer has a 90-second orchestral introduction before the entrance of the soloist, started by the timpani playing F-C-F-C quarter notes. For 10 points each:

[10] Name this composer of a *Concerto in F* for piano. He arranged the suite *Catfish Row* from music from one of his operas.

ANSWER: George Gershwin

[10] George Gershwin is best-known for this 1924 work which features an extended clarinet solo that ends with a glissando.

ANSWER: **Rhapsody in Blue**

[10] In *An American in Paris*, Gershwin scored for four of these unusual sound devices. The saxophone usually substitutes for this musical item's repeated sets of three notes if it is not available for use by an ensemble.

ANSWER: **taxi horn** [or **car horn**; prompt on "horn"]

11. Answer the following about magicians in literature, for 10 points each:

[10] Isaac Singer wrote *The Magician of Lublin* in Yiddish, a language spoken by Ashkenazi [osh-ken-AWE-zee] Jews, which is a mixture of German and this other language.

ANSWER: **Hebrew**

[10] This author criticized fascism in a story about the grotesque magician Cipolla. He wrote a novella set in Italy, in which Gustav van Aschenbach [osh-en-BAWK] dies of cholera, after having some confusing orgiastic thoughts about a young boy.

ANSWER: Thomas **Mann**

[10] In a magic show in this novel, every woman attending gets some free fancy clothes, which later disappear with hilarious consequences. A woman in this novel is magically turned into a naked flying witch in order to host a ball.

ANSWER: *The* **Master and Margarita** (by Mikhail Bulgakov) [or **Master i Margarita**]

12. The Tanezrouft, or "Land of Terror", is in this desert. For 10 points each:

[10] Name this large hot desert located north of the Sahel in northern Africa.

ANSWER: **Sahara** Desert

[10] Water can sometimes be found in the Sahara Desert in these often-dry riverbeds which have flowing streams during rainy seasons. Their name comes from the Arabic.

ANSWER: **wadis**

[10] Culturally, the Sahara Desert is part of this region, which consists of Morocco, Algeria, Libya, Tunisia, and Mauritania, and is home to many Berbers. Its name also comes from the Arabic, the word for "west".

ANSWER: **Maghreb** [or the **maghrib**; or the Greater **Maghreb**; prompt on **Barbary** Coast]

13. This film begins with Bert the Turtle walking down the street, when a stick of dynamite magically starts following behind his head. For 10 points each:

[10] Name this film produced by the Civil Defense Administration and shown in many schools during the Cold War, which is named for the two actions children were supposed to do in the event of a nuclear attack.

ANSWER: **Duck and Cover**

[10] Cold War overtones overtook this 1964 advertisement, which was aired only one time by Lyndon B. Johnson's campaign. In this anti-Goldwater ad, a girl is peacefully picking petals off a flower when a nuclear bomb is set off.

ANSWER: "**Daisy**" ad [or "**Daisy girl**" ad; or "**Peace, little girl**" ad]

[10] A 1984 ad that painted President Reagan as "Prepared for Peace" used this animal to symbolize the Soviet Union. Pictures of one type of this animal hanging on melting ice are used in the media to point to climate change.

ANSWER: a "**bear** in the woods" [or grizzly **bear**; or polar **bear**]

14. The ancient Egyptian creation myths varied, depending on the cult center. For 10 points each:

[10] Ptah was venerated in Memphis for his ability to grant life with the help of this symbol, which the god used along with the *was* [WAHS] and the *djed* [JED]. This ubiquitous Egyptian symbol looked like a cross, but with a curved top.

ANSWER: **ankh**

[10] The Heliopolis cult worshipped this creator god, who was later syncretized with Khepri [KEP-ree] and Ra. In the polite tellings of the myth, this god gave birth to Shu and Tefnut by spitting them out.

ANSWER: **Atum** [or **Atum-Ra**; or **Atum-Re**; do not accept or prompt on answers involving "Amun"]

[10] The Hermopolis cult believed that Ra was hatched from one of these objects. Many world mythologies believe the world was created from a "cosmic" one.

ANSWER: **eggs**

15. The ammonium salt of this ion is commonly used in fertilizers, since it's a required nutrient for plants, but it can dangerously runoff into rivers. For 10 points each:

[10] Name this ion with formula  $\text{NO}_3^-$  [N-O-three] minus, which is slightly more oxidized than nitrite.

ANSWER: **nitrate**

[10] These bacteria convert nitrite to nitrate during the nitrogen cycle. *Nitrosomonas* is the prototypical example of them.

ANSWER: **nitrifying** bacteria [or **nitrification**]

[10] Runoff of nitrate is dangerous because it can lead to eutrophication, leading to namesake "blooms" of these organisms that create hypoxic dead zones for fish.

ANSWER: **algae** [or phytoplankton; or **algal blooms**]

16. Ex-con Hugo Kalmar spends much of this play unconscious. For 10 points each:

[10] Name this play in which drunks like Larry and Don discuss their pipe dreams while waiting for "Hickey" Hickman in Harry Hope's saloon.

ANSWER: **The Iceman Cometh**

[10] *The Iceman Cometh* is a play by this American dramatist, who wrote about the struggles of the Tyrone family in *Long Day's Journey Into Night*.

ANSWER: Eugene **O'Neill**

[10] Near the play's end, Hickey shatters everyone's pipe dreams by confessing to this crime after the police arrive. Hickey begs to go to the electric chair for committing this crime.

ANSWER: **murdering** his **wife** Evelyn [prompt on **murder** or **killing**; must specify either his **wife** or **Evelyn** to earn points]

17. Answer the following about the establishment clause, for 10 points each:

[10] It was applied by the Supreme Court in 1962 in *Engel v. Vitale* to ban this activity. *Santa Fe Independent v. Doe* banned this practice at some football games.

ANSWER: **school prayer** [or **prayer** in public **schools**; prompt on partial answer; do not accept or prompt on "reading the Bible"]

[10] The clause is found in this amendment of the Constitution's Bill of Rights, which offers freedom of speech, religion, and press.

ANSWER: **First** Amendment

[10] This other main clause in the First Amendment prevents Congress from passing laws that interfere with religious beliefs; it was first applied in 1878 in *Reynolds v. US*.

ANSWER: **free exercise** clause

18. The fact that many sub-Saharan languages are very similar is often given as evidence for this event. For 10 points each:

[10] Name this series of migrations which took place over several centuries and led to the cultural diffusion of technologies like iron smelting.

ANSWER: **Bantu** migrations [or the **Bantu** expansion; prompt on answers of migration/expansion/cultural diffusion; accept any answer that involves the **Bantus**]

[10] The Bantu migrations pushed out the Khoisan people from much of Africa, although, to this day, the Khoisan [KOH-sawn] practice a hunter-gatherer life in this desert of southern Africa, where they are known pejoratively as "Bushmen."

ANSWER: **Kalahari** Desert

[10] The Shona language of the Bantu family was spoken mostly in this kingdom. This kingdom's capital was encircled by a large stone wall.

ANSWER: Great **Zimbabwe**

19. This composer wrote arias like "Ritorna vincitor [VINCH-i-tore]" and "Sempre libera." For 10 points each:

[10] Name this composer who wrote the aria "La donna è mobile [LA DOE-nah eh mow-BEE-lay]", sung by the Duke of Mantua, in *Rigoletto*.

ANSWER: Giuseppe **Verdi**

[10] "Ritorna vincitor" is a highlight of this Verdi opera about an Ethiopian princess who falls in love with Radames, an Egyptian general. It premiered in Cairo.

ANSWER: **Aida**



[10] Verdi's *La Traviata* has an early duet between Alfredo and Violetta titled for one of these things, "happy and ethereal." Madame Butterfly describes a "beautiful" one of these things in a classic aria by Puccini.

ANSWER: a day [or days; or di; or "Un bel di"; or "Un di, felice, eterea"]

20. In this type of reaction, the order for each species is exactly equal to the stoichiometric [STOY-kee-oh-met-rick] coefficient. For 10 points each:

[10] Name this type of reaction which never involves more than two species, according to the law of microscopic reversibility.

ANSWER: elementary reaction [or one-step reactions]

[10] Reactions that are not elementary will form one of these species. These species are local minima on a potential energy surface, although they may not always be stable.

ANSWER: intermediates

[10] In the differential rate law, the rate of a reaction is always expressed as the time derivative of this quantity for a given species. Molarity and molality are common ways to measure this quantity.

ANSWER: concentrations