

2016 NSC - Official Scoresheet

Round	08	Room	
Bracket			
Reader			

Team									Team								
Player Names																	
Q#					Bonus	Steals	Ques. Total	Run. Score					Bonus	Steals	Ques. Total	Run. score	
1																	
2																	
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19																	
20																	
OT																	
Player 20s																	
Player 10s																	
Point totals																	
Final score																	
	Substitutions before Tossup 11								Substitutions before Tossup 11								
	Out:				In:				Out:				In:				
	Out:				In:				Out:				In:				

Circle winning team above. Clearly mark if game goes to OT/SD. Fill out "Point totals" row completely. If there are substitutions, please note tossups by each player in "20s" and "10s" rows. Below is for Tab Room use only:

RH	RS	BH	BS	Left	Right	BH	BS	RH	RS
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National Scholastic Championship

PACE NSC 2016 - Round 08 - Tossups

1. This philosopher noted that the "problem of freedom" was that culture begets "human nature" and "political freedom" in his book *Freedom and Culture*. In one of his works, this thinker wrote that groups that have "full and free interplay with other forms of association" secure a "liberation of powers." Late in life, this man headed the commission of sociologists and philosophers that cleared Leon Trotsky of wrongdoing. Against (*) Walter Lippman, this man claimed that democracy should be managed in local communities rather than by experts in *The Public and Its Problems*. In a work that drew from his experience founding the Chicago Laboratory School, he argued that public teaching had a social function. For 10 points, name this American pragmatist who wrote *Democracy and Education*.

ANSWER: John **Dewey** <Jose>

2. During this unnamed military campaign, an officer drafted a "round robin" letter asking that sick troops be sent home after that request was ignored by William Shafter, the massively overweight general in charge of this campaign. Soldiers in this campaign were fed toxic "embalmed beef" purchased by Russell Alger. This theater of a larger war targeted an area which had earlier been oppressed by the concentration camps of "Butcher" Weyler. The speedy (*) withdrawal of troops after this campaign was called for in the Teller Amendment, which was later replaced by the Platt Amendment. During a battle of this campaign, Leonard Wood's Rough Riders charged up San Juan Hill. For 10 points, name this theater of the Spanish-American War fought on a Caribbean island.

ANSWER: U.S. invasion of **Cuba** during the Spanish-American War [or the **Cuban** theater of the Spanish-American War; or obvious equivalents; prompt on Spanish-American War; prompt on Caribbean Theater] <Brownstein>

3. In the *Iliad*, one of these things is scalded by Hephaestus's flames, foiling one of its three attempts to kill Achilles. One of these things called Xanthos was created by the birth pangs of Leto. In a battle over Deianeira, a bull-headed god of one of these things had a horn twisted off by Heracles. Gods of them include Alpheus, who fell in love with Arethusa. The gods of these features are called *potamoi* and included (*) Scamander and Achelous. One of them made of fire, one of woe, and one that produced forgetfulness, respectively named Phlegethon, Acheron, and Lethe, were found in the underworld. Heracles diverted one of these features to clean the Augean stables. For 10 points, name this type of geographical feature, most famously exemplified by the Styx.

ANSWER: **rivers** [or **river** gods/deities; accept **potamoi** before it is mentioned] <Jose>

4. People of this island practice a funerary ritual known as "the turning of the bones," or famadihana, in which the bodies of deceased relatives are dug up and hoisted around at parties. Tourist attractions on this island include the limestone needle formations of its Tsingy region, as well as its Avenue of the Baobabs. The iconic traveler's (*) palm and extinct elephant bird were both endemic to this island, which has high biodiversity because it split from the mainland about 90 million years ago. During the colonial era, it was ruled as the Malagasy Protectorate by France. Separated from the mainland by the Mozambique Channel, for 10 points, name this island off eastern Africa that is the native habitat of the lemur.

ANSWER: Madagascar <Wang>

5. One of Walter Savage Landor's "imaginary conversations" portrays a discussion of love between this man and Rhodope, his supposed lover. This native of Samos is given the power of speech by Isis in a fictional "Romance" named for him. Babrius rendered this author's work into verse, and the scholar Phaedrus translated this writer into Latin. In one of this writer's stories, one of the title figures spends the summer singing and in the winter is forced to beg the other for food. This author, probably born a (*) slave, also wrote a story in which the second title figure takes a nap midway through a race and ultimately loses. "The Ant and the Grasshopper" and "The Tortoise and the Hare" are by, for 10 points, what ancient Greek writer known for his fables?

ANSWER: Aesop <Jose>

6. In a pioneering treatise, Robert Grosseteste surmised that these phenomena are caused by "God's first form" interacting with convex, and not concave shapes. A type of these objects formed by fog is often called Ulloa's Ring. They appear superficially similar to circumzenithal arcs, which are caused by ice crystals. Thomas Young used the wave nature of light to explain (*) "supernumerary" types of these things, which can be modeled with Mie scattering. These things often consist of "full circles," though most observers are only posed to see them when the sun's angular elevation is less than 42 degrees. For 10 points, water droplets refracting white light produce what meteorological phenomena, which consist of the spectrum of colors?

ANSWER: rainbows [accept fogbows] <Jose>

7. Before going to the building of this organization, the protagonist puts a cypress cross around his neck and kisses the ground in a public square. The protagonist tells a clerk who works for this organization about hiding some jewels under a rock while having tea with him in the Crystal Palace. A member of this organization asks the protagonist a trick question about two workers who were painting an apartment flat. A (*) representative of this organization discovers an article about "extraordinary men" called "On Crime." The protagonist confesses to a member of this organization, Porfiry Petrovich, at the urging of his lover Sonia. For 10 points, identify this organization that investigates Raskolnikov's murder of a pawnbroker in Dostoevsky's *Crime and Punishment*.

ANSWER: St. Petersburg police [or obvious equivalents of the police department from *Crime and Punishment*] <Brownstein>

8. Diatomic boron anomalously lacks this property because the increased penetration of s orbitals leads to s-p mixing. The Landau model explains this property in metals as Lorentz interactions in a free electron gas. Molecules with this property form a single peak when shot through a Stern-Gerlach apparatus, because their net magnetic moment is zero. Graphite strongly possesses the (*) conventional form of this property, allowing it to be easily levitated. All noble gases have this property because their fully filled p orbitals can match together their opposing spins, cancelling them out. For 10 points, name this property of materials which induce a magnetic field opposite to an exterior magnetic field, in contrast to its para counterpart.

ANSWER: **diamagnetism** [do not accept "paramagnetism"] <Wang>

9. Bulldozers and tanks entered the "no-go areas" held by this group during Operation Motorman. The seizure of the ship *Eksund* revealed that Muammar Gaddafi was supplying arms to this group. Members of this group refused to use toilets in the "dirty protests" against the removal of their "special" status and carried out hunger strikes in the Maze prison. Volunteers flooded to this organization after (*) soldiers from the Parachute Regiment shot protesters on Bloody Sunday. A member of this group who carried out the Brighton Hotel Bombing was released as part of an treaty which called for their disarmament, the Good Friday Agreement. For 10 points, name this organization whose "provisional" wing violently fought the British presence in Northern Ireland.

ANSWER: Provisional **I**rish **R**epublican **A**rmy [or **PIRA**; or **Ó**glaigh na h**É**ireann; prompt on **Provos** or **Provisionals**] <Brownstein>

10. Most of the poses in this painting are taken from Marcantonio Raimondi's *Judgement of Paris*, although Raphael's *The Miraculous Draught of Fishes* may have inspired the pose of the woman bending over in the background. The artist's brothers posed for the student wearing a tasseled hat in this painting. This painting was inspired by the subject of Titian's *Pastoral Concert*. Victorine Meurent (meau-rah-n) modeled for a woman in this painting who holds her right hand to her (*) chin. The unusual grouping of cherries with figs in the basket in the foreground of this painting may be a parallel of the different states of clothing of the people in this work. For 10 points, name this scandalous 1862 Edouard Manet painting of an outdoor meal.

ANSWER: *The **Luncheon on the Grass*** [or *The **Picnic*** or ***Dejeuner Sur L'Herbe*** or *The **Bath*** or *Le **Bain***] <Bentley>

11. This poet described floating in the ocean, seeing a butterfly overhead, and reminiscing about his dead wife in the poem "Amphibian." The narrator of another poem by this man claims "man's reach should exceed his grasp, or what's a heaven for?" That narrator dreams of working on one of the "four great walls in the New Jerusalem" alongside Rafael and Leonardo while painting his wife Lucrezia. Other artworks in this man's poetry include a bronze statue of (*) Neptune taming a seahorse cast by Claus of Innsbruck and placed near a painting of a woman who "liked whate'er she looked on." The narrator of a dramatic monologue by this poet killed his wife because she had "a heart too soon made glad." For 10 points, name this poet of "Andrea del Sarto" and "My Last Duchess."

ANSWER: Robert **Browning** <Mehigan>

12. At a 1974 press conference, Arno Peters decried one of these things as racist. UTM is a commonly-used set of sixty of these entities. The amount of error induced in these entities are depicted by the size and shape of Tissot's indicatrices. Depending on the position of an imagined light source, certain varieties of these things may be gnomonic, stereographic, or orthographic. (*) Waldo Tobler designed a family of hyperelliptical equal-area ones, and conformal types of these representations preserve angles locally. One of these representations was criticized for inflating areas at high latitudes, causing Greenland to appear as large as Africa. For 10 points, name these ways of transforming coordinates from the surface of a globe onto a plane, such as the Mercator.

ANSWER: maps [or map projections] <Kothari>

13. This compound demonstrates no selectivity in a William Harvey assay and acetylates serine-530 in all isozymes of its target enzyme. This compound is the major industrial target of the Kolbe-Schmidt reaction. Arthur Eichengrün wrote a letter from a concentration camp protesting that he, not Felix Hoffman, discovered this compound. This compound prevents thromboxane synthesis from prostaglandins by irreversibly binding (*) COX-1, which is why it is used to block platelet aggregation in patients suffering a heart attack. Children who are given this drug when recovering from chicken pox may develop Reye's syndrome. For 10 points, name this NSAID extracted from the bark of the willow tree and marketed by Bayer, an anti-inflammatory drug also called acetylsalicylic acid.

ANSWER: aspirin [or acetylsalicylic acid until it is read] <Silverman>

14. This man sits among rocks in a painting by Joachim Patinir that was one of the first to be described as a "landscape." A peacock perches on the painted frame of a painting of this man seated on a wooden platform by Antonello da Messina. This man unfurls a scroll next to a column in the right background of Parmigianino's *Madonna of the Long Neck*. In a painting of this man, a cardinal's hat and an hourglass hang on the wall above his (*) bald head. In that same engraving of this man, a skull rests on a windowsill and a dog and a lion sleep next to each other in the foreground. An engraving of this man at work may be part of a series with *Knight, Death, and the Devil*. For 10 points, name this saint whom Albrecht Durer depicted "in his study," working on the *Vulgate*.

ANSWER: Saint Jerome [or Eusebius Sophronius Hieronymus] <Bentley>

15. This entity is partitioned into blocks whose sizes are a power of 2 in the buddy method. A unit that manages this entity is responsible for converting virtual addresses to physical addresses. This thing can be stored in a "pool" to avoid system calls. In some languages, this entity is "marked" as used or unused before it is subsequently "swept." The "dynamic" type of this resource is often put on a (*) heap and can be allocated with the "malloc" function in C. To make contiguous pieces of this resource, one might run a "defrag" program. Garbage collection is an automatic process that frees up this resource, which can be "leaked" if it is never freed. For 10 points, name this resource whose "random access" type is a common form of information storage.

ANSWER: memory [accept virtual memory; accept random-access memory; do not accept or prompt on "hard disk"] <Jose>

16. A field marshal who ruled this country set up a system of local government called "Basic Democracies" and began a war with an infiltration operation codenamed Gibraltar. This country later launched Operation Chengiz Khan to start a war ended by the Simla Agreement. In 1953, rioters in this country called for the Ahmadiyyah sect to be declared non-Muslim. In this country, a referendum about an Islamization program was used to extend the term of (*) Zia al-Huq by five years. This nation launched the Kahuta Project to develop nuclear weapons under Zulfikar Ali, the father of a prime minister killed by a bomb in 2007. This country's "Great Leader," Mohammed Ali Jinnah, was its first post-partition leader. For 10 points, name this country once led by Benazir Bhutto.

ANSWER: **Pakistan** <Bentley>

17. A player of this instrument hypothesized that a "third sound" could be heard when two real tones sounded at the same time in an effect called a "difference tone." Jeffrey Kalberg titled Chopin's Prelude No. 27 after a difficult sonata for this instrument and continuo whose *larghetto affettuoso* first movement is in 12/8 time. A set of pieces for this instrument dedicated to "all artists" includes a piece in which *it* imitates the horn and flute; that piece is called "The Hunt." Giuseppe (*) Tartini's "Devil's Trill" sonata is for this instrument. Beethoven's *Kreutzer Sonata* is written for piano and this instrument. Demanding techniques like double-stops frequently appear in an Italian virtuoso's twenty-four caprices for this instrument. For 10 points, identify this primary instrument played by Niccolò Paganini.

ANSWER: **violin** <Alston>

18. Before taking this action, some Zen Buddhists recite a poem with five reflections, the Gokan-no-ge. If Muslims forget to praise Allah before doing this, they say a phrase that means, "In the name of God at the beginning and at the end." Saying "Bismillah" before doing this action keeps the devil from doing it. When three Jewish men take this action together, they are supposed to do a (*) Zimmun, which is often contained in small books called benchers that also contain the Birkat Hamazon. Before this action, many Lutherans say, "Come Lord Jesus be our Guest," and many Catholics say, "Bless us, O Lord, and these, Thy gifts, which we are about to receive from Thy bounty." Name this action that often follows people saying grace.

ANSWER: **eating** [accept answers such as **having a meal** or **feasting**, and specific answers such as **eating bread**] <Reinstein>

19. This sort of object provides the surname of an innkeeper who owns a mysterious smoked-over oil painting and tells the protagonist that another character is out peddling shrunken heads. In the first chapter of the novel in which he appears, that protagonist describes finding himself stopping before warehouses full of these objects. A character climbs into one of these objects with an idol named Yojo after falling (*) ill with a fever and later decorates it with carvings. A canoe-like object of this sort is reworked by a carpenter into a life-buoy. One of these objects made by Queequeg emerges from a whirlpool after the *Pequod* sinks. For 10 points, *Moby Dick* ends with Ishmael floating on what sort of object, usually used to store dead bodies?

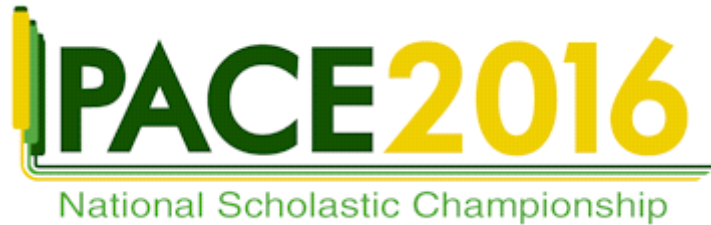
ANSWER: **coffins** [prompt on canoes, buoys, or sea chests] <Brownstein>

20. In the late 19th century, youth gangs in this city known for wearing colorful scarves and donkey fringes were called the Scuttlers. The Blanketeers were prevented from marching from this city to protest the suspension of the Habeas Corpus Act. This city was supplied coal from nearby Worsley via a canal built by the Duke of Bridgewater. The yeomanry of this city killed many people who had come to hear Henry Hunt lecture in (*) 1819. Friedrich Engels' *Condition of the Working Class in England* was written in this city. A newspaper founded in this city was started in the aftermath of the Peterloo Massacre and is today called *The Guardian*. For 10 points, name this English city, once the center of the world cotton industry and a rival of Liverpool.

ANSWER: **Manchester** <Bentley>

21. Since the late 20th century, the volatility of this country's economy has been reduced in an event called "The Great Moderation." A 1953 study found that this country tended to import capital-intensive goods, despite having abundant capital, in a result known as Leontief's Paradox. Anna Schwartz and Milton Friedman blamed bad monetary policy for exacerbating economic downturns in a landmark 1963 book titled (*) "A Monetary History of" this country. In 1971, this country unexpectedly left the gold standard, putting an end to the Bretton Woods system that tied much of the world to this country's currency. China currently owns about 6% of this country's \$19 trillion in national debt. For 10 points, name this country whose Federal Reserve prints the dollar.

ANSWER: **United States of America** [accept either underlined portion; or **USA**] <Wang>



PACE NSC 2016 - Round 08 - Bonuses

1. Answer the following regarding rectangular blocks on flat surfaces, for 10 points each:

[10] If you push the block to the right, this force will point left, opposing the motion. This force opposes motion when two solids are in direct contact.

ANSWER: **frictional** force

[10] The magnitude of the force of friction on the block is proportional to this other force, which is exerted on the block by the surface and is a consequence of Newton's third law.

ANSWER: **normal** force

[10] Two answers required. For a horizontal force applied to a rectangular block on a flat surface, the magnitude and location of the vectors for the applied force, the frictional force, and the normal force determine which of these two types of motion occurs.

ANSWER: **slipping** along the surface or **tipping** over [accept "**sliding**" in place of "slipping"]

<Busse>

2. This artist collaborated with the fashion company *H&M* to sell a purse based on his sculpture *Balloon Dog*. For 10 points each:

[10] Name this American artist and former commodities broker. His *Banality* series includes a sculpture in which the two title figures wear gold suits, *Michael Jackson and Bubbles*.

ANSWER: Jeff **Koons** [or Jeffrey **Koons**]

[10] Koons' *Puppy* stands outside of one of these museums in Bilbao, Spain. Frank Lloyd Wright designed another one of these museums, which are named for a foundation, in New York City.

ANSWER: **Guggenheim** Museums [accept Solomon R. **Guggenheim** Museums]

[10] For his *Luxury and Degradation* series, Koons made a travel cabinet entirely out of this material. Anish Kapoor's *Cloud Gate* is also made of this.

ANSWER: stainless **steel** [do not accept or prompt on "iron"] <Bentley>

3. A novel by this writer begins with an old man sitting at a traffic light finding that he can only see a shade of white. For 10 points each:

[10] Name this author who imagined the Iberian continent breaking off in his *The Stone Raft*.

ANSWER: Jose **Saramago**

[10] The only character in Saramago's *Blindness* who is not stricken with the title malady is a wife of a man with this profession. A man with this job, Henry Jekyll, uses a potion to transform into Mr. Hyde in a Robert Louis Stevenson novella.

ANSWER: **doctor** [or **physician**; accept clear equivalents]

[10] Saramago's *The Year of the Death of Ricardo Reis* is a fictionalization of one of this author's many "heteronyms." He wrote "I'd woken up early, and I took a long time getting ready to exist" in his *The Book of Disquiet*.

ANSWER: Fernando **Pessoa** <Jose>

4. In March 2016, the government agency led by Thomas Wheeler started an "incentive auction" to buy back portions of this entity. For 10 points each:
[10] Name this entity, which will be "repacked" after that aforementioned reverse auction as part of a plan to free it up for wireless use.
ANSWER: The broadcast **spectrum**
[10] The auction of the spectrum is managed by this government agency, which manages radio, television and other wireless media needs in the U.S.
ANSWER: **Federal Communications Commission** [or **FCC**]
[10] The FCC is also partly responsible for making sure that companies like Comcast follow this principle of not discriminating against users based on their bandwidth usage.
ANSWER: **Net neutrality** [or **network neutrality**, **Internet neutrality**, or **net equality**]
<Jose>

5. Ascalaphus was buried underneath a rock after he informed Demeter that her daughter had consumed some seeds of this fruit. For 10 points each:
[10] Name this fruit, whose consumption by Persephone forced her to stay in the underworld during the wintertime.
ANSWER: **pomegranate** [or **Punica granatum**]
[10] This winged goddess of victory was often depicted clutching a pomegranate.
ANSWER: **Nike**
[10] A life-size statue of the cult figure Attis depicted him holding a pomegranate in one hand and a shepherd's crook in the other. Attis was the consort of this Phrygian-Greek mother goddess, who was adopted by the Romans as Magna Mater.
ANSWER: **Cybele** [or **Kybebe**; or **Kybelis**] <Jose>

6. Consider two propositions denoted p and q . For 10 points each:
[10] The situations in which " p implies q " is a correct statement may be illustrated on one of these "tables," in which the output of all combinations of p and q being assigned "T" and "F" values are shown.
ANSWER: **truth** tables
[10] Two answers required. For two properties p and q , the statement " p is true, if and only if q is true" is valid if one can show the existence of these two conditions.
ANSWER: **necessary** and **sufficient** conditions [prompt on one answer; accept **necessity** in place of necessary; accept **sufficiency** in place of sufficient]
[10] For the statement " p implies q ," this statement is denoted " $\text{not } q$ implies $\text{not } p$." Assuming that " p implies q " is true, then this statement will always be true.
ANSWER: **contrapositive** <Jose>

7. Richard Coote, the Earl of Bellomont, had the bodies of this man and his son-in-law reinterred after they were executed by Henry Sloughter for revolting in the aftermath of the Glorious Revolution. For 10 points each:
[10] Name this 17th-century German-born merchant, who led a rebellion expelling the colonial administrator Francis Nicholson from New England.
ANSWER: Jacob **Leisler**
[10] Leisler's Rebellion took place in the territory that is now this modern day state. Its city of Schenectady was besieged during King William's War.
ANSWER: **New York**
[10] The territory of New York City, then New Amsterdam, had earlier been expanded during the tenure of this Dutch director-general, nicknamed "Old Silver Leg" for his artificial leg.
ANSWER: Peter **Stuyvesant** <Jose>

8. Its last poem describes a spirit speeding through "spaces of the night" who gets smote by a "sword from the sky" for saying "Ah! There is No God!" For 10 points each:

[10] Identify this 1895 book of poetry, whose first poem imagines the "clang and clang of spear and shield" of a group who "came from the sea."

ANSWER: The **Black Riders** and Other Lines

[10] *The Black Riders* was the only book of poetry by this author, whose other poems include one that exhorts "Do not weep, maiden, for war is kind." One of his short stories opens with the line "None of them knew the color of the sky."

ANSWER: Stephen **Crane**

[10] Stephen Crane's other prose works include this novella about Henry Fleming, a youth who enlists to fight with the Union in the Civil War but subsequently deserts.

ANSWER: The **Red Badge of Courage** <Jose>

9. Dietrich Bonhoeffer was tried and executed for trying to kill this world leader. For 10 points each:

[10] Name this leader of the Nazi party, who was condemned by Pope Pius XI in the encyclical *Mit brennender Sorge* or *With Burning Concern*.

ANSWER: Adolf **Hitler**

[10] The rise of Nazism is often illustrated with this pastor's poem that opens "First they came for the Socialists, and I did not speak out, Because I was not a Socialist." It concludes "Then they came for me, and there was no one left to speak for me."

ANSWER: Martin **Niemöller**

[10] Members of this Christian denomination, the first banned by the Nazis, were marked with purple triangle badges in concentration camps. Publications of this group include *The Watchtower* and *Awake!*

ANSWER: **Jehovah's Witnesses** <Jose>

10. The tense in this song was changed when one country adopted it as a national anthem in the 1920s. For 10 points each:

[10] Name this song which proclaims, "Arise, ye workers from your slumber ... for reason in revolt now thunders."

ANSWER: "The **International**" [or "L'**Internationale**" or "**Internatsional**"]

[10] "The International" was the anthem of this Lenin-led party, the rival of the Mensheviks. It came to dominate Russia following the October Revolution.

ANSWER: **Bolsheviks** [or **Bolshevik** Party]

[10] "The International" was written to honor the First International, which had its first congress in this city. Henry Dunant organized an 1864 conference concerning wounded soldiers in this city which created a Convention agreement named for it.

ANSWER: **Geneva**, Switzerland [or **Genève**; or **Genf**] <Bentley>

11. David Schiff gave the names "Ritornello", "Train", "Stride", "Shuffle", and "Love" to this piece's five themes. For 10 points each:

[10] Name this piece that was premiered at the 1924 "An Experiment in Modern Music" concert, with Paul Whiteman's band accompanying the composer as soloist.

ANSWER: **Rhapsody in Blue**

[10] This American composer wrote many songs with his brother Ira and composed *Rhapsody in Blue*.

ANSWER: George **Gershwin**

[10] This Gershwin piece, also scored for piano and orchestra, begins with four timpani strokes, followed by a loud chord played by cymbals and woodwinds.

ANSWER: **Concerto in F** <Gupta>

12. Fisher's fundamental theorem states that the rate of increase in this quantity exactly equals its genetic variance for a given organism at a specific time. For 10 points each:

[10] Name this quantity, which Sewall Wright plotted on its namesake landscapes to show how it can be optimized in several dimensions.

ANSWER: biological **fitness** [or **fitness** landscapes]

[10] For a 1-D fitness landscape, this form of selection would be represented by a bell curve. In this type of selection, exemplified by human birth weight, intermediate traits are best.

ANSWER: **stabilizing** selection [or word forms]

[10] Stabilizing selection, like all natural selection, only operates at the level of this property, which is the set of observable characteristics in an organism, as contrasted with the actual alleles that it possesses.

ANSWER: **phenotype** <Jose>

13. In *The Philosophy of Space and Time*, Hans Reichenbach suggests that all of this philosopher's conundrums can be resolved by unifying space and time. For 10 points each:

[10] Name this ancient philosopher, who suggested a paradox in which an arrow is not moving at all because time can be infinitely divided.

ANSWER: **Zeno** of Elea [do not accept or prompt on "Zeno of Citium"]

[10] Many of Zeno's paradoxes are preserved in this book by Aristotle, which investigates the principles of *kinesis*, or motion.

ANSWER: **Physics** [or **Physica**]

[10] Aristotle also credits Zeno with inventing this process, a method of discourse in which two opponents reach a synthesis through debate. The "Hegelian" form of this process was elucidated in *The Phenomenology of Spirit*.

ANSWER: **dialectic** <Jose>

14. This character is introduced after Lenina and Bernard Marx visit a reservation in New Mexico. For 10 points each:

[10] Name this character who commits suicide in a lighthouse after being exiled by the World Controller Mustapha Mond.

ANSWER: **John** the Savage

[10] John is the protagonist of this novel by Aldous Huxley. It presents a future in which people learn in their sleep through *hypnopaedia* and have their fears quelled with "soma."

ANSWER: **Brave New World**

[10] Both Bernard Marx and Helmholtz Watson are part of this highest of the five castes in *Brave New World*, though Bernard's physical inferiority causes him to struggle with fitting into it.

ANSWER: **alphas** <Jose>

15. In one of this author's novels, a salesman's search for his missing wife leads him to a hospital full of prostitutes. For 10 points each:

[10] Name this novelist of *Secret Rendezvous*, who wrote about an entomologist who is forced to live in the sand with the title woman in another book.

ANSWER: Kobo **Abe**

[10] Kobo Abe's *The Ruined Map* is narrated by a man of this profession, who often solves "whodunits." Edogawa Ranpo wrote mystery stories featuring people of this profession investigating crimes.

ANSWER: **detective** [prompt on **policeman**]

[10] For his surrealist play *Friends*, Kobo Abe won the literary prize named after this Japanese author, who wrote about the dissolution of a marriage in *Some Prefer Nettles* and Yukiko's search for a husband in *The Makioka Sisters*.

ANSWER: Junichiro **Tanizaki** <Jose>

16. Theodor de Bry's 1617 *Grand Voyages* negatively portrayed this country's empire. For 10 points each:

[10] Name this Catholic country. A style of writing called the Black Legend emphasizes the evils of this country's South American empire and its active Inquisition.

ANSWER: **Spain** [or Kingdom of **Spain** or Reino de **Espana**]

[10] This churchman's *History of the Indies* and other writings were a great source material for Black Legend writers. This man freed the Indians in his parish in 1514 and encouraged other encomenderos to do so as well.

ANSWER: Bartolomé de las **Casas**

[10] This Spaniard was the subject of an unflattering history by Agustin de Zarate. This rival of Diego de Almagro ordered the execution of a captive despite having received a ransom of a room filled with gold and silver.

ANSWER: Francisco **Pizarro** [or Francisco **Pizarro** González] <Bentley>

17. This quantity is represented as the "hump" on a reaction coordinate diagram. For 10 points each:

[10] Name this energy barrier for a reaction to occur.

ANSWER: **activation** energy [or free energy of **activation**]

[10] The catalyst normally reduces the activation energy just by stabilizing this species, the highest-energy species formed during the course of the reaction. In equations, it's usually symbolized by a double dagger.

ANSWER: **transition state** [or **TS**]

[10] A transition state analog named CA1P tightly binds to this enzyme and inhibits its function. This enzyme produces two molecules of 3-phosphoglycerate from a five carbon molecule and a one carbon molecule.

ANSWER: **RuBisCO** [or **ribulose-1,5-bisphosphate carboxylase/oxygenase**] <Silverman>

18. This artist's *Small Cowper Madonna* reflects techniques he learned in the workshop of his teacher, Pietro Perugino. For 10 points each:

[10] Identify this artist, who painted the *Alba Madonna* held in the National Gallery. Julius II commissioned this artist to decorate the *Stanza della Segnatura*, which contains his *School of Athens*.

ANSWER: **Raphael** Sanzio

[10] Julius II commissioned this Madonna by Raphael, which is distinctive for the green curtains that surround Mary. Two distinctive cherubs rest their elbows at this painting's bottom.

ANSWER: the **Sistine** Madonna [or Madonna di **San Sisto**]

[10] Another Madonna by Raphael depicts a young Jesus and John the Baptist frolicking in a meadow and passing one of these birds between them as Mary warmly looks on.

ANSWER: a **goldfinch** [or Madonna of the **Goldfinch**; or Madonna del **cardellino**] <Alston>

19. The script used to write this civilization's language, Linear A, has never been deciphered. For 10 points each:

[10] Name this island civilization of the Bronze Age, which built many labyrinthine palaces at Phaistos. Frescoes of this civilization show its members leaping over bulls.

ANSWER: **Minoan** civilization

[10] The Minoan civilization's largest archaeological site on Crete is this ruin, where depictions of griffins, a minotaur and a labyrinth can be found.

ANSWER: **Knossos**

[10] The idea that the Minoan Civilization was ended after a volcanic eruption on this island has largely been discredited. However, the Minoan civilization of Akrotiri on this island almost definitely ended due to that eruption.

ANSWER: **Thera** [or **Santorini**] <Jose>

20. Answer the following about mortality rates, for 10 points each:

[10] The Gompertz-Makeham law divides mortality rates into components dependent and independent of this quantity. The life expectancy at birth is the expected value of this quantity at time of death.

ANSWER: **age**

[10] A 2015 paper by this man and his wife Anne Case claimed to show that mortality rates were rising among middle-aged white people. This economist won the 2015 Nobel Memorial Prize in Economics for work on consumption and welfare.

ANSWER: Angus Stewart **Deaton**

[10] Tables describing the probability of death before the next birthday are commonly used in this discipline, which is used in the insurance and financial sectors to evaluate risks.

ANSWER: **actuarial** science [accept word forms] <Kothari>

21. In *The Prelude*, William Wordsworth describes a statue of this man as "The marble index of a mind forever voyaging through strange seas of Thought, alone." For 10 points each:

[10] Name this subject of an epitaph by Alexander Pope, who wrote that "God said 'Let [this man] be!' and all was light." James Thomson wrote "A poem sacred to the memory of" this man.

ANSWER: Isaac **Newton**

[10] This poet criticized Newton in his poem "You Don't Believe," and made a monotype depicting Newton sitting naked on a rock while drawing with a compass. He included "The Tyger" in his collection *Songs of Innocence and of Experience*.

ANSWER: William **Blake**

[10] Septimus teaches Thomasina about Newtonian determinism in *Arcadia*, a play by this Czech-born British playwright.

ANSWER: Tom **Stoppard** [or Tomáš **Straussler**] <Kothari>