2023 Reinstein Set – Packet 12

Tossups

1. Though the term for these people is usually associated with pre-industrial Europe, in 2018 the United Nations passed a declaration supporting their rights. A war started by these people was harshly condemned by Martin Luther in a tract referring to these people as "murderous thieving hordes". In that war, these people were stopped by the Swabian League in 1525. A revolt by these people was supported by Lollard priest John Ball. In that revolt, which was suppressed by King Richard II of England, these people were led by Wat Tyler. Give this general term for small rural landowners or agricultural laborers.

Answer: **peasant**s [accept **bauer**n or German **peasant**s]

2. One poem by this writer begins "Now the leaves are falling fast, nurse's flowers will not last." That poem, "Autumn Song", is in this writer's collection *Twelve Songs*. Another poem in that collection by this author ends with the line "For nothing now can ever come to any good" and is called "Stop All the Clocks". This poet disowned his work that states "We must love one another or die", which he wrote just after moving to the United States and which he set on the date of the beginning of World War II. Another poem by this writer is set in an art museum in Brussels. Name this poet of "September 1, 1939" and "Musée des Beaux Arts" [moo-zay day bohz art].

Answer: W(ystan) H(ugh) **Auden**

3. One pair of paintings by this artist is based on a story from Ovid's [AH-vid'z] *Metamorphoses*, with the first painting showing a hunter finding some bathing goddesses and the second showing him in the form of a stag being attacked by wolves. The first of those paintings is *Diana and Actaeon [ak-TEE-un]*. Another painting by this artist shows a woman dressed primarily in white on the left and Cupid in the middle reaching down into some water. Yet another painting by this artist is similar to a painting showing a nude woman in bed that this artist worked on with Giorgione [jor-JOH-nay]. Name this Venetian painter of *Sacred and Profane Love* and *Venus of Urbino*.

Answer: **Titian** [**TEE-shun**] [or Tiziano **Vecelli** or Tiziano **Vecellio**]

4. One measure of this concept is the Hill numbers, which in some cases is equivalent to an application of Shannon entropy to biology. Robert Whittaker used "alpha" to describe this concept on a local level and "beta" to describe comparisons of local areas. This concept can be broken down into species, genetic, and ecological variants, and sometimes others. Coral reefs and tropical rainforests are leading locations for the version of this concept based on species, but tundras and polar seas have a low degree of it. One measure of this concept is species richness, which is based on the number of species in an area. Name this concept equivalent to the variety of life.

Answer: **diversity** [accept **biodiversity**]

5. Like Cuthbert and Oswold, there is a shrine to this person at Durham Cathedral. This person praised Pope Gregory I in a letter he wrote to Egbert of York, who claimed to be this person's student and who in turn taught Alcuin [al-kwun]. This person's text *On the Reckoning of Time* was largely concerned with calculating the date of Easter. This person played a major role in popularizing the numbering of years from the supposed birth of Jesus. Name this 7th- and 8th-century writer who described the conversion of Anglo-Saxons to Christianity in the *Ecclesiastical History of the English People.*

Answer: The Venerable **Bede** or St. **Beded** [or **Baeda** or **Bede** the Venerable]

6. One of the techniques used in this subfield of computer science uses B-splines and is called the Catmull–Clark algorithm. Several pipelines, including fixed-function pipelines, are used in this subfield. Some applications in this subfield use quaternions [kwuh-TER-nee-unz] instead of matrices to avoid gimbal locks. One open-source program that applies concepts from this subfield of computer science is GIMP. This subfield can be divided into working with vectors or rasters, the latter of which uses bitmaps and pixels. Name this subfield of computer science that develops rendering techniques and involves geometry to improve visual outputs.

Answer: computer **graphics** [accept **visualization** or **image**(ry) processing; prompt on **animation** or **animating**; accept answers that additionally specify 3D or raster or vector]

7. A character in this novel says "Take nothing on its looks; take everything on evidence." In the same chapter in this novel, that character says that Mr. Provis and John Wemmick have exchanged letters. The character who says those things in this novel is a lawyer who saved Molly from the gallows, named Mr. Jaggers, who helps the woman who raises both Estella and the protagonist of this novel. That woman, who has stopped all of her clocks, is Miss Havisham. Name this novel by Charles Dickens about Joe Gargery's brother-in-law, Pip.

Answer: _**Great Expectations**_

8. One example of this type of substance is an adhesive called thermoset that can be used to make the type of concrete named for this type of substance. These substances can be mixed organic–inorganic compounds with several uses, such as the combination of silicon, oxygen, and organic molecules in silicone. Teflon is also an example of this type of sbustance, as is DNA, which explains the name of the enzymes that synthesize DNA. Several of the most common synthetic types of these substances are plastics. The first synthetic thermoplastic example of this type of substance contains repeated amide [AM-"eyed"] links and is called nylon. Name this type of substance whose molecules are repetitive.

Answer: **polymer**s [prompt on **macromolecule**s]

9. Shortly before dying, this composer completed his second set of songs based on the poetry of Wilhelm Müller [VILL-helm MUR-lur]. Those sets by this composer, both of which are scored for piano and tenor singer, are *Die schöne Müllerin* [dee SHER-nuh MUR-lur-in] and *Winterreise* [VIN-tur-RY-suh]. Another lied [leed] by this composer has the singer take on four characters and is about an elf who stalks children in the woods. A symphony by this composer has three beats per measure in all of its movements, and performances of that symphony vary in how they handle the two pages of a scherzo [SKAIRT-soh]. Name this composer of *Erlkönig ["earl"-KER-nik]* whose Symphony Number 8 is called the *Unfinished Symphony*.

Answer: Franz (Peter) **Schubert**

10. Acetylcholine [uh-SEE-tul-KOH-leen] receptors are classified based on whether they accept muscarine [MUSS-kuh-reen] or this chemical. This liquid alkaloid has pyridine [PIR-uh-deen] and pyrrolidine [puh-RAW-lih-deen], and its molecular formula is $C_{10}H_{14}N_2$ ["C ten H fourteen N two"]. This chemical is now often taken into the body along with propylene glycol or glycerin. People dependent on this chemical can use lozenges, chewing gums, or skin patches to help quit. Because of the way it is taken in, dependence on this chemical often leads to lung cancer. Name this addictive chemical in e-cigarettes and tobacco products.

Answer: **nicotine**

11. This short story says of one of its characters, "Her intense and fervid soul would not allow her to be absent on an occasion in which she was so terribly interested." Those words describe this story's princess, who at the end of this story makes a "slight, quick movement" that most people in a crowd do not see. This story's princess lives in a "very olden time", and her father is described as a "semi-barbaric king". This story ends with a question after a man opens the door on the right. Name this story by Frank Stockton in which people accused of crimes have a 50 percent chance of being attacked by a hungry animal.

Answer: "**The Lady, or the Tiger?**"

12. This constant is squared in the denominator of the most common way to express the Schwarzschild radius. This constant equals the reciprocal of the square root of the product of permeability and permittivity of free space. This constant gives the ratio of the strengths of the electric and magnetic parts of an electromagnetic wave. A graph of a cone showing what events can cause other events has a slope based on this constant. Mass times the square of this constant equals energy. Name this constant equal to approximately 3 times 10 to the 8th meters per second.

Answer: **speed of light** in a vacuum [accept **velocity of light**; prompt on **_c_**-naught]

13. The southeast part of this state has a dry lake bed called Alvord Desert, near Steens Mountain. This state also has several large national forests, including Deschutes [duh-SHOOTS], Malheur [mal-"HEAR"], and one named for this state's tallest mountain, Mount Hood. There was a controversy over protections for the northern spotted owl in this state's Willamette [wih-LAM-it] National Forest. This state's two biggest college towns are Corvallis and Eugene. Like Maine, this state's most populous city is named Portland. Name this state between Washington and California whose capital is Salem.

Answer: **Oregon**

14. This U.S. president mobilized the National Guard and sent federal troops to the University of Mississippi when there were riots over James Meredith registering as its first African–American student. When this person was campaigning for president, he called Coretta Scott King to express support for her husband, who was in jail. During this person's presidency, he agreed to secretly dismantle nuclear ballistic missiles in Turkey and publicly announce that the U.S. would not invade Cuba again. In exchange, the Soviet Union removed its missiles from Cuba during this person's presidency. Name this president during the Cuban Missile Crisis who was assassinated by Lee Harvey Oswald.
Answer: John (Fitzgerald "Jack") **Kennedy** [accept **JFK**]

15. One novel by this author is about the effects of the deaths of Rochelle and Paul Isaacson, who have a lot in common with the real-life Ethel and Julius Rosenberg. That novel, which this author wrote in the voice of the dead couple's son, is *The Book of Daniel*. In another novel by this author, Bo Weinberg has his feet cast in cement before getting thrown in the East River. That novel by this author is about a worker for the mobster Dutch Schultz. Another novel by this author describes Coalhouse Walker's attempts to avenge the vandalization of his Model T Ford. Name this author of *Billy Bathgate* and *Ragtime*.
Answer: E(dgar) L(awrence) **Doctorow**

16. This operation on two numbers equals the first number times this operation on 1 less than both of the original numbers. If repetition is not allowed and the number of available characters is more than the number of spaces, this function gives the number of possible passwords. If two equal numbers are put into this operation, the result equals that number's factorial. A formula commonly used for this operation is "n factorial divided by the quantity n minus r, end quantity, factorial". Name this operation that finds how many ways there are to select a subset if the order of the selection matters.
Answer: **permutation**(s) [accept **permuting**; prompt on **P**]

17. Energy density can be found by squaring this quantity's magnitude and multiplying by half of the permittivity of free space. The units of this vector quantity are volts per meter. In an equation similar to Coulomb's [koo-lohm'z] law, this quantity equals Coulomb's constant times a single charge divided by distance squared. Gauss's law states that the divergence of this quantity equals charge density divided by the electric permittivity of free space. The Maxwell–Faraday equation states that the curl of this vector quantity equals the opposite of the derivative of the magnetic field with respect to time. Name this vector quantity equal to force per unit charge.

Answer: **electric field** strength [accept **E-field**; prompt on **E**]

18. Because of visions by Anne Catherine Emmerich [EM-uh-rik], some people believe this person's final home is on a hill near Ephesus [uh-FEE-suss] in present-day Turkey. The veneration given to this person is hyperdulia ["hyper"-DOO-lee-uh]. Some religions give this person the title "Theotokos" [thee-uh-TOH-kuss], and those religions celebrate this person's arrival in Heaven during the Dormition. This person told an angel "Let it be done unto me according to your word." There have been many claims of visions of this person in Guadalupe [gwah-dah-LOO-pay] and Lourdes [lurd]. Name this person who is the subject of the Catholic dogmas of the Assumption, Immaculate Conception, perpetual virginity, and Mother of God.

Answer: (Virgin) **Mary**(, mother of Jesus) [accept **Mariam** or **Maria**]

19. When this person was 27 years old, he asked the Senate Foreign Relations Committee "How do you ask a man to be the last man to die in Vietnam? How do you ask a man to be the last man to die for a mistake?". Many years later, this person's service in Vietnam was criticized by the group Swift Boat Veterans for Truth, who mocked his three Purple Hearts. As secretary of state, this person helped negotiate the Joint Comprehensive Plan of Action, which is commonly known as the Iran nuclear deal. Name this politician from Massachusetts who was the 2004 Democratic nominee for president and lost to George W. Bush.

Answer: John (Forbes) **Kerry**

20. One play by this writer begins with the title character inside her house crying and saying "I can't stand this pain, this misery." At the same time, a nurse and tutor are talking outside the house with the title character's children. Another play by this writer begins with Athena and Poseidon talking about Ajax the Lesser. In that play, Andromache [an-DRAH-muh-kee] tells Hecuba [HEK-yoo-buh] about the death of Polyxena [pah-lee-ZEE-nuh]. Those plays are sometimes performed before and after this writer's play about Clytemnestra's [kly-tem-NESS-truh'z] daughter, *Electra*. Name this ancient Greek playwright who wrote *The Trojan Women* and *Medea* [meh-DEE-uh].
Answer: **Euripides** [**yoo-RIP-uh-deez**]

21. These mathematical things are called "unitary" if their inverse equals their conjugate-transpose. These things have a characteristic polynomial that is solved to find their eigenvalues ["EYE-gun-values"]. Augmented examples of these things are put into reduced row echelon [ESH-uh-lahn] form to solve a system of equations. A vector is equivalent to one of these things that has only one column. Two of these things are multiplied by multiplying rows of the first by columns of the second. Name these rectangular arrangements of numbers.
Answer: (square) **matrices** or **matrix**es