

British Novice Tournament 2017: INSERT WITTY SUBTITLE HERE

By Tom Hill, Joseph Krol, Alex Peplow, Ellie Warner, Francis Clark-Murray, Chris Stern, Theo Howe, Sam Cook, Jacob Robertson, Leonie Woodland, Julian Sutcliffe, Oliver Clarke, Matt Nixon, Tom de Bock, Dan Lawson, Tricia Goggin, Daoud Jackson, Ewan Macaulay, Evan Lynch and a couple more people.

Packet 11:

The previous tossup should have been on University Challenge:

Tossups:

1. These organs may maintain structural rigidity through I-beams made of sclerenchymal tissue. Cataphylls are small types of these organs that perform specialised functions and are often short lived. These organs are attached to a petiole, which may contain an abscission zone in some species. Changing turgor pressure opens and closes guard cells on the surfaces of these organs to control the transpiration through stomata. The primary function of these organs takes place in palisade mesophyll cells. For ten points, what are these organs on a plant primarily used for photosynthesis?

ANSWER: **leaves** [or **leaf**] <JR>

2. In Matthew Bourne's adaptation of this ballet, topless men take the place of the female corps de ballet. A quartet in Act Two of this ballet sees the dancers link arms and perform 16 pas de chat in unison. In Act Three of this ballet, the female antagonist notoriously performs 32 consecutive fouetté turns. The same ballerina usually plays both the "white" lead and "black" antagonist of this ballet; that "black" antagonist is the daughter of the sorcerer Von Rothbart. For 10 points, name this Tchaikovsky ballet in which Prince Siegfried mistakes Odile for his lover Odette, who is cursed to become the title bird.

ANSWER: **Swan Lake** <EJW>

3. In one book, this thinker suggested that the title figure was in fact born in Egypt and may have worshipped Akhenaten. This thinker's best-known work was partly inspired by the story known as 'Irma's Injection'. This author of *Moses and Monotheism* popularised a notion of oneness with the universe, called the 'oceanic feeling', in his work *Civilisation and its Discontents*. This man also devised the technique of 'free association', as well as the idea of 'transference', which he applied to the Oedipus complex. For ten points, name this author of *The Interpretation of Dreams* and founder of psychoanalysis.

ANSWER: Sigmund **Freud** <JK>

4. One character in this play remarks at the end that there is no need for an epilogue "when all the players are dead". Another character in this play says that he will "put a girdle round the earth in 40 minutes". Act Five of this play includes a production of Pyramus and Thisbe by the Rude Mechanicals. In this play, both Lysander and Demetrius love Hermia, but through the meddling of some fairies, Demetrius ultimately falls for Helena. For 10 points, name this Shakespeare play about some magical woods outside Athens, in which Bottom gets briefly turned into a donkey.

ANSWER: A **Midsummer Night's Dream** <Theo>

5. This plan was initially proposed by a meeting of five men at the Duck and Drake Inn. A soldier serving under William Stanley in the Dutch War of Independence was recruited to this scheme by Thomas Wintour, who had travelled to Flanders to seek Spanish support for it. That soldier was later arrested when this conspiracy was betrayed by an anonymous letter sent to Lord Monteagle. For 10 points, Robert Catesby was the leader of what Catholic conspiracy, which was foiled when Guy Fawkes was unable to blow up the Houses of Parliament?

ANSWER: the Gunpowder Plot <Tom>

6. In a flashback, one character in this play is mocked for being “anemic” after warning another to study for Mr Birnbaum’s maths test. The protagonist of this play has imaginary conversations with a man who supposedly “walked into the jungle” at the age of 17 and became a wealthy diamond tycoon; that character is his deceased brother Ben. After being fired by Howard Wagner, this play’s main character hatches a plan to claim a life insurance payout to give to his disappointing sons Happy and Biff. For 10 points, name this play about the demise of Willy Loman, written by Arthur Miller.

ANSWER: Death of a Salesman <Tom>

7. Lady Bellows and Miss Wordsworth feature in a comic opera by this composer based on Guy de Maupassant’s *Le Rosier de Madame Husson*. Poems such as *Anthem for Doomed Youth* intersperse the movements of a choral work by this composer who wrote *Albert Herring*. This composer wrote a set of *Four Sea Interludes* which feature in an opera about a fisherman who commits suicide after being blamed for his apprentices’ deaths. For 10 points, name this British composer of the *War Requiem* and *Peter Grimes*.

ANSWER: Benjamin Britten <CS>

8. Hermann Hupfeld theorised that this work was written by four authors known as J, E, D and P. Julius Wellhausen’s “documentary hypothesis” suggests this text was compiled in around 450 BCE by the scribe Ezra. According to the Midrash, this text, whose name literally means “teaching”, was written before Creation itself. The Mishnah compiled a set of oral traditions referred to as the “spoken” version of this text. Its contents correspond to the Christian “Pentateuch”. For 10 points, name this text which comprises the first five books of the Tanakh, the central scripture of Judaism.

ANSWER: Torah [accept Pentateuch before mention; do NOT accept or prompt on “Tanakh” or “Old Testament”; do NOT accept or prompt on any individual books from the Torah/Pentateuch] <Tom>

9. Distinguished visitors to American examples of these objects are greeted by personnel wearing brightly coloured attire nicknamed “rainbow sideboys”. The smallest active one of these objects is the Thai *Chakri Naruebet*. A new set of these objects named for Gerald Ford will use the electromagnetic EMALS system in place of steam-powered catapults. One of these vessels was constructed at the Rosyth yard and will enter service in December 2017. The *USS Nimitz* and The Royal Navy’s *HMS Queen Elizabeth* are, for 10 points, what kind of very large warship that can carry fighter jets?

ANSWER: aircraft carriers [prompt on ships or warships before mentioned, antiprompt on “amphibious assault ship”, do not accept “boat” because boats are what a ship carries to carry people if the ship sinks]

10. In *Pokemon Omega Ruby*, one of these items is given to the player by Captain Stern in return for a scanner, and that item is needed to meet Ho-Oh. In Brian Jacques’ *Redwall* series, Mariel’s father Joseph creates one of these things which later falls on the villain Cluny and kills him. An actress with this object as a last name played a character who sings the duet *Love is an Open Door* with Hans; that character is Princess Anna in *Frozen*. For 10 points, name these objects rung by Quasimodo in the tower of Notre Dame.

ANSWER: bells [accept Kristen Bell or town bell or Clear Bell]

11. Complex impedance is given by minus i divided by omega times this quantity. The classical Coulomb blockade arises due to the low value for this quantity of the “island” in a single-electron transistor. This value is given by the formula ‘epsilon times area over distance’ for a pair of parallel-plates. When multiplied by resistance, this quantity gives the time constant, while it is generally given by ‘charge divided by potential difference’. For ten points, name this electromagnetic quantity which measures the ability of a component to store charge, measured in farads.

ANSWER: capacitance <JK>

12. The Kartvelian language family is indigenous to the area of this mountain range and lower elevations of parts of this range are covered by Colchian forests. Dagestan lies on the northern side of this mountain range, whilst Abkhazia lies to the south of the major part of this range. A 2008 war in this mountain range was fought over the region of South Ossetia, and this range includes Europe's highest point, Elbrus. For 10 points, name this mountain range that separates Russia from Georgia, Azerbaijan and Armenia.

ANSWER: Caucasus [accept Caucasia; accept more specific answers, e.g. Greater Caucasus or Lesser Caucasus]

13. One poem in this language consists of a lengthy sentence reflecting the period of Venus, while another poem in this language features the repeated refrain "at five in the afternoon". This was the language primarily used by writers in the Ultraism movement. In addition to *Sunstone*, one collection of poems written in this language is titled *Twenty Love Poems and a Song of Despair*, and was written by Pablo Neruda. For 10 points, name this language used by Octavio Paz and Federico Garcia Lorca, who wrote a "Lament for the Death of a Bullfighter".

ANSWER: Spanish [or Castilian] <JK>

14. In this athlete's first World Championships, he finished sixth in one event, which was won by Bernard Lagat, before winning his country's first medal in his event at the 2011 World Championships. He isn't Lasse Viren, but this athlete has won gold medals at two specific events in consecutive Olympics. At one Olympics, this athlete beat his training partner Galen Rupp to win a gold medal, and followed his national teammates Greg Rutherford and Jessica Ennis to win the last of three golds within an hour. For ten points, name this British athlete who won the Olympic 5,000 and 10,000 metres in London and Rio.

ANSWER: Sir Mohamed Farah [either name acceptable] <FCM>

15. The earliest appearance in print of the phrase "hanging is too good for him" is found in this work. The hymn "He who would valiant be" is adapted from a poem in this book recounted as the protagonist's wife travels from the Delectable Mountains to the Enchanted Ground. The first obstacle which faces the protagonist of this work is the Slough of Despond. After being tried by a jury including Mr Blindman, Mr Liar, and Mr Cruelty, the protagonist's friend Faithful is burned at the stake in the town of Vanity Fair. For 10 points, name this allegory about the journey of Christian to the Celestial City, written by John Bunyan.

ANSWER: *The Pilgrim's Progress from This World, to That Which Is to Come* <Alex>

16. This system was introduced after an experiment by Elsie Widdowson and John McCance returned positive results. Ivor Novello was imprisoned for four weeks for abuse of this system, whilst a product named for Lord Woolton was created in response to it at the Savoy Hotel. Under this system, restaurants were limited to charging 5 shillings per customer, and the 'National Loaf' and 'Government Cheddar' were produced as a result of it. For 10 points, name this Second World War policy, which entailed the limiting and distributing of food and commodities.

ANSWER: rationing <JS>

17. One leader of this country was nicknamed "Pig-Iron Bob" for forcing workers to ship iron to Japan. An aquatics centre in this country's largest city is perhaps tastelessly named for a leader of this country who vanished while swimming. In 2008, the first formal apology was made to this country's "Stolen Generation". A motion to remove Peter Slipper as speaker of this country's parliament in 2012 prompted the first female Prime Minister of this country to deliver a scathing take-down of the misogyny of opposition leader Tony Abbott. Formerly led by Julia Gillard, for 10 points, name this country currently led by Malcolm Turnbull.

ANSWER: Australia <EJW>

18. Vasari particularly praised this artist for their attention to detail regarding human anatomy in a wooden sculpture of the emaciated figure of the *Penitent Magdalene*. This artist's statue of the mercenary captain Gattamelata in Padua was the first equestrian bronze since Antiquity. In another statue by this artist, a boy wearing only boots and a

hat stands on a man's severed head. Feathers from that man's winged helmet reach the boy's groin, prompting lots of modern speculation about the sexuality of this artist. He's not Michelangelo, but, for 10 points, name this Renaissance sculptor famous for a statue of *David*.

ANSWER: **Donatello** [or **Donato** di Niccolò **di Betto Bardi**] <Alex>

19. Mussolini spent three years in this country in an attempt to avoid military service. The planned invasion of this country during World War II was known as Operation Christmas Tree. From the 1930s, this country began a 'spiritual defence' against the threat of fascism, as well as strengthening its National Redoubt. Despite that, this country's notoriously secretive banking system has been accused of collaborating with the Nazis in concealing looted property, especially paintings and gold. For 10 points, name this European country which maintains policies of conscription and armed neutrality.

ANSWER: **Switzerland** <Alex>

20. The BGK operator can be used to replace a collision term in this scientist's transport equation. Loschmidt's paradox refers to the loss of time reversibility from the molecular chaos assumption in this person's H theorem. This person's grave displays their equation relating absolute entropy to the logarithm of the number of available microstates. The speed distribution for ideal gases at equilibrium is named for James Clerk Maxwell and this scientist. For 10 points, which Austrian scientist's namesake constant is equal to the ideal gas constant divided by Avogadro's number?

ANSWER: Ludwig **Boltzmann** <CS>

Bonuses:

1. Following a controversy in October, the helpline for this government policy was made free of charge. For ten points each:

[10] Name this government policy, which was intended to replace six mean-tested benefits with a single benefit. However, the Commons voted to pause rollout of this benefit later that month.

ANSWER: **Universal Credit** [accept **UC**]

[10] This Conservative MP and Work and Pensions Minister throughout the Coalition introduced the Universal Credit proposals in 2010. He resigned from the Cabinet in March 2016 after a row about disability benefit reductions.

ANSWER: Iain Duncan **Smith** [accept **IDS**]

[10] It was reported in October that people who work in this way could be £2000 worse off annually than others under Universal Credit. People in this form of work typically complete their own tax returns and are often sole traders.

ANSWER: **self-employed** <JK>

2. The BBC has a long tradition of making radio comedy programmes. For 10 points each:

[10] Andy Hamilton plays Satan in this sitcom about the problems of running an overcrowded Hell in the face of the endless capacity of humans for sin, and an indifferent, bored, God.

ANSWER: **Old Harry's Game**

[10] With characters including the demanding Andy Pipkin, who does not need his wheelchair, and Daffyd Thomas, the 'only gay in the village'; this show starring Matt Lucas and David Walliams later moved to television.

ANSWER: **Little Britain**

[10] This long-running 'antidote to panel games' was hosted by Humphrey Lyttleton until his death in 2008, although his lovely and silent assistant Samantha still appears on the programme.

ANSWER: **I'm Sorry, I Haven't A Clue** <Alex>

3. After this author's essays from the collection *The Idler* were plagiarised, he threatened to do the same to his competitors, and donate the proceeds to London's prostitutes. For 10 points each:

[10] Name this English author, whose other essays include a plan for his famous 1755 *Dictionary of the English Language*. This author was the subject of a biography by James Boswell.

ANSWER: Dr. Samuel **Johnson**

[10] This later English essayist discussed the aesthetics of homicide in *On Murder Considered as One of the Fine Arts*, and also discussed his laudanum addiction in *Confessions of an English Opium-Eater*.

ANSWER: Thomas Penson de **Quincey**

[10] This author lamented how "you never seem to get a good one" of the title events nowadays in his essay "Decline of the English Murder". He also discussed "Socialism and the English Genius" in the essay "The Lion and the Unicorn".

ANSWER: George **Orwell** [or Eric Arthur **Blair**] <JK>

4. One poem in this collection has the line "I am large, I contain multitudes" and refers to its "barbaric yawp". For 10 points each:

[10] Name this poetry collection, revised and expanded many times over its author's lifetime, which includes the poems 'Song of Myself' and 'I Sing the Body Electric'.

ANSWER: **Leaves of Grass**

[10] This American author also published "Crossing Brooklyn Ferry" and a section of 'Calamus' poems in his collection *Leaves of Grass*.

ANSWER: Walt **Whitman**

[10] The poems "When Lilacs Last in the Dooryard Bloom'd" and "O Captain! My Captain!" collected in *Leaves of Grass* were written in response to this event of 1865.

ANSWER: the **assassination** of Abraham **Lincoln** [or reasonable equivalents] <Alex>

5. Answer some questions about curses in Greek mythology, for 10 points each:

[10] This Trojan princess was given the gift of prophecy by Apollo in an attempt to seduce her. When she rejected the god's advances, he cursed her so that nobody would believe her prophecies.

ANSWER: **Cassandra**

[10] This Greek leader took Cassandra as a concubine after the Trojan War. This man fell victim to the curse on the house of his father Atreus, when he was murdered in the bath by his wife Clytemnestra.

ANSWER: **Agamemnon**

[10] This queen of Thebes and daughter of Aphrodite was given a cursed necklace by Hephaestus. The necklace brought bad luck to generations of this woman's descendants, such as Jocasta, the ill-fated mother of Oedipus.

ANSWER: **Harmonia** <Tom>

6. Risk factors for this disease include hypertension, diabetes and smoking. For ten points each:

[10] Name this disease, where arteries narrow due to the build-up of a plaque in their inner walls.

ANSWER: **atherosclerosis** [prompt on **arteriosclerosis**]

[10] One method of treating narrowed arteries is the insertion of one of these metal or plastic tubes to widen and hold open the vessel lumen.

ANSWER: **stent**

[10] Atherosclerosis in these arteries leads to a high risk of heart attacks, as these arteries supply blood to the muscle of the heart.

ANSWER: **coronary** arteries <DJL>

7. This politician coined the term "socialism with a human face". For 10 points each:

[10] Name this man who was elected First Secretary of the Communist Party of Czechoslovakia, and who led a series of liberalising reforms in early 1968.

ANSWER: Alexander **Dubcek**

[10] The period of political liberalisation led by Dubcek is generally referred to by this two word phrase. This period was brought to an end when Czechoslovakia was invaded by other members of the Warsaw Pact.

ANSWER: **Prague Spring**

[10] The invasion of Czechoslovakia prompted no military resistance, but a civilian protest campaign that lasted several months. One notable protester was the student Jan Palach, who performed this action in Prague's Wenceslas Square.

ANSWER: **self-immolation** [accept **setting himself on fire**] <Tom>

8. Answer some questions about Anglo-Saxon coinage, for 10 points each:

[10] Though the majority of Anglo-Saxon coins were made of silver, the earliest examples were made from this other precious metal. The Roman *solidus* and the later British sovereign were also made of this metal.

ANSWER: **gold**

[10] This 8th century Mercian king was the first to mint a widely distributed silver penny bearing his own name. This king is also known for constructing a namesake defensive structure along the Anglo-Welsh border.

ANSWER: **Offa**

[10] In around 973, the first coin to be standardised across the whole of England was introduced by this king. This king, nicknamed "the Peaceful" is also known for his promotion of Benedictine monastic reform.

ANSWER: **Edgar** <Tom>

9. This jazz musician created a new style of jazz known as 'jazz manouche', partly due to the fact that he lost the control of two fingers on his left hand. For 10 points each:

[10] Name this Belgian jazz musician who often performed with Stephane Grapelli, and recorded the songs *Daphne*, *Belleville*, and *Minor Swing*.

ANSWER: **Django Reinhardt** [accept either part]

[10] Reinhardt was mainly known for performing on this plucked six-string instrument, which features prominently in both jazz and rock ensembles.

ANSWER: **guitar**

[10] One of Reinhardt's best known compositions is the standard *Nuages*, the original version of which had the melody played by this instrument, notably played by Benny Goodman.

ANSWER: **clarinet** <Theo>

10. Many Renaissance paintings have been damaged over the centuries, some more deliberately than others. For 10 points each:

[10] This famous mural by Leonardo da Vinci, depicting a Biblical meal, has been damaged both by a failure of the paint to adhere to the wall and the construction of a door through the bottom of the work in 1652.

ANSWER: *The **Last Supper*** [or *Il **Cenacolo*** or *L'**Ultima Cena***]

[10] Since the 'Just Judges' panel was stolen in 1934, the *Ghent Altarpiece*, a work by this Flemish artist and his brother Hubert, has been incomplete. This artist more famously painted Giovanni Arnolfini and his wife.

ANSWER: Jan **Van Eyck** [prompt on **Eyck**]

[10] The 1966 Florence floods damaged, among other works, a painted Crucifixion in the church of Santa Croce by this artist. He also painted the *Santa Trinita Maestà* and was described by Vasari as the teacher of Giotto.

ANSWER: **Cimabue** [or **Cenni di Pepi**] <JK>

11. This character is transferred to the village of Sandford after 'letting the side down' by achieving the highest number of arrests of any member of the Metropolitan Police. For ten points each:

[10] Name this star police officer, portrayed by Simon Pegg in a 2007 film.

ANSWER: **Nicolas Angel** [accept either part]

[10] Sergeant Nicolas Angel and PC Danny Buttermen uncover a conspiracy to win the 'Village of the Year' competition through a series of murders in this film, directed by Edgar Wright.

ANSWER: **Hot Fuzz**

[10] Simon Skinner, the owner of the Sandford Somerfield who is responsible for some of the murders, is played by this actor. He is better known for starring as James Bond in *The Living Daylights* and *Licence to Kill*.

ANSWER: Timothy **Dalton** <FCM>

12. Occasionally, mathematicians figure out ways of counting things without resorting to fingers. For ten points each:

[10] This array contains all the combinatorial coefficients in its namesake shape. It can be constructed by realising that any entry is the sum of the two entries above it, and it is named for a French mathematician.

ANSWER: **Pascal's triangle**

[10] This combinatorial principle states that the size of a union of sets is equal to the sum of the sizes of all the sets, minus the sum of the sizes of the intersections of all pairs of the sets, plus the sum of the sizes of intersections of three of the sets, and so on.

ANSWER: **inclusion-exclusion** principle

[10] On a simpler level, one can use the multiplication rule. For example, it states that if one can choose between m different starters and n different mains, there are this many possible combinations of starters and mains.

ANSWER: **mn** [or **nm** or **m times n** or **n times m** or the **product of n and m** and so on] <JK>

13. Answer some questions about attempted US political assassinations, for ten points each:

[10] This man was the most recent US president to be shot at, when John Hinckley tried to kill him in order to impress Jodie Foster. While the attempt on his life was unsuccessful, it paralyzed his Press Secretary James Brady.

ANSWER: Ronald **Reagan**

[10] This vice-president of Ronald Reagan temporarily took charge after his shooting, although he did not become acting president. This man would become President in 1988, and his son would also be elected to the Oval Office in 2000.

ANSWER: George **H. W. Bush** [accept George **Bush Senior**; prompt on "**Bush**"; do not accept or prompt on 'George W. Bush']

[10] This former attorney general was assassinated while campaigning for the Democratic nomination in 1968. His brother Ted's presidential hopes were ended by a car accident on Chappaquiddick Island the following year.

ANSWER: **Bobby** Kennedy [accept **Robert** Kennedy or **RFK**; prompt on **Kennedy**] <FCM>

14. In one early episode in this work, the characters Achille [a-SHEEL] and Hector argue over possession of a canoe. For 10 points each:

[10] Name this epic poem. Characters in it include the blind man Seven Seas and the shopkeeper Ma Kilman.

ANSWER: **Omeros**

[10] *Omeros* is an epic poem by this St Lucian writer, who also wrote the poetry collection *White Egrets*, and about the charcoal-burner Makak in the play *Dream on Monkey Mountain*.

ANSWER: Derek **Walcott**

[10] *Omeros* is based on this epic by Homer, which recounts the journey home of its title character.

ANSWER: The **Odyssey** <Alex>

15. A new microplate, the Malpelo Plate, has just been discovered off the north-western coast of South America. In honour of this, answer some questions on the tectonic mess that is western South America, for 10 points each:

[10] The Malpelo Plate was previously thought to be the extreme north-eastern part of this larger plate, named after a region of southern Peru famous for its namesake Lines, and whose subduction is largely responsible for the Andes.

ANSWER: **Nazca** Plate

[10] To the north of the Nazca Plate, divided from it by the Galapagos Rise, and formed from the same part of the ancient Farallon Plate, lies this other oceanic plate, which is subducting under Central America.

ANSWER: **Cocos** Plate

[10] There are at least three other small plates in north-western South America: one is this other small plate east of Cocos, mainly consisting of Costa Rica and its namesake nation, noted for its major canal.

ANSWER: **Panama** Plate

16. In this film, viewers are treated to scenes of Michael Jordan struggling with his baseball career before he eventually helps a group of cartoon characters win a basketball match against some aliens. For 10 points each:

[10] Name this incredibly stupid film in which Looney Tunes characters team up with MJ to save the world.

ANSWER: ***Space Jam***

[10] This other unlikely sports film, starring Michael Jeter, hinges on the fact that there is no rule stating that a dog can't play basketball, allowing the central canine to lead his team to victory.

ANSWER: ***Air Bud***

[10] A parody of the sports film genre, this 2004 film sees Peter LeFleur's Average Joe's Gym compete against White Goodman's GloboGym in the title playground sport. It was produced by and starred Ben Stiller.

ANSWER: ***Dodgeball: A True Underdog Story***

17. This university was the second oldest in Europe, founded after Bologna but predating both Oxford and Cambridge. For 10 points each:

[10] Name this university whose alumni included Jean Calvin, Denis Diderot, Voltaire and Honoré de Balzac. It was located in the Sorbonne district of its namesake city.

ANSWER: University of **Paris**

[10] In its early days, the University of Paris had four faculties: in Arts, Law, Medicine and this other discipline. Professors in this most prestigious faculty included Thomas Aquinas.

ANSWER: Faculty of **Theology**

[10] The University of Paris was dissolved after a series of student protests which began in May of this year. Fearing revolution, Charles de Gaulle fled to Germany, but was persuaded to return.

ANSWER: **1968** <Tom>

18. In this novel, Edmond Dantès escapes from the Château d'If by pretending to be dead. For 10 points each:

[10] Name this novel in which Dantès takes revenge on de Villefort, Danglars, and Mondego, the three men who had him wrongfully imprisoned on charges of treason.

ANSWER: ***The Count of Monte Cristo***

[10] *The Count of Monte Cristo* is a novel by this author, who also wrote *The Three Musketeers*.

ANSWER: Alexandre **Dumas** [*père*]

[10] In prison, Dantès is educated in every conceivable subject by this man who accidentally ends up in Dantès' cell while trying to dig an escape tunnel.

ANSWER: **Abbé Faria** <Alex>

19. Spectral line series from this system include the Paschen and Balmer lines, and it also produces a notable 21 centimetre line due to hyperfine transitions. For 10 points each:

[10] Identify this simple quantum mechanical system consisting of a proton and an electron.

ANSWER: **hydrogen** atom

[10] This Swedish scientist names a constant that relates the energy in transitions between levels of the Hydrogen atom to one over principal quantum number of the level squared.

ANSWER: Johannes **Rydberg** [accept **Rydberg** constant]

[10] The Balmer series consists of the transitions which end the n=2 subshell, and lies in this region of the electromagnetic spectrum. This region of the spectrum lies between the infrared and ultraviolet regions.

ANSWER: visible light <CS>

20. Jean-Jacques Rousseau believed that humans under this condition were happier than those in contemporary society, as they did not have private property and so could not be jealous of the property of others. For ten points each:

[10] Give this three-word term to describe the world in the absence of civil society. One work described life under this condition as 'solitary, poor, nasty, brutish and short'.

ANSWER: state of nature

[10] This work, which describes life in the state of nature as 'solitary, poor, nasty, brutish and short', argues that individuals should surrender their own power to an absolute sovereign and engage in a social contract in order to avoid a 'war of all against all'.

ANSWER: Leviathan

[10] *Leviathan* was written by this English philosopher. While it was written during the English Civil War, this author's depiction of the state of nature was not directly related to contemporary events.

ANSWER: Thomas Hobbes <Alex>