

OOT 2019: A Pope for Every Packet

Written and edited by George Braid, Isaac Brown, George Charlson, Oli Clarke, Laura Cooper, Dani Cugini, Alexander Hardwick, Claire Jones, Elisabeth Le Maistre, Freddy Leo, Isabella Morris, Caspar Paton, Alexander Peplow, Barney Pite, Jacob Robertson, and Leonie Woodland.

THE ANSWER TO THE LAST TOSS-UP SHOULD HAVE BEEN: **Differential Equations**

Packet 8

Toss-ups:

1. One form of this quantity is equal to half of the zero-zero component of the difference between the metric tensor and the Minkowski metric. Wickramasinghe and Ukwatte have derived an analytic formula for determining luminosity distance from another form of this quantity, whereas angular diameter distance is proportional to one over one plus this quantity. The gravitational form of this quantity can be derived by conservation of energy and was measured by Pound and Rebka. This quantity has a value of about 1500 for the CMB and is infinite at the Schwarzschild radius. For 10 points, name this phenomenon, which can also be caused by objects moving away from the observer according to the Doppler effect.

ANSWER: **redshift** [accept **gravitational potential** before “Wickramasinghe”] <LW>

2. After using one of these objects, a character in one play ‘appears in the doorway’ in a ‘sky-blue dressing gown over her nightdress’, with ‘enormous’ eyes. In another play, Maretha’s mother refuses to burden her with the ‘history’ of one of these objects. Though it is never seen, a ‘blue’ one of these objects is a recurring motif in *A Streetcar Named Desire*. In *Long Day’s Journey into Night*, Mary Tyrone can no longer use these objects, though she once dreamed of having a career involving them. Boy Willie wishes to sell one of these objects to buy the Sutters’ land, and Berniece plays that object in the play’s last scene. For 10 points, a ‘lesson’ on what musical instrument titles a play by August Wilson?

ANSWER: **piano**

3. Helen Keller was accused of performing this action aged 11, leading to her have a nervous breakdown. Maurice Maeterlinck was confirmed to perform this action with his work *The Soul of the White Ant*, while Edgar Allen Poe claimed that Henry Wadsworth Longfellow had performed this action in what became known as the ‘Longfellow War’. Robert Greene claimed Shakespeare was an ‘inveterate’ performer of this action. Lewis Purdue sued Dan Brown for supposedly performing this action, but lost the case. It’s not related to editing Wikipedia, but Johann Hari left the *Independent* after performing this action. For 10 points, what is this action, which involves using someone else’s written work and passing it off as one’s own?

ANSWER: **plagiarism** [accept any answer that involves **copying** someone’s work] <GDC>

4. During this conflict, people in one city took shelter at Flagstaff Tower. According to tradition, one figure involved in this event jumped from the wall of a fort on a horse with her infant son strapped to her back. That son, Damodar Rao, had been adopted in an effort to save a kingdom from the Doctrine of Lapse after the death of the ruler of Jhansi. Elsewhere, this event saw prisoners being tied to the mouths of cannons after the recapture of Cawnpore. This event began with a group of rebels proclaiming the 81-year-old Mughal emperor ruler of Hindustan, possibly in reaction to being forced to load Enfield rifles with cartridges dipped in animal fat. For 10 points, name this mid-nineteenth-century uprising that led to the end of Company rule in British India.

ANSWER: the **Indian Rebellion of 1857** [accept **Great Rebellion**; accept **Sepoy Mutiny**; accept **Indian Mutiny**] <CJ>

5. In an essay with this thinker's name in the title, another writer argues that photography gives us the false sense that we hold the 'world in our heads as an anthology of images'. Heidegger argued that one section of a work by this thinker refers to 'the history in which man comes to himself as a being in the midst of beings'. Hannah Arendt criticised one of this thinker's works for extending their theory of ontology to politics but praised another that claims that 5,040 is the perfect number of citizens. A metaphor employed by this thinker involves a man who is able to look at the Sun directly returning to educate other men, which is likely an allegory for this thinker's theory of forms. For 10 points, name this Greek philosopher, the author of the *Republic*.

ANSWER: **Plato** <GDC>

6. The Camunian Rose, which is commonly depicted in this medium, has been adopted as the symbol of Lombardy. Human figures are often rare in western examples of this medium, although a famous example is a figure dubbed 'the Sorcerer' by Henri Breuil. Picasso apocryphally said of one site noted for this art form that after it 'all is decadence'. One example of this art form shows a figure who has been interpreted as stalking or carrying out a ritual dance, while another work in this medium shows an apparently bird-headed man being butted by a bison. Using charcoal, ochre and clay, for 10 points, name this medium in which aurochs, reindeer, and other animals were depicted by early humans at sites such as Lascaux.

ANSWER: **rock art** [accept alternatives such as **cave paintings**, **pictographs**, **petroglyphs**] <OSC>

7. Propagule pressure has been described by Colautti *et al* as a null model for the occurrence of these organisms, while Chris Thomas has argued that hybridisation involving these organisms will increase biodiversity in the Anthropocene. An unusual example of this type of organism is *Macropus rufogriseus* on the Isle of Man. The actions of a Shakespeare-obsessed member of the American Acclimatization Society led to starlings becoming an example of this type of species in the USA. For 10 points, give the term used to describe non-native organisms which have negative ecosystem impacts, examples of which include cane toads and Japanese knotweed.

ANSWER: **invasive** species [accept **invasive** organisms or logical equivalent, prompt on non-native, alien, exotic or introduced organisms before the give away] <LC>

8. This album's multiple hidden tracks include 'Chinese Sleep Chant'. A supplementary EP to this album included 'Glass of Water', as well as a part II to an instrumental song from this album. That EP, *Prospekt's March*, included an 'Osaka Sun Mix' for a song which begins 'Lovers, keep on the road you're on'. 'Cold, cold water, bring me round / now my feet won't touch the ground' and 'You didn't get to heaven but you made it close' are lyrics from, respectively, 'Strawberry Swing' and '42' from this album. This album's titular song declares that 'I hear Jerusalem bells are ringing / Roman cavalry choirs are singing'. For 10 points, name this 2008 album which succeeded *X&Y*, the fourth studio album by Coldplay.

ANSWER: **Viva La Vida** or *Death and All His Friends* <DC>

9. *Useless Knowledge* is one of three collections of short vignettes making up a trilogy titled '[this location] and After' by Charlotte Delbo. Poet Jean Cayrol [zhon keh-ROL] wrote the script for a short Alain Resnais [re-NAY] documentary film showing images from this location, *Night and Fog*. François Mauriac [mori-ack] helped to publish a novel in which Madame Schächter [sheck-tuh] starts screaming about an imaginary fire on her way to this location. Eliezer and his father arrive at this location from Sighet in that novel. Another author recalled the story "Cerium" from a collection titled *The Periodic Table* and in the memoir *If This is a Man*. For 10 points, name this location prominent in Elie Wiesel's [vee-ZELZ] *Night* and much of Primo Levi's work, a concentration camp in Poland.

ANSWER: **Auschwitz** [accept Auschwitz-**Birkenau**; accept **Monowitz**; prompt on concentration camp or Poland before mention] <IB>

10. Tim Butler with Garry Robson claimed that middle classes in some areas of this city were 'in flight from the obligations of social capital'. Michael Silk claimed an event that took place in this city was 'a commodity spectacle

that will emphasize gleaming aesthetics'. A work examining poverty in this city popularised the idea of the poverty line. Ruth Glass coined the term 'gentrification' in a study of this city. A work titled for the 'life of labour' of people in this city contains 'poverty maps' of it: that work was by Charles Booth. A café that has been seen as a symbol of recent gentrification of this city charged £4.40 for cereal. For 10 points, recent urban renewal efforts have focused on the 'East End' of which city?

ANSWER: **London** <GDC>

11. In one poem, this author references the 'To be, or not to be' soliloquy by asking, 'can a man his own quietus make / with a bare bodkin?' He also wrote a poem set on a 'hot, hot day' in Sicily in which the speaker is visited by a creature that had 'come like a guest in quiet, to drink at my water-trough.' The narrator of a story by this author of 'The Ship of Death' and 'Snake' hears his house whisper, 'There must be more money' and helps the gardener Bassett win £80,000. He also wrote about a woman who lives at Wragby estate with her paralysed husband, Clifford. For 10 points, name this author of 'The Rocking-Horse Winner', who described Constance's affair with Oliver Mellors in *Lady Chatterley's Lover*.

ANSWER: David Herbert **Lawrence** [or D. H. **Lawrence**] <IB>

12. This location was the main location ruled by the Gabalas family until it was seized by the Genoese in the 1240s. According to tradition, Suleiman's army entered a city in this location through the Gate of St Athanasios when he conquered it in 1522; this location had been unsuccessfully besieged by Mehmed II in 1480. In 1309, a group of people was confirmed as the rulers of this location by Pope Clement V and built a large fortress on the ancient site of Lindos. It's not Malta, but this island's Palace of the Grand Master was built during its occupation by the Knights Hospitaller during the fourteenth and fifteenth centuries. For 10 points, name this Greek island, home in the Hellenistic period to a large statue of Helios, the Colossus.

ANSWER: **Rhodes** <AH>

13. A virtuoso from this country commissioned 27 short pieces from different composers, their namesake *Encores*. A conductor from this country claimed that the adagio of Mahler's Ninth was 'his closing hymn', and hence refused to perform the completed Tenth. This birthplace of the first woman to conduct the Last Night of the Proms, and of the first conductor to record a complete Mahler cycle, is where Eugene Ormandy spent most of his career. For over 20 years, Georg Solti conducted one of this country's 'Big Five' orchestras, and a radio orchestra was founded here especially for Arturo Toscanini. For 10 points, name this birthplace of Marin Alsop, Hilary Hahn, and Leonard Bernstein.

ANSWER: **United States** of **America** [accept either underlined portion or equivalents such as the **USA**] <GB>

14. Richard Haly argued in 1992 that one god of these people did not exist and that the evidence is based on a mistranslation of the word for 'bone' as 'two'. That contentious god of these people is described as a dual creator god ruling over the thirteenth heaven also called 'Lord of Abundance'. These people made use of an alcohol made from the maguey plant in rituals and associated that plant with the goddess Mayahuel. These people represented fire with turquoise. The central myth of these people involves the creation of five suns, the third of which was Tlaloc. For 10 points, Quetzalcoatl is the culture hero of what Mesoamerican people?

ANSWER: **Aztecs** <JR>

15. Asked during a tour of North America 'Are you Scots, or are you English?', this individual responded that because they had landed in Quebec, they were Canadian, and one fashion designer designed a 'white wardrobe' for this individual following the death of their mother prior to a tour to Paris. That wardrobe, subject of an exhibition in 2005, was designed by Norman Hartnell. Hitler apocryphally dubbed this individual 'the most dangerous woman in Europe'. Video footage was published in 2015 by *The Sun* showing this person's daughter copying them in performing a Nazi Salute. For 10 points, name this person, the consort of King George VI and mother of Elizabeth II.

ANSWER: The **Queen Mother** [accept **Elizabeth** Angela Marguerite **Bowes-Lyon**; prompt on Queen **Elizabeth**] <OSC>

16. A classic paper by Ozbudak et al quantifies this phenomenon for the expression of a single gene. The Langevin equation describes processes where this phenomenon is present. A type of this phenomenon in electronic conductors has magnitude proportional to the temperature and the resistance and is named for Johnson and Nyquist. A lock-in amplifier can be used to decrease the amount of this phenomenon that is measured. In biological systems, this phenomenon can be extrinsic if it is due to variation between cells or intrinsic if it is due to random events within cells. For 10 points, name this phenomenon which, if it has equal power at all frequencies is described as white.

ANSWER: **noise** [prompt on **fluctuations**; accept **stochasticity** until “magnitude”] <LW>

17. A spotted building draped in aluminum is designed to imitate living cells and is covered with a skin-like fabric. One of these buildings consists of 26 concrete “petals” and is sometimes known as the “spaceship”. Another one of these buildings is carved into the face of Monte Castro and is on the site of a former quarry. In 2016, Zaha Hadid’s firm will design the first of these buildings out of wood and another Hadid design of one of these buildings is based on the curved form of a type of Arabian boat. Archibald Leitch is most famous for designing these buildings, but many of his works were torn down after the Taylor Report recommended all-seating forms of these buildings. For 10 points, name this type of building, an example of which is Stamford Bridge.

ANSWER: football **stadia** [accept sport **stadia**] <GDC>

18. The Wiener number can quantify this phenomenon, and together with a polarity number and some empirical constants, it can be used to predict boiling points of paraffins differentiated by this phenomenon. The Le Bel-van’t Hoff rule counts the number of different molecules resulting from one form of this phenomenon. Oleic [oh-LAY-ic] acid and elaidic acid together exhibit this phenomenon, as do maleic acid [ma-LAY-ic] and fumaric acid. Propadiene and propyne are related by the structural form of this phenomenon. For 10 points, branching and positional are examples of what phenomenon, where the same molecular formula can lead to different structural formulae?

ANSWER: **isomerism** [accept **isomers**, **isomerisation** accept specific types such as **stereoisomerism**] <LW>

19. A ruler with this name had a brother who was exiled for abducting the Abbess of Leominster [LEH-minster], while another brother helped them avenge the defeat of Ralph the Timid by Gruffydd [GRI-fith] ap Llywelyn. Another ruler with this name got their surname from accepting a gift of fake fur, and shared this name with their grandfather, the traditional first king of Norway, surnamed Fairhair. Yet another ruler with this name is claimed to have blinded the Emperor Michael IV while serving in the Varangian Guard, and later died invading England with Tostig. For 10 points, give this name shared by the two men who fought at Stamford Bridge, called ‘Hardrada’ and ‘Godwinson’.

ANSWER: **Harold** or **Harald** <AP>

20. In a city in this country, sluice gates below the arcaded double-level Khaju Bridge can be closed to irrigate upstream gardens. In the west of this country, a people who perform twig and handkerchief dances speak languages on the Lurish language continuum. A minority of the Qashqai people in this present-day country remain nomadic pastoralists, travelling more than 400 kilometres south to lower lying pasture land. The Plain of Emptiness in the east of this country is one of its two large salt deserts, the larger of which is bounded to the north by the Alborz mountains on the edge of the Caspian Sea. For 10 points name this country which contains the cities of Isfahan and Tehran.

ANSWER: Islamic Republic of **Iran** [accept **Persia**] <AP>

Bonuses:

1. This ruler declared in one speech in 1941 that ‘We have actually been at war since 1922 – that is from the day when we lifted the flag of our revolution’. For 10 points each:

[10] Name this ruler, who before becoming Prime Minister signed a ‘Pact of Pacification’ with the Socialist party in 1921, which was opposed by the Squadristi within this movement, before he became Il Duce.

ANSWER: Benito **Mussolini**

[10] The failure of the ‘Pact of Pacification’ was followed in 1922 by this event, in which, after they had taken control in the North, the fascisti marched south, forcing the resignation of Luigi Facta as Prime Minister and the appointment of Mussolini.

ANSWER: **March on Rome** [accept **Marcia su Roma**]

[10] One of the quadrumvirs, the four men who planned the March on Rome, was this man, who had fought in an Alpine Battalion in WW1. Later the Governor of Libya, he led the build up of the Italian Air Force, in which role he led a series of tours of large formations of Italian aircraft across the Atlantic during the 1930s.

ANSWER: Italo **Balbo** <OSC>

2. John Harsanyi and Reinhard Selten refined the Nash equilibrium by defining the concept of payoff dominant equilibrium and this other equilibrium concept. For 10 points each:

[10] Name this property, which a Nash equilibrium is said to have if it has the largest basis of attraction of all pure strategy Nash equilibria in a given game.

ANSWER: **risk dominance**

[10] Risk dominance is an important concept in the subfield of game theory that models this process, which provides an explanation as to why the strategies of non-sophisticated agents may change over time. John Maynard Smith developed the concept of an ESS to model the results of this process.

ANSWER: **evolution**

[10] A common application of evolutionary game theory in both biology and economics is its application to a game named for hawks and these birds, which are often used as a symbol for peace.

ANSWER: **doves** <GDC>

3. This country was for a brief time in the 1880s the only country in the world producing coffee because ‘coffee rust’ wiped out its production in other countries. For 10 points each:

[10] Name this country, whose local market still consumes Barako coffee along with many robusta cultivars.

ANSWER: **Philippines**

[10] Barako coffees shops are still a semi-regular fixture in this city, the largest in the Philippines and its capital.

ANSWER: **Manila**

[10] Much of the Philippines’ domestic coffee consumption has shifted from the traditional Barako bean to this dominant cultivar, which makes up 60% of the global production of coffee.

ANSWER: Coffea **arabica** <GDC>

4. For 10 points each, answer some questions about essays on illness:

[10] This writer asked why ‘illness has not taken its place with love, battle and jealousy among the prime themes of literature’ in the essay ‘On Being Ill’. Other essays by this writer include ‘How it Strikes a Contemporary’ and ‘On Not Knowing Greek’.

ANSWER: Virginia **Woolf**

[10] In the essay ‘In Bed’, included in this writer’s book *The White Album*, the narrator describes their experiences with chronic migraines. This author of ‘Slouching Towards Bethlehem’ spoke of their husband’s death and their daughter’s prolonged illness in *The Year of Magical Thinking*.

ANSWER: Joan **Didion**

[10] In *Illness as Metaphor*, Susan Sontag discusses two illnesses which have been ‘spectacularly encumbered by

the trappings of metaphor': one is cancer, and the other is this lung disease, also known as 'consumption'. This disease affected many writers in the 19th century, including the Brontë sisters.

ANSWER: **tuberculosis** <DC>

5. At the top of this sculpture, a mass of gilded rays of light, clouds, and angels frames a stained glass depiction of a dove representing the holy spirit. For 10 points each:

[10] Name this sculptural work commissioned by Pope Alexander VII to hold a relic of the same name. Four Doctors of the Church appear to support this sculpture's central object.

ANSWER: **Chair of St. Peter** [accept **Throne of St. Peter** or **Cathedra Petri**]

[10] This Baroque sculptor was commissioned to create the encasement of the Chair of St. Peter in bronze and gold. Similar gilded light rays can be seen above his depiction of a nun about to be impaled by an angel, *The Ecstasy of St. Theresa*.

ANSWER: Gian Lorenzo **Bernini**

[10] An obelisk emerges from the centre of this Bernini work commissioned for the Piazza Navona by Pope Innocent X. One of its title figures wears a blindfold, indicating the lack of knowledge at the time about the geographical feature he represents.

ANSWER: *The Fountain of the* **Four Rivers** [or *Fontana dei* **Quattro Fiumi**] <IB>

6. A poem written in this language which repeats 'hope the voyage [to the title place] is a long one' was the favourite poem of Jackie Kennedy Onassis and was read at her funeral. For 10 points each:

[10] Name this European language, in which the poet C. P. Cavafy wrote poems like 'Waiting for the Barbarians' and referenced his country's mythology in 'Ithaka'.

ANSWER: Modern **Greek** [or **Elleniki**]

[10] This other modern Greek poet wrote, 'They were good, the companions, they didn't complain / about the work or the thirst or the frost' in the 'Argonauts' section of his poem 'Mythistorema'.

ANSWER: George **Seferis** [se-FEH-ris] [or Giorgos **Seferis**]

[10] The sixteenth section of 'Mythistorema' takes up the voice of this mythological figure, who is 'On the track, once more on the track, on the track'. Sections of Colm Toibin's 2017 novel *House of Names* follow this figure's escape from a coastal home with Leander.

ANSWER: **Orestes** <IB>

7. The First Chronicle details the formation of the government of this city, which confirmed the independence of Pskov in the 1348 Treaty of Bolotovo. For 10 points each:

[10] Name this easternmost port of the Hanseatic League, a medieval republic whose craftsmen were organized into *kontsy*.

ANSWER: **Novgorod** [do NOT accept 'Nizhny Novgorod']

[10] This Prince of Novgorod defended the city from numerous invading forces from the west, including winning a victory over the Swedes that earned him the name by which he is best-known, though he did not seriously challenge the Golden Horde.

ANSWER: Alexander **Nevsky**

[10] Nevsky resisted the encroachment of the Catholic Church and inflicted a serious defeat on the Livonian branch of this Germanic military order in the 1242 Battle on the Ice, fought on the frozen surface of Lake Peipus.

ANSWER: **Teutonic Knights** <CJ>

8. As part of his embrace of this movement, Sultan Abdülhamid II rejected Theodore Herzl's offer to purchase land for a Jewish state, while the Khilafat movement in India protesting the dissolution of the Ottoman Caliphate is often seen as influenced by this movement. For 10 points each:

[10] Name this political ideology that arose in the mid-nineteenth century and sought to reestablish the purity of its seventh-century community by uniting the entire *umma* regardless of national or ethnic backgrounds.

ANSWER: **Pan-Islamism** [accept **al-Wahda al-Islamiyya**, accept **ittihad-i Islam**]

[10] This political activist was an advocate of both Pan-Islamism and Islamic modernism. He wrote *Refutation of the Materialists* and was known by a name that reflected his claimed place of birth, though his precise heritage remains unknown.

ANSWER: Jamal al-Din **al-Afghani**

[10] This other Islamic movement, which arose in Egypt, viewed the work of al-Afghani and others as *bidah* or forbidden innovation. It also espoused a return to Islam's foundations, particularly the faith's first three generations.

ANSWER: **Salafism** <CJ>

9. The semantic version of this symbol has a double bar and can be used to denote a tautology. For 10 points each:

[10] Name this symbol. The syntactic type of this symbol can be used to mean that the string on the right is formally derivable from the string on the left.

ANSWER: **turnstile** [accept **vdash**, **right tack** or **assertion sign**]

[10] This logical operation takes truth to falsity and vice-versa. It is impossible for P and this operation acting on P both to be true.

ANSWER: **not** or **negation**

[10] This symbol can be read "for some". The negation of this symbol is equivalent to for all and the negation of the relevant proposition.

ANSWER: **existential quantifier** [accept **there exists**] <LW>

10. After the capture of Jim Prideaux in Czechoslovakia, the protagonist of this series, played by Alec Guinness, must discover which of his former colleagues is a Russian mole codenamed 'Gerald'. For 10 points each:

[10] Name this TV series, an adaptation of a novel by John le Carré, which was also made into a 2013 film starring Gary Oldman.

ANSWER: **Tinker, Tailor, Soldier, Spy**

[10] This actor played the mole Bill Haydon in the TV series. This actor who, as Marat in *Marat/Sade*, became the first to appear naked on Broadway, became best-known for his portrayal of the scheming Chief Whip Francis Urquhart in the BBC series *House of Cards*.

ANSWER: Ian **Richardson**

[10] Urquhart uses this journalist for the *Chronicle* to plant stories about his rivals. At the end of the first series, she is thrown to her death from the roof of the House of Parliament by Urquhart and screams 'Daddy!' as she falls.

ANSWER: **Mattie Storin** [accept either underlined part] <AP>

11. Artifacts recovered from this site include statues of the Priest King and the Dancing Girl, the latter discovered by Ernest Mackay. For 10 points each:

[10] Name this ancient city in modern-day Pakistan, one of the oldest in the world, whose name may translate to 'Mound of the Dead.'

ANSWER: **Mohenjo-daro**

[10] Mohenjo-daro was one of the principal cities of a Bronze Age civilization located on this river, examples of whose namesake script have been discovered at sites like Harappa.

ANSWER: **Indus** River

[10] One of the best-known structures at Mohenjo-daro is a 'Great' one of these things. Located next to the so-called 'College of Priests,' it was probably utilized before religious ceremonies and had a floor made of tightly fitted mud bricks covered by a thick layer of bitumen.

ANSWER: **bath** <CJ>

12. This quantity can be positive for a Fermi-Dirac gas as in those systems, entropy can decrease as the number of particles increases. For 10 points each:

[10] The maximum value of this quantity for a system obeying Bose-Einstein statistics is 0, which is its value below the critical temperature. This quantity is proportional to the log of fugacity.

ANSWER: **chemical potential**

[10] For a Bose-Einstein gas, the derivative of the heat capacity with respect to temperature is discontinuous at the critical temperature. That is a third order example of this phenomenon, which can be described as a sudden change in the value of an order parameter. Changes of state are an example of this phenomenon.

ANSWER: **phase transition**

[10] Only excited particles contribute to this quantity, which means that for a Bose-Einstein gas, it is lower than would be expected. For one mole of a classical ideal gas, this quantity is equal to the temperature times the ideal gas constant divided by volume and it is the force per unit area on the walls of the container.

ANSWER: **pressure** <LW>

13. Samuel Henley translated this novel from French into English, but claimed it was a translation of an unpublished Arabic manuscript, capitalising on the Orientalist craze at the time. For 10 points each:

[10] Name this novel by William Beckford, in which the title character follows his mother Carathis' teachings in an attempt to gain supernatural powers, but is instead cast into a hell ruled by the demon Eblis, where he loses 'the most precious gift granted by heaven – HOPE'.

ANSWER: **Vathek** [accept **An Arabian Tale**, accept **The Episodes of Vathek**]

[10] *Vathek* is an early example of this genre of literature, characterised by feelings of horror and terror, central themes of death and the supernatural, and elements of romance, including the ever-present fainting heroine.

ANSWER: **Gothic** literature

[10] In the original Gothic novel, *The Castle of Otranto*, Manfred obsessively pursues a character of this name after her fiancé Conrad is crushed by a giant-helmet-ex-machina. This name also forms the title of a Gothic-inspired poem by Keats with the subtitle 'or, the Pot of Basil'.

ANSWER: **Isabella** <DC>

14. During this artist's *Rhythm 0* ['zero'], their clothes were cut away with razor blades and, eventually, a loaded gun was forced into their hand. For 10 points each:

[10] Name this artist, who in one work spent nineteen minutes breathing into their partner's mouth, with whom they also stood naked either side of a doorway while people squeezed past them.

ANSWER: Marina **Abramović**

[10] *Rhythm 0*, like many works of performance art, was an examination of the relationship of this entity with the artist. This entity is addressed by performers through the breaking of the fourth wall.

ANSWER: the **audience** [accept equivalents]

[10] Allan Kaprow advocated these performative pieces which hinge on the unpredictability of the audience, such as when he presented *18 [of these things] in 6 Parts*. John Cage had earlier experimented with 'musical' varieties of these pieces.

ANSWER: **happenings** <AP>

15. These proteins move along microtubules typically towards the positive end in anterograde transport. For 10 points each:

[10] Name these proteins whose movement along microtubules can be described by the hand-over-hand mechanism, involving nucleotide exchange and A·T·P hydrolysis.

ANSWER: **kinesins**

[10] This protein forms a triskelion complex around coated vesicles and mediates the process of endocytosis by binding to adaptor molecules bound to cargo receptors. This protein also stabilises the kinetochore fibres in mitosis.

ANSWER: **clathrin**

[10] Proteins found in the Golgi complex can be returned to this organelle by detection of K·DEL signals and incorporation into COP-1 vesicles. This organelle has a smooth form, the site of lipid synthesis, and a rough form, whose surface is coated in ribosomes, the site of protein synthesis.

ANSWER: **Endoplasmic Reticulum** <LC>

16. These waves can give rise to Love waves by interacting with the low-velocity surface zone. For 10 points each:

[10] Name these transverse waves produced by earthquakes which cannot travel through liquids, since their velocities are directly proportional to the rigidity of the material which they are travelling through.

ANSWER: **s-waves**

[10] Changing velocities of p- and s-waves have been used to divide this thickest layer of the Earth into upper and lower parts as well as a transition zone between the two. This layer contains the lithosphere and asthenosphere and is below the crust.

ANSWER: **mantle**

[10] Since they cannot travel through liquids, S-waves cannot cross this discontinuity, located 1800 miles below the Earth's surface.

ANSWER: **Gutenberg** [prompt on core-mantle discontinuity] <AP>

17. A character in this novel who works as a copyist is offended to receive a copy of 'The Overcoat', a story which the author is thought to have said 'We all come from', because the central character seems to lead a life similar to his own. For 10 points each:

[10] Name this epistolary novel. A character in this novel saves up to buy the complete works of Pushkin for Pokrovsky, who requests to see the sun when he dies but can only see grey clouds when the curtains are opened.

ANSWER: **Poor Folk** [or *Bednye lyudi*]

[10] This Russian author wrote 'The Overcoat', as well as 'The Nose' and *Dead Souls*.

ANSWER: Nikolai **Gogol**

[10] In this Jhumpa Lahiri novel, Ashoke suggests the name 'Gogol' for his new-born baby in honour of the fact that he had been holding a copy of 'The Overcoat' when he survived a train crash many years earlier.

ANSWER: *The* **Namesake** <IB>

18. Bryan Roberts used Uhlhorn's theorem to show why this property is anti-unitary or unitary, after which he argues that it is in fact anti-unitary. For 10 points each:

[10] Eugene Wigner [Vig-ner] sometimes names this property, which Wigner himself claimed might be better called the 'reversal of the direction of motion'.

ANSWER: **time-reversal**

[10] The nature of time-reversal is an active research area in the philosophy of this branch of the sciences. Werner Heisenberg wrote a book named for '*Philosophy and* [this branch of the sciences]'

ANSWER: **physics**

[10] Another active area of research within the philosophy of physics is the development of this interpretation of quantum theory, sometimes named for Everett. This interpretation is sometimes reduced to the claim that all possible alternate histories and futures are real.

ANSWER: **many-worlds** interpretation [or **MWI** or **relative state formulation**; or the theory of the **universal wavefunction**; **many-universes** interpretation; or **multiverse** theory] <GDC>

19. In the aftermath of this conflict, many of the ancestors of the Redlegs were forcibly shipped to the Caribbean colonies. For 10 points each:

[10] Name this event that was followed by the passage of several Penal Laws and saw John Hewson and Hardress Waller systematically destroy the food supplies of one side.

ANSWER: Oliver **Cromwell's invasion of Ireland** [accept descriptions]

[10] One atrocity committed by the New Model Army during Cromwell's invasion of Ireland was the sacking of this town in 1649. Over 1,000 civilians were shot or drowned in the River Slaney here after Cromwell rejected David Sinnott's attempts to negotiate.

ANSWER: **Wexford**

[10] Cromwell's settlement with the Irish heavily favored the Protestant settlers in this northern province, many of whom had been massacred during the rebellion of 1641. Earlier, this region's Royalist army was defeated at the Battle of Scarrifholis.

ANSWER: **Ulster** <CJ>

20. In a work named for this figure, the organ is compared with, and declared superior to, the lute, the violin, the flute, and the drum. For 10 points each:

[10] Name this saint, a subject of pieces especially by composers working in England. Handel set text by John Dryden in a cantata for this saint's day, while Herbert Howells set a poem by Ursula Vaughan Williams as a hymn for this saint.

ANSWER: St **Cecilia**

[10] This composer's *Hail! Bright Cecilia* was one of a series of works which they wrote honouring St Cecilia. This composer of *Dido and Aeneas* also wrote the *Funeral Sentences* for Mary II.

ANSWER: Henry **Purcell**

[10] 'Changed is the Age' is one movement of this composer's *For St Cecilia*. This composer also set poems by Thomas Hardy in *Earth and Air and Rain*, while their C-minor *Clarinet Concerto* ends its first movement with triple-forte trills on alternating octave Ds.

ANSWER: Gerald **Finzi** <AP>