

Mathematics

- 1) List the first 10 prime numbers. 2, 3, 5, 7, 11, 13, 17, 19, 23, 29.
- 2) List the first 15 square numbers. 1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144, 169, 196, 225.
- 3) List the first 5 cube numbers. 1, 8, 27, 64, 125.
- 4) What is the definition of a multiple? A multiple is the result when you multiply any number by an integer (Think the times table of a given number).
- 5) What is the definition of a factor? A factor is an integer that goes into another number exactly (with no remainder). Factors always come in pairs.
- 6) What do we mean by “product” in maths? Product is the answer when I multiply two (or more) numbers together.
- 7) What do we mean by “sum” in maths? Sum is the answer when I add two (or more) numbers together.
- 8) What is the meaning of the symbol $\sqrt{\quad}$? Square root (the opposite of squaring).
- 9) What is the meaning of the symbol $\sqrt[3]{\quad}$? Cube root (the opposite of cubing).
- 10) What is the “reciprocal” of a number? Is the inverse of a value or number (ie. $\frac{1}{\text{the number}}$).
- 11) What is meant by Highest Common Factor (HCF)? The highest number that can be divided exactly into each of two or more numbers.
- 12) What is meant by Lowest Common Multiple (LCM)? The lowest quantity that is a multiple of two or more given numbers.
- 13) What is prime factor decomposition? Breaking a number down to its individual prime factors (eg. Using a prime factor tree).
- 14) What is an expression? A set of terms combined using the operations +, -, x or ÷ and does not have an equal sign.
- 15) What is an equation? A mathematical statement that shows that two mathematical expressions are equal.
- 16) What is a formula? A mathematical rule or relationship.
- 17) What is an identity? An equation which is always true, no matter what values are substituted.
- 18) What is the formula for the area of a circle? $A = \pi r^2$.
- 19) What is the formula for the circumference of a circle? $C = \pi d$ or $C = 2\pi r$.
- 20) Exterior angles in a polygon always sum to _____. 360° .
- 21) What is the formula for calculating the sum of the interior angles in a polygon? $(n - 2) \times 180^\circ$ where n is the number of sides.
- 22) What is special about a regular polygon? The sides are all the same length and the angles are all the same size.
- 23) What is “truncation”? A form of rounding where you always round down.
- 24) What is the basic probability equation? $P(A) = \frac{\text{Number of times A can happen}}{\text{Total number of possible outcomes}}$.
- 25) What is the meaning of “Mutually Exclusive”? Two events that cannot happen at the same time.
- 26) What are the three ways of showing probability numerically? Fractions, decimals or percentages.
- 27) The value of a probability can never be greater than _____. One.
- 28) The value of a probability can never be less than _____. Zero.

- 29) Name 3 different types or diagram that are commonly used to solve probability questions. Two-way tables, venn diagrams, probability trees.
- 30) What does ξ mean in venn diagrams? The universal set.
- 31) What does U mean in venn diagrams? Union.
- 32) What does \cap mean in venn diagrams? Intersection.
- 33) What operation do you use for the 'or' rule? Addition.
- 34) What operation do you use for the 'and' rule? Multiplication.
- 35) What is experimental probability? A probability that is determined on the basis of a series of experiments.
- 36) What is relative frequency? How often something happens divided by the total number of trials.

English

Autumn 1: A Christmas Carol

- 1) What era is A Christmas Carol set during? Victorian era.
- 2) Who wrote the novel? Charles Dickens.
- 3) What does 'context' mean? The background of a text/ when it was written.
- 4) What was a workhouse? Somewhere poor people were sent to work for their keep.
- 5) What was the Malthusian theory? A controversial theory that stated that the supply of food could not keep up with the growth of population.
- 6) How many staves are in A Christmas Carol? 5 staves.
- 7) What was the importance of Fred's character? He acted as a 'foil' character to juxtapose Scrooge.
- 8) Why didn't Scrooge like Christmas? Scrooge was a loner and Christmas made his isolation all the more intense.
- 9) What was Marley's message to Scrooge? To change his ways and care for the poor to avoid purgatory.
- 10) Complete the quotation by Marley – 'I wear the _____ I _____ in life' 'I wear the chains I forged in life'.
- 11) What does the Ghost of Christmas Past represent? Represents memory and hope.
- 12) How was the Ghost of Christmas Past described? 'like a child yet not so like a child as like an old man'.
- 13) Complete the quotation – 'a _____ child, _____ by his friends' 'a solitary child, neglected by his friends'.
- 14) What did Belle say to show that Scrooge had started to care more about money? 'a golden idol has displaced me'.
- 15) What was Scrooge shown by the Ghost of Christmas Present? People celebrating Christmas – lighthouse, the poor, Cratchit family, Fred.
- 16) What did Christmas mean to the Cratchit family? A time for family and celebration.
- 17) What does 'redemption' mean? Being saved or forgiven after sin.
- 18) What did the Ghost of Christmas Present reveal from under his robes? Two children – Ignorance and Want.
- 19) What was the main difference between the 3rd spirit and the first two? Dressed as the spirit of death, did not speak, couldn't see anything but one outstretched hand.
- 20) Why was Scrooge shown discussions about his death in Stave 4? To show how no-one felt sorrow or regret for his death.
- 21) What did we discover about the Cratchit family in Stave 4? Tiny Tim had died.
- 22) Complete the quotation – 'I will live in the _____, _____ and the _____' 'I will live in the Past, Present and the Future'.
- 23) Complete the quotation – 'I am as merry as a _____' 'I am as merry as a schoolboy'.
- 24) What are three things that Scrooge did in Stave 5? Sent a turkey to the Cratchit family, went to Fred's party, gave money to charity, raised Bob's salary, helped Tiny Tim get better.
- 25) What happened to Charles Dickens' father? He was imprisoned for debt with his family.
- 26) What was the intention of the story A Christmas Carol? To show a moral that money does not make happiness and to lookout for others.

Autumn 2: Language Paper 1

- 1) What does 'infer' mean? To guess something based on evidence given.
- 2) How many extracts do you need to read for Language Paper 1? One extract.
- 3) What does 'explicit' mean? Information stated clearly and in detail.
- 4) What structure should you use to answer the reading questions? SEIZE.
- 5) What is a simile? Comparing something to something else using 'like' or 'as'.
- 6) What is a metaphor? Comparing something to something else saying it IS that thing.
- 7) What does analysis mean? A detailed examination of something including meaning and language.
- 8) What are 3 things you could talk about for the structure of a text? Punctuation, sentence forms, tense, dialogue, repetition, paragraphs, beginning/middle/end, flashbacks and flashforwards.
- 9) What does foreshadow mean? When a writer gives hints about what will happen later in a text.
- 10) What is an evaluation? Forming a view based on evidence.
- 11) What descriptive technique is used in this sentence 'glided through the water like a swan'? A simile.
- 12) What does 'implicit' mean? Suggested but not directly stated.
- 13) What is a semantic field? A group of words linked by meaning or theme.
- 14) What is juxtaposition? Two things placed next to each other with contrasting effect.
- 15) What is onomatopoeia? A word that resembles the sound it makes.
- 16) How many marks is question 5 worth? 40 marks.
- 17) What two skills areas are you assessed on for question 5? Content/ organisation and technical accuracy.
- 18) What is personification? Giving an object human characteristics.
- 19) Define 'connotations' An idea of feeling suggested by another word.
- 20) How long is the exam for Language Paper 1? 1 hour 45 minutes.
- 21) What is the difference between an optimist and a pessimist? Pessimists focus on the bad things, optimists focus on the positives.
- 22) What is sibilance? The repetition of the 's' sound in a sentence.
- 23) What descriptive technique is used in this sentence – 'marriage hearse'? Oxymoron.
- 24) What is a verb? A doing word.
- 25) What are the 3 types of sentences? Simple, compound and complex.
- 26) What is emotive language? Words or phrases that evoke an emotional response.
- 27) What does an adverb do? Describes a verb.
- 28) How long should you spend on question 5 of Language Paper 1? 45 minutes.
- 29) What does A.O stand for? Assessment objectives.
- 30) What does 'perspective' mean? A point of view.
- 31) What does 'purpose' mean? The reason a text is written.

Science

- 1) **What sub-cellular structures (organelles) are found in a eukaryotic cell?** Have a cell membrane, cytoplasm and genetic material enclosed in a nucleus.
- 2) **What is a sub-cellular structure?** Structures within the cell.
- 3) **What types of organisms contain eukaryotic cells?** Animal and plants.
- 4) **What sub-cellular structures are found in a prokaryotic cell?** Contain cytoplasm, cell membrane, cell wall, genetic material as a single DNA strand in the cytoplasm, NOT nucleus, with additional rings of DNA called plasmids.
- 5) **What types of organisms are prokaryotic cells?** Bacteria.
- 6) **What sub-cellular structures do animals cells have?** Nucleus, cytoplasm, cell membrane, mitochondria, ribosomes.
- 7) **What additional sub-cellular structures do plants cells have that animal cells don't?** Cell wall, chloroplasts, permanent vacuole.
- 8) **What is the function of the nucleus?** Contains genetic material (DNA) which controls the cell's activities.
- 9) **What is the function of the cytoplasm?** Jelly-like substance where most chemical reactions happen.
- 10) **What is the function of the cell membrane?** Surrounds the cell and controls movement of substances in and out.
- 11) **What is the function of the mitochondria?** Part of the cell where energy is released from glucose.
- 12) **What is the function of the ribosomes?** Makes proteins.
- 13) **What is the cell wall of a plant made of?** Cellulose.
- 14) **What is the function of the cell wall?** Provides structure and support.
- 15) **What is the function of the chloroplasts?** Where photosynthesis occurs.
- 16) **What substance is contained in the chloroplasts that absorbs light?** Chlorophyll.
- 17) **What is the function of the vacuole?** Contain cell sap, a solution of sugar and salts.
- 18) **How do we observe cells?** Using a microscope.
- 19) **What is a light microscope?** A microscope that uses visible light and lenses.
- 20) **What are the key features of a light microscope?** Stage, objective lens, eye piece lens, focus adjustment, light source.
- 21) **What is an electron microscope?** A microscope that uses electrons to form an image.
- 22) **What is magnification?** How many times bigger the image is compared to the objects real size.
- 23) **What is resolution?** Minimum distance that two points of an image can be away from each other in order for them to be seen as separate points.
- 24) **What are the advantages of using an electron microscope compared to a light microscope?** Higher magnification and resolution.
- 25) **How is magnification calculated?** $\text{Magnification} = \text{image size} / \text{actual size}$.
- 26) **What does the prefix milli mean?** Thousandth of a metre ($\times 10^{-3}\text{m}$).
- 27) **What does the prefix micro mean?** Millionth of a metre ($\times 10^{-6}\text{m}$).
- 28) **What does the prefix nano mean?** Billionth of a metre ($\times 10^{-9}\text{m}$).
- 29) **What is the relationship between the prefixes milli, micro and nano?** 1000 times smaller each time.
- 30) **What is cell differentiation?** The process by which a cell changes to become specialised for a particular job.
- 31) **When does most cell differentiation happen in animals?** At an early stage of development (as a foetus).
- 32) **What is cell division mainly used for in mature animals?** Repair and replace cells.
- 33) **When does cell differentiation occur in plants?** Throughout the life of the plant.
- 34) **What is a specialised cell?** A cell that has a different structure to perform a particular function.
- 35) **What are 3 examples of specialised cells in animals?** Sperm cells, nerve cells & muscle cells.

- 36) **How is a sperm cell specialised to carry out its function?** Long tail and streamlined head to swim; lots of mitochondria to provide it with energy; enzymes in the head to digest through the egg cell membrane.
- 37) **How is a nerve cell specialised to carry out its function?** They are very long with branched connections to connect to other nerve cells and form a network in the body to carry electrical impulses.
- 38) **What are 3 examples of specialised cells in plants?** Root hair cells, xylem, and phloem cells.