SMITHDON HIGH SCHOOL
HUNSTANTON

Work hard, be kind and smile

West Norfolk Academies Trust

50 Questions

GCSE

Core

Subjects

2026 to 2028

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English Macbeth		
No.	**Question**	**Answer**
Act One		
1	What is the weather like when the witches appear in Act 1, Scene 1?	A storm/Thunder and lightning
2	When and where do the witches plan to meet Macbeth again?	After the battle, on the moor
3	The witches said they would meet when the battle has been lost AND _____.	Won
4	What title does Duncan give Macbeth to reward his bravery?	Thane of Cawdor
5	What seemed like it was smiling on the enemy (the rebels) in Act 1, Scene 2?	Fortune (luck)
6	What is a Thane in the context of the play?	The Scottish version of a Lord
7	When the witches greet Macbeth, which title is a lie at that moment?	King hereafter
8	What do the witches promise Banquo?	He will be the father of kings
9	What did Macbeth say was 'fair and foul' about the day?	The day's weather
10	Banquo warns Macbeth that the witches might be 'instruments of _____.'	Darkness
11	Who does King Duncan name as his heir (successor) in Act 1, Scene 4?	Malcolm
12	Where does Duncan plan to go and stay the night?	Macbeth's castle at Inverness
13	When he is thinking of murder, Macbeth says, 'Let not light see my _____ desires.'	Black and deep
14	What is Lady Macbeth doing at the start of Act 1, Scene 5?	Reading a letter from Macbeth
15	Lady Macbeth worries her husband is too full of the 'milk of human _____' to kill Duncan.	Kindness
16	What does Lady Macbeth demand when she calls upon supernatural beings?	Cruelty (to 'unsex me here')
17	Lady Macbeth tells Macbeth to 'Look like the innocent flower, but be the _____ under't.'	Serpent
18	What does Lady Macbeth say Duncan will never do in Act 1, Scene 5?	Leave the castle alive , 'O never / Shall sun that morrow see!'
19	Where does Duncan arrive in Act 1, Scene 6?	Macbeth's castle.
20	Why did Macbeth leave when everyone else was eating (Act 1, Scene 7)?	He wanted to think.
21	Macbeth attributes his '_____ ambition' as the reason to kill Duncan.	Vaulting.
22	When do Macbeth and his wife plan to murder Duncan?	That night while he's asleep.
23	Macbeth didn't want to lose people's '_____ opinions' of him.	Golden

24	Macbeth was worried that their plan might fail, but Lady Macbeth told him to stick his _____ to the sticking place.	Courage.
25	How did Lady Macbeth plan to get past the guards?	By giving them too much wine (drugging them).
Act Two		
26	What has Banquo been dreaming about in Act 2, Scene 1?	The witches' prophecies
27	In his soliloquy, Macbeth hallucinates seeing what object?	A bloody dagger, pointing in Duncan's direction.
28	Why doesn't Lady Macbeth kill Duncan herself?	He looked too much like her father
29	After the murder (Act 2, Sc 2), what did Macbeth forget to leave next to the guards?	The bloody daggers
30	When Macbeth attempts to pray after the murder, what word is he unable to say?	Amen
31	Macbeth hears a voice cry out, 'Macbeth shall _____ no more!'	Sleep
32	Lady Macbeth says all they need to hide the deed is _____.	A little water
33	Who is the first person to discover Duncan's body?	Macduff
34	What did Macbeth do when he went to see Duncan's body?	Killed the guards
35	Why do Malcolm and Donalbain decide to flee from Scotland to England and Ireland?	They fear they will be murdered next
36	Where does Donalbain go after his father's murder?	Ireland
37	The old man and Ross talk about strange, unnatural happenings. What did Duncan's horses do that night?	Eaten each other
38	Who is now suspected of killing Duncan because they fled?	Malcolm and Donalbain
39	Where has Macbeth gone in Act 2, Scene 4?	To Scone (to be crowned King)
Act Three		
40	What does Banquo suspect Macbeth did to gain the crown?	Played most foully for it.'
41	Why does Macbeth fear Banquo?	The prophecy says Banquo's sons will be kings.
42	Whom does Macbeth plan to have murdered along with Banquo?	Banquo's son, Fleance
43	In Act 3, Scene 2, Macbeth says his mind is full of _____.	Scorpions
44	When Lady Macbeth tells her husband to stop worrying, what famous line does she say?	What's done is done.'
45	What happens to Fleance in Act 3, Scene 3?	He escapes

46	At the feast, what does Macbeth see in his chair that is invisible to everyone else?	Banquo's ghost
47	What is Macbeth's reaction to Banquo's ghost?	He cries out in horror and challenges the ghost
48	Lady Macbeth explains Macbeth's strange behaviour at the feast by claiming he has a _____.	Strange illness
49	Who is Hecate?	The queen of the witches
50	At the end of Act 3, Lennox refers to Macbeth as a _____.	Tyrant
51	The other Lord reports that Macduff has fled to _____ to join Malcolm.	England
Act Four		
52	Why does Macbeth visit the witches again in Act 4?	To demand more prophecies about his future
53	What is the warning given by the first apparition (the armoured head)?	Beware Macduff
54	The second apparition (the bloody child) tells Macbeth that no man _____ can harm him.	Of woman born
55	The third apparition says Macbeth won't be defeated until _____ moves to Dunsinane Hill.	Birnam Wood
56	What does the vision of the eight kings and Banquo's ghost suggest?	Banquo's descendants will rule Scotland
57	What does Macbeth do after he learns Macduff has fled to England?	He kills Macduff's family
58	Why does Lady Macduff feel angry with her husband?	She believes he has put the family in danger by fleeing
59	What is Macduff's reaction when he learns of the murder of his wife and children?	He vows revenge and to kill Macbeth
Act Five		
60	In the sleepwalking scene, Lady Macbeth obsessively tries to wash what off her hands?	An imaginary blood spot
61	How does Malcolm's army fulfill the prophecy of Birnam Wood moving to Dunsinane?	They cut and carry branches as camouflage
62	What news causes Macbeth to give his famous 'tomorrow and tomorrow' speech?	Lady Macbeth's death
63	What is the symbolic meaning of Macbeth being informed that his armour is 'too large for him' in Act 5, Scene 3	It symbolises that the royal role (the 'robes') he seized is too great and ill-fitting for his character.
64	What shocking truth does Macduff reveal to Macbeth during their fight?	He was 'untimely ripped' (C-section)

65	Who kills Macbeth and cuts off his head?	Macduff
66	Who is proclaimed the new King of Scotland at the end of the play?	Malcolm
Theme & Context		
67	What is the central theme of Macbeth that drives his actions after the prophecies?	Ambition (or vaulting ambition)
68	The play is often seen as a warning against _____ (killing a king).	Regicide
69	The witches are often referred to as the _____ Sisters.	Weird
70	In the play, what is foreshadowing?	Hints or warnings about events that will happen later.
71	What is a soliloquy?	A speech made by a character alone on stage to reveal their thoughts to the audience.
72	When Banquo says the witches are 'instruments of darkness,' he is commenting on the theme of _____.	Appearance vs. Reality / Deception / Evil.
73	What real-life King was this play written for, who was interested in witchcraft?	King James I.
An Inspector Calls Questions		
1	What is the Birling family's social status at the beginning of the play?	They are a wealthy upper-middle-class family.
2	What celebration is taking place at the start of the play?	Sheila and Gerald's engagement dinner.
3	What is the lighting like at the beginning of the play?	Pink and intimate.
4	What does the lighting become when the Inspector arrives?	Brighter and harder.
5	In what year is the play set?	1912
6	Who wrote An Inspector Calls?	J.B. Priestley.
7	Who is the patriarch of the Birling family?	Arthur Birling.
8	What is Arthur Birling's occupation?	A factory owner.
9	Who is engaged to Sheila Birling?	Gerald Croft.
10	Which character is described as being in her early twenties and pleased with life?	Sheila Birling.
11	Which character is described as cold and socially superior?	Mrs Sybil Birling.

12	What is Eric Birling's relationship to Sheila?	He is her brother.
13	What is the name of the maid who serves the family?	Edna.
14	What does Birling say a man must do to succeed?	Look after himself and his own interests.
15	What does Birling think about community and society?	He dismisses the idea of collective responsibility.
16	What does Birling predict will never happen?	A war with Germany.
17	What ship does Birling claim is unsinkable?	The Titanic.
18	What position does Birling hope to receive?	A knighthood.
19	Who interrupts Birling's speech?	Inspector Goole.
20	What is the Inspector investigating?	The death of a young woman.
21	What is the name of the young woman?	Eva Smith.
22	How did Eva Smith die?	She drank disinfectant.
23	What effect did the disinfectant have?	It burned her insides.
24	Which character first had dealings with Eva Smith?	Arthur Birling.
25	Where did Eva work for Birling?	In his factory.
26	Why was Eva dismissed from Birling's factory?	She led a strike for higher wages.
27	How much of a pay rise were the workers asking for?	Two shillings and sixpence.
28	How does Birling justify sacking Eva?	He says she was causing trouble.
29	What does Sheila think about her father's treatment of Eva?	She thinks it was wrong.
30	Which photograph does the Inspector show?	A photograph of Eva Smith.
31	Why does the Inspector show the photograph to one person at a time?	To control the investigation.
32	Where did Sheila meet Eva after she left the factory?	At Milwards department store.
33	Why was Sheila jealous of Eva?	She thought Eva looked prettier than her.

34	What complaint did Sheila make about Eva?	She claimed Eva laughed at her.
35	What happened to Eva as a result of Sheila's complaint?	She lost her job.
36	How does Sheila react when she realises what she has done?	She feels guilty and ashamed.
37	What lesson does Sheila learn from her involvement?	That her actions have consequences.
38	What does Sheila recognise about the Inspector?	That he already knows much of the story.
39	What new name did Eva Smith use after leaving Milwards?	Daisy Renton.
40	Which character knew Daisy Renton?	Gerald Croft.
41	Where did Gerald first meet Daisy?	The Palace Bar.
42	Why was Daisy in difficulty at the Palace Bar?	A man (Alderman Meggarty) was bothering her.
43	How did Gerald help Daisy?	He rescued her from the man (Alderman Meggarty).
44	Where did Gerald arrange for Daisy to stay?	In his friend's rooms.
45	How did Daisy feel about Gerald?	She loved him.
46	Why did Gerald end the relationship?	He was returning to Sheila.
47	How did Daisy react to the end of the relationship?	She accepted it sadly.
48	What does Gerald say made Daisy different from other women he knew?	She was young, fresh and vulnerable.
49	How does Sheila react to Gerald's confession?	She returns the engagement ring.
50	What does the Inspector suggest connects all the characters?	Their responsibility for Eva's death.
51	Which character is revealed to have stolen money?	Eric Birling.
52	Why did Eric steal money?	To support Eva.
53	How much money did Eric steal?	About fifty pounds.
54	How did Eric first meet Eva?	At the Palace Bar.
55	How does Eric describe his behaviour when he met Eva?	He was drunk.

56	Why did Eva refuse Eric's stolen money?	Because she did not want stolen money.
57	What happened when Eva became pregnant?	She needed help and support.
58	Which organisation did Eva turn to for help?	A women's charity.
59	Who chaired the charity committee?	Mrs Birling.
60	What name did Eva use when she approached the charity?	Mrs Birling claimed it was Eva Smith.
61	Why did Mrs Birling refuse to help Eva?	She disliked her attitude and circumstances.
62	What particular reason made Mrs Birling angry?	Eva had used the name Birling.
63	Who does Mrs Birling blame for Eva's situation?	The father of the child.
64	What does Mrs Birling demand should happen to the father?	He should be made entirely responsible.
65	Why is this ironic?	The father is her own son, Eric.
66	Who reveals that Eric is the father of Eva's child?	The Inspector.
67	How does Mrs Birling react when she learns the truth?	She is shocked.
68	What is Eric's reaction to his mother's behaviour?	He is angry and condemns her.
69	What does Eric accuse his parents of caring about most?	Their reputation and money.
70	What message does the Inspector give before leaving?	People are responsible for one another.
71	What famous phrase does the Inspector use about society?	We are members of one body.
72	What does the Inspector warn will happen if people ignore this lesson?	They will learn it in fire and blood and anguish.
73	Who begins to question whether the Inspector was genuine?	Gerald.
74	What does Gerald discover about Inspector Goole?	There is no Inspector Goole on the police force.
75	Who telephones the police station?	Arthur Birling.
76	What do the police say?	No Inspector Goole is employed there.
77	What further doubt arises about Eva's death?	No girl has recently died in the infirmary.

78	How does Birling react to these discoveries?	He feels relieved.
79	How does Mrs Birling react?	She is pleased and triumphant.
80	How does Sheila react?	She is still concerned about their behaviour.
81	How does Eric react?	He remains guilty and disturbed.
82	What does Sheila say is important regardless of the Inspector's identity?	What they did was still wrong.
83	What does Eric think about his parents' reaction?	He finds it childish and irresponsible.
84	What does Gerald ask Sheila to do after the revelations?	Take back the engagement ring.
85	Does Sheila immediately agree?	No.
86	Why does Sheila refuse to simply forget everything?	She believes they have learned something important.
87	What dramatic technique does Priestley use when the family think they are safe?	Dramatic irony and a twist ending.
88	What happens in the final moments of the play?	The telephone rings.
89	Who answers the telephone?	Arthur Birling.
90	What news does the caller give?	A girl has died after drinking disinfectant.
91	What else is about to happen?	A real inspector is on his way.
92	How do the stage directions describe the family's reaction?	They stare guiltily and dumbfounded.
93	What theme is represented by the Inspector's message?	Social responsibility.
94	What theme is shown through Eva Smith's treatment?	Class inequality.
95	What theme is explored through Sheila's development?	Growth and responsibility.
96	What theme is explored through Eric's confession?	Guilt and accountability.
97	What theme is represented by Mr Birling's speeches?	Capitalism and selfishness.
98	What theme is represented by the younger generation's reactions?	Hope for change.
99	Why did Priestley write the play after the Second World War?	To encourage a fairer and more responsible society.

Poetry		
A Poison Tree		
1	Blake uses the 'tree' as an extended metaphor for what?	Growing anger/wrath
2	What happens to the 'foe' at the end of the poem?	They are found dead beneath the tree.
3	What did the speaker do with their wrath for their friend?	Told it
4	The speaker 'sunned it with _____.'	smiles
5	The 'apple' is:	A symbol of the result of nurtured hate
6	What is the rhyme scheme of the first stanza?	AABB
Belfast Confetti		
7	What is the 'confetti' actually made of?	Weapons: nuts, bolts, and shrapnel
8	The speaker uses _____ terminology (hyphen, colon, full stop) to describe the chaos.	Punctuation
9	Why can't the speaker find his way home?	The streets are blocked by punctuation/barricades
10	What does the 'Exclamation mark' represent in the poem?	An explosion or sudden shock.
11	I was trying to complete a sentence in my head, but it kept _____.'	stuttering
12	A fount of broken type' is a _____ that suggests the violent tearing apart of language and communication.	Metaphor
Catrin		
13	What physical object represents the bond between mother and child?	The red rope (umbilical cord)
14	Where is the narrator in the first stanza?	A hospital room
15	Where is the 'struggle' located in the second stanza?	In a skating rink
16	The 'tight red rope' is a metaphor for:	The umbilical cord/emotional bond
Charge of the Light Brigade		
17	How many soldiers rode into the 'Valley of Death'?	600

18	Tennyson uses _____ ('Cannon to right... Cannon to left') to show they are surrounded.	Repetition
19	The phrase 'Into the jaws of Death' is an example of:	Metaphor
20	Why did the soldiers charge if 'someone had blundered'?	It was their duty/to obey orders.
Cousin Kate		
21	Why does the speaker call herself a 'writer thing'?	She feels used and discarded
22	Who does the 'Lord' marry instead of the speaker?	Her cousin, Kate.
23	What does the speaker have that Kate does not?	A son
24	The Lord wore the speaker like a '_____.'	glove
25	The poem is a...	Dramatic monologue written in the style of a ballad
26	How does the tone change from the beginning to the end?	From innocence/shame to defiance/pride.
Destruction of Sennacherib		
27	The 'Angel of Death' spread his wings on the:	Blast
28	Which technique is used in 'Assyrian came down like the wolf'?	simile
29	What kind of rhyme does the poem mainly use?	rhyming couplets
30	What technique highlights God's power and human weakness?	Juxtaposition / contrast
31	How are the Assyrian soldiers described before the Angel of Death arrives?	Like stars on the sea
Exposure		
32	What is the repeated refrain that ends several stanzas?	But nothing happens'
33	Who is the real 'enemy' in this poem?	The weather / nature / the cold
34	The merciless iced east winds that knive us' uses what technique?	Personification
35	Pale flakes with lingering stealth come feeling for our faces' is:	Personification
36	What are the 'flights of bullets' compared to?	Flakes of snow (less deadly than the cold).

37	Sudden successive flights of bullets streak the silence' is an example of:	sibilance / personification / imagery
Extract from The Prelude		
38	What 'huge' object terrifies the speaker in the boat?	A black peak (mountain)
39	The shift from a peaceful tone to a dark tone is a structural _____.	volta
40	How does the speaker feel at the very end of the extract?	Troubled, haunted, and somber.
41	The speaker stole a...	Boat
Figurative Language		
42	Her smile was like sunshine' is an example of what?	Simile
43	Which term describes 'The wind whispered'?	Personification
44	_____ is language that appeals to the five senses.	Imagery
45	What is an oxymoron?	Two opposite words together
46	The wild winds whipped wildly' is an example of _____.	Alliteration
47	What is sibilance?	Repetition of soft 's' or 'sh' sounds
48	Define a 'Semantic Field.'	A group of words linked by a common theme/topic.
49	Life is a journey' is a:	Metaphor
Half-caste		
50	Agard uses the example of which painter to challenge the term 'half-caste'?	Picasso
51	Why does Agard use non-standard English/Dialect?	To assert his identity and challenge colonial norms.
52	Agard asks the reader to 'explain yuself' with which part of their mind?	Whole
53	Agard uses the image of 'half-caste _____' (weather).	weather
54	What is the effect of the final line 'check back with the whole of yu mind'?	It challenges the reader to change their thinking.
No Problem		

55	The speaker says, 'I am not de problem / But I am born _____.'	Academic
56	Zephaniah uses _____ (specific regional speech) to convey his message.	Phonetic Dialect
57	The speaker says he can do more than just 'play _____.'	Football
58	I am not de problem / But I am born academic' uses:	Phonetic Dialect
59	What is the message about stereotypes in the poem?	Stereotypes limit people and don't reflect their true ability.
Poppies		
60	What is the mother pinning onto her son's lapel?	A poppy
61	The poem uses '_____ language' (tucks, darts, pleats) to link domestic life to war.	Textile / Sewing
62	The world overflowing like a treasure chest' is a:	Simile
63	What does the 'single dove' symbolize?	Peace, or the son's soul/departure.
64	The mother 'traced the inscriptions on the war memorial' with her:	Fingers
Sentence Types		
65	A _____ sentence is a direct command.	Imperative
66	Who doesn't want to be happy?' is an example of a...	Rhetorical Question / Interrogative
Structure		
67	A group of lines in a poem is a...	Stanza
Structure & Form		
68	What is 'enjambment'?	Running over into the next line without puncutation
69	A pause within a line of poetry, marked with punctuation, is called...	caesura
70	An ABAB rhyme pattern is known as...	Alternating Rhyme
Terminology		
71	Bang' and 'Hiss' are examples of _____.	Onomatopoeia

72	Deafening silence' is an: example of:	Oxymoron
73	Repeating words or phrases is called _____.	Repetition
74	Using three elements for effect (e.g., 'blood, sweat, and tears') is:	A Triple / Rule of Three
75	What kind of imagery is used in 'The bitter, metallic taste of blood'?	Sensory Imagery (Gustatory)
76	Direct Address' uses the pronoun '_____'	You
77	The car, the book, the desk' are:	Common Nouns
78	Two consecutive lines that rhyme are called a _____.	Rhyming Couplet
The Class Game		
79	The speaker asks 'How can you tell what _____ I'm from?'	Class
80	Give an example of a 'posh' word vs a 'working class' word used in the poem.	Toilet' vs 'Bog' (or 'Sofa' vs 'Settee')
81	The speaker's 'hands are _____' from hard work.	stained
82	Bye-bye' vs 'Ta-ra' shows a difference in:	Dialect/Class
The Man He Killed		
83	What is the main reason the speaker gives for killing the man?	Because he was 'my foe'
84	The use of _____ (dashes and pauses) shows the speaker's hesitation.	caesura
85	What is the setting of the poem?	An inn (pub)
86	What would the speaker have done if he met the man at an inn?	Sat down to wet a glass
87	The poem uses 'quaint and curious' to describe:	War
War Photographer		
88	In the opening lines, the speaker says the frame is “flexible.” What does this suggest?	The viewer can choose what to believe about the image
89	Which setting is referenced in the poem as an example of a joyful photograph?	Ascot
90	Which technique is used in “peach, sun-gilded girls”?	simile

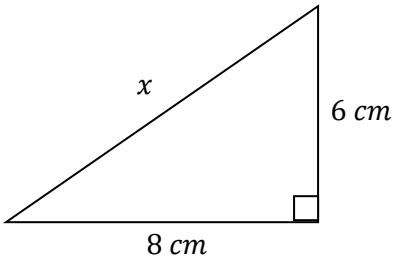
91	What happens when the first bomb of the morning explodes?	The girl drops the baby she is carrying and begins to run.
What Were They Like?		
92	Laughter is bitter to the burned mouth' suggests:	Total destruction of joy
93	Did they hold ceremonies / to reverence the opening of _____?'	buds
94	The speaker says their light hearts turned to:	Stone
Word Level Terminology		
95	London' is an example of what type of noun?	Proper Noun
96	In 'She ran quickly,' 'quickly' is an _____.	Adverb
97	In the phrase 'He sprinted across the field,' what word class is sprinted?	Verb
98	A _____ noun refers to a 'person, place, or thing' like 'London' or 'Smithdon High School.'	Proper
99	Define an 'Abstract Noun' and provide one example.	An idea or feeling (e.g., love, freedom)
A Christmas Carol		
1	How does Dickens describe Scrooge at the start?	Cold, greedy, solitary, uncaring.
2	Why must “Marley was dead, to begin with”?	To make the ghost believable.
3	How does Scrooge respond to charity collectors?	He refuses and won’t donate.
4	What does Scrooge suggest should happen to the poor?	They should die to “decrease the surplus population.”
5	Why is Fred’s visit important?	He contrasts Scrooge with warmth and generosity.
6	What does Scrooge’s office show about him?	It is cold and bleak, showing his lack of warmth.
7	What does Marley warn Scrooge about?	Scrooge will share his fate unless he changes.
8	What does Marley’s chain symbolise?	His selfish, greedy life choices.
9	Why is Marley’s visit a turning point?	Scrooge realises he must change.
10	What does Scrooge promise Marley?	To listen to the spirits.

11	Why does the Ghost of Christmas Past look young and old?	It represents memory—both recent and distant.
12	What does Scrooge's lonely childhood show?	Emotional neglect and early loneliness.
13	Why is Fan important?	Shows he once had family love and connection.
14	What is important about Fezziwig's party?	Kindness can have a huge positive impact.
15	Why does Scrooge feel guilty in this stave?	He realises others were kinder than he has been.
16	What does the Belle scene reveal?	He lost love because he valued money too much.
17	What does Belle's later life show?	She found happiness without Scrooge.
18	Why does Scrooge try to "extinguish" the spirit's light?	He cannot face painful memories.
19	What does Scrooge learn about valuing money?	It cost him real human connection.
20	What change begins in this stave?	Scrooge starts to feel regret.
21	How is the Ghost of Christmas Present described?	Jolly, generous, giant, full of goodwill.
22	Why is abundance important in this stave?	Shows Christmas joy even in hardship.
23	What does the Cratchit home show Scrooge?	Happiness does not depend on wealth.
24	What is Tiny Tim's future?	He will die unless the future changes.
25	Why is the Cratchit dinner important?	Shows gratitude and love despite poverty.
26	What contrasts Fred with Scrooge?	He values family, laughter, and community.
27	What does the "vacant seat" mean?	A warning that Tiny Tim may die.
28	What do Ignorance and Want represent?	Society's neglected problems.
29	Why does the spirit warn "the boy is Doom"?	Ignorance will destroy society.
30	What does this stave show about generosity?	It brings real joy and human warmth.
31	Why is the Ghost of Yet to Come silent?	To make the future frightening and mysterious.
32	How do people react to the dead man?	With indifference; he was unloved.

33	What does the theft of his belongings show?	People only care about profit—like Scrooge used to.
34	Why doesn't Scrooge recognise himself at first?	Shows his lack of awareness of his impact.
35	How do the Cratchits react to Tiny Tim's death?	With deep grief and sorrow.
36	Why is the graveyard scene important?	Scrooge finally understands he caused this future.
37	What does "the time before him was his own" mean?	He still has the chance to change.
38	How does Scrooge show he wants to change?	He promises new behaviour and kindness.
39	Why is the future shown as possible, not fixed?	To show people can change their fate.
40	What emotions does Scrooge feel in this stave?	Fear, guilt, regret, hope.
41	How is Scrooge transformed when he wakes?	Joyful, relieved, full of gratitude.
42	What is his first kind act?	Sending a turkey to the Cratchits.
43	How does he act towards the charity collectors?	He donates generously and apologises.
44	Why is visiting Fred important?	Shows he wants family connection.
45	How does Scrooge treat Bob Cratchit now?	Raises his wages and supports his family.
46	What is Tiny Tim's fate at the end?	He survives.
47	Why is Scrooge called a "second father"?	He becomes caring and supportive.
48	What does Scrooge learn about human connection?	It is more valuable than money.
49	Why end with "God bless Us, Every One"?	Emphasises unity, hope, and goodwill.
50	What message does Dickens want readers to take?	People can change; kindness improves society.

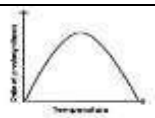
GCSE Maths:Non-Calculator

No.	**Question**	**Answer**
1	Find the nth term 4, 10, 16, 22……	6n - 2
2	What is the formula for Area of a Circle?	π x radius squared, $A = \pi r^2$
3	Round 24554 to 2 significant figures	25000
4	What is the formula for the Area of a Rectangle?	Area = lw (length x width/base x height…etc)
5	Expand and Simplify 3(2a + 1) + 2(a – 1)	8a + 1
6	¾ - ¼	½ (do not accept 2/4)
7	Name the 3 sides for labelling Trigonometry.	Hypotenuse, Opposite & Adjacent
8	Work out 20 – 12 ÷ (8 – 2)	18
9	1485 ÷ 15	99
10	45% of £102	£45.90 (must have 2dp for pence)
11	Express 120 as a product of prime factors	2^3 x 3 x 5
12	What is the formula for the volume of a cuboid?	Length x width x height (depth)
13	How much change would you get from £10 if you spent the following amounts £3.85 and £2.44?	£3.71
14	Write 45600000 in standard form	4.56 x10^7
15	What is the formula for the Area of a Right-Angled Triangle?	Area = (base x height) ÷2 or ½bh
16	¾ - ⅕	11/20
17	What is the gradient of the line y = 6x + 4	Gradient = 6 **NOT 6x**
18	$x^2 + 7x + 12$	$(x + 4)(x + 3)$
19	If 12 pens cost £2.40, how much would 9 pens cost?	£1.80
20	What is the exact value of Sin 45?	$\frac{\sqrt{2}}{2}$
21	Solve 6x -5 = 4x + 9	x = 7
22	56 x 34	1904
23	Express 0.00931 in standard form	9.31 x10^{-3}
24	Find the next two terms in the sequence 24, 19, 14, 9……	4 and -1
25	What is the formula for the Area of a Trapezium?	Area = ½(a+b)h or (a+b) x height ÷2 or (a+b) ÷2 then x height
26	Find the y intercept of the line 3y = 18x + 12	4 (you have to divide the whole equation by 3)
27	Work out 2/3 + 1/5	13/15
28	Solve 5x – 3 = 3x + 9	x = 6
29	Increase £2020 by 10%	£2222

30	Expand & Simplify (x + 5) (x + 1)	$x^2 + 6x + 5$
31	The nth term of a sequence is $2n^2 - 5$. What is the 10^{th} term?	195
32	Work out 30 – (3+7) x 2	0
33	Write down the first 15 square numbers.	1,4,9,16, 25, 36, 49, 64, 81, 100, 121, 144, 169, 196, 225
34	Divide £540 in the ratio 4:5	£240 £300
35	$\boldsymbol{a}=\begin{pmatrix}2\\3\end{pmatrix}$ and $\boldsymbol{b}=\begin{pmatrix}1\\5\end{pmatrix}$ (a) Write down as a column vector (i) **a** + **b** (ii) 2**a** + 3**b**	(i) **a** + **b** $\begin{pmatrix}2\\3\end{pmatrix}+\begin{pmatrix}1\\5\end{pmatrix}$ $\begin{pmatrix}3\\8\end{pmatrix}$ (1) (ii) 2**a** + 3**b** $2\begin{pmatrix}2\\3\end{pmatrix}+3\begin{pmatrix}1\\5\end{pmatrix}$ $\begin{pmatrix}4\\6\end{pmatrix}+\begin{pmatrix}3\\15\end{pmatrix}$ $\begin{pmatrix}7\\21\end{pmatrix}$ (2)
36	45 ÷ 18	2.5
37	Express 17/20 as a decimal	0.85
38	Factorise fully $30x^2 - 25x$	5x (6x -5)
39	2 2/3 ÷ 1¼	2 2/15
40	Make x the subject $y = ax^2$	$x = \sqrt{\frac{y}{a}}$
41	What is the formula for the volume of a prism?	Area of the Cross-Section x length (height)
42	Square Roots of 169 (2 answers needed)	13 AND -13
43	Find in terms of π, the perimeter of a circle, with radius of 10cm.	20πcm
44	What is the exact value of Cos 30?	$\frac{\sqrt{3}}{2}$
45	What is the formula for Circumference of a Circle?	π × diameter, $C = \pi d$
46	Work out 2/3 of 108	72
47	Write down the first 5 cubed numbers	1, 8, 27, 64, 125
48	**Estimate** $\frac{425 + 198}{13.5}$	60
49	a) Using Pythagoras Theorem. Work out the length x  b) Work out the perimeter of the triangle.	a) To find the missing side x: $a^2 + b^2 = c^2$ $6^2 = 36$ $8^2 = 64$ 36 + 64 = 100 $\sqrt{100}$ x = 10cm b) Perimeter = 10 + 6 + 8 = 24cm
50	Solve $5x + 3 \geq 3x - 7$	$x \geq -5$

Biology

Paper 1

No.	Question	Answer
1	What are the two types of eukaryotic cells?	Plant and animal
2	What is the function of the nucleus?	Controls the activity of the cell.
3	Name one structure found in a plant cell but not in an animal cell.	Chloroplast or cell wall or vacuole
4	How would you calculate image size?	Size of image = magnification x size of real object
5	Give one advantage of using an electron microscope instead of a light microscope.	Greater resolution or magnification
6	Name the four types of pathogen.	Bacteria, fungi, protist and virus
7	How does the human body prevent pathogens entering?	Skin, cilia and mucus in the nose, trachea and bronchi, and stomach acid
8	How does the human body defend itself against pathogens inside the body?	White blood cells, antibodies, phagocytosis, anti-toxins
9	What does a vaccine contain?	Small quantities of dead or inactive forms of a pathogen
10	What is herd immunity?	When most of a population is vaccinated against a disease, meaning it's less likely to spread.
11	What three functions do white blood cells have?	1. Phagocytosis 2. Producing antibodies 3. Producing antitoxins
12	What is an antibiotic?	A drug that kills bacteria but not viruses
13	Name a common antibiotic	Penicillin
14	What is the word equation for photosynthesis?	carbon dioxide + water → glucose + oxygen
15	Sketch a graph which shows the effect of temperature on rate of photosynthesis.	
16	How is water loss from leaves controlled?	The closing of the stomata by the guard cells
17	Which vessel transports water through the plant?	Xylem
18	What is transpiration?	Water loss (evaporation) from leaves
19	Name four factors that affect the rate of transpiration	Temperature, light intensity, humidity and wind speed
20	Where are most stomata found?	On the underside of leaves
21	Why does aerobic respiration release more energy per glucose molecule than anaerobic respiration?	Oxidation of glucose is complete in aerobic respiration and incomplete in anaerobic respiration
22	Define the term limiting factor	Anything that limits the rate of a reaction when it is in short supply
23	Give the limiting factors for photosynthesis	1. Temperature 2. Carbon dioxide concentration 3. Light intensity 4. Amount of chlorophyll
24	What do organisms need energy for?	Chemical reactions to build larger molecules Muscle contraction for movement

		Keeping warm
25	What chemical is used to test for lipids?	Ethanol
26	What chemical is used to test for glucose (sugars)	Benedicts
27	What chemical is used to test for starch?	Iodine
28	What chemical is used to test for protein?	Biuret reagent
29	What colour does iodine go if starch is present?	Goes from orange to blue/black
30	Name the five levels of organisation in living organisms.	Cells – tissues – organs- organ systems - organisms
31	What is a tissue?	A group of cells with similar structures and functions
32	What is an organ?	A group of tissues working together to perform a specific function
33	Define the term double circulatory system.	The right side of the heart pumps deoxygenated to the lungs, the left side pumps oxygenated blood to the body.
34	Which blood vessel carries blood to the body?	Aorta
35	What is the function of valves?	Prevent backflow
36	Give one advantage and one disadvantage of using a mechanical heart valve	Advantage – don't have to wait for a donor heart Disadvantage – could lead to blood clots.
37	What is the function of bile in the digestive system?	Neutralise the hydrochloric acid from the stomach and emulsify fat to form small droplets with a large surface area
38	What is an enzyme?	A biological catalyst
39	Where is amylase produced?	Salivary glands, pancreas, small intestine
40	What does amylase break down?	Starch into simple sugars
41	Name two other enzymes.	Lipase and protease
42	What are the ethical issues with using stem cells	Embryonic stem cells are destroyed which could be seen as a potential life.
43	Define health	State of physical and mental well being
44	What factors can affect health	Disease, diet, stress and life situations
45	What is a tumour?	Uncontrolled, abnormal cell growth
46	What is the difference between a benign and malignant tumour?	Benign – contained in one place Malignant – can spread (metastasize) around the body
47	How can cancer be treated?	Radiotherapy or chemotherapy
48	What is the first stage in drug trials?	Testing on cells and tissues.
49	What is a placebo?	A drug with no active ingredients
50	What is a double blind trial?	Neither the doctors nor the patients know who has received the real drug.
Biology Paper 2		
1	What is an ecosystem?	An ecosystem is the interaction of a community of living organisms (biotic) with the non-living (abiotic) parts of their environment.
2	State the four factors plants compete with each other for.	Space, light, mineral ions, water
3	State the three factors animals compete with each other for.	Food, mates, territory
4	What is interdependence?	Each species within a community depend on others for food, shelter, pollination, seed dispersal, etc. If one species is removed, this will affect the whole community.
5	What is an abiotic factor?	A non-living factor which can affect a community.

6	State the 7 possible abiotic factors which may affect a community.	Light intensity, temperature, moisture levels, soil pH and mineral content, wind intensity (and direction), carbon dioxide concentration, oxygen concentration
7	What is a biotic factor?	A living factor which may affect a community.
8	State all 4 possible biotic factors which may affect a community.	Availability of food, new predators, new pathogens, being outcompeted
9	Organisms have adaptations to enable them to survive in their usual conditions. What 3 categories do these adaptations fall under?	Structural, behavioural, functional (cellular reactions)
10	What is an extremophile?	An organism that lives in an extreme environment, such as at high temperature, pressure or salt concentration.
11	Give an example of an extremophile.	Bacteria living in deep sea vents.
12	What is a producer?	A photosynthetic organism that produces biomass.
13	What do all food chains begin with?	Producers
14	Give two examples of a producer.	Green plants and algae.
15	What is biodiversity?	The variety of all the different species of organisms on earth, or within an ecosystem.
16	How is water polluted?	Sewage, fertilisers or toxic chemicals.
17	How is air polluted?	Smoke and acidic gases.
18	How is land polluted?	Landfill and toxic chemicals.
19	Give three causes of deforestation.	1. Provide land for cattle or rice fields 2. Grow crops for biofuels 3. To clear space for building"
20	Which 2 gases are increasing in the atmosphere and contributing to global warming?	1. Carbon dioxide 2. Methane"
21	What are the five main biological consequences of global warming?	1. Increased spread of pathogens 2. Affecting migration patterns of animals 3. Melting of polar ice caps, causing flooding 4. Reduced habitats in polar regions 5. Reduced biodiversity"
22	State three positive human interactions in an ecosystem.	"1. Breeding programmes for endangered species 2. Protection and regeneration of rare habitats 3. Reintroduction of field margins and hedgerows in agricultural areas where farmers grow only one type of crop 4. Reduction of deforestation and carbon dioxide emissions by some governments 5. Recycling resources rather than dumping waste in landfill"
23	What is the function of the nervous system	Enables organisms to react to their surroundings and coordinates behaviour
24	What are the two parts of the central nervous system	Brain and spinal cord
25	Why are reflex actions rapid and automatic	They do not involve the conscious part of the brain
26	Give the pathway of a nervous response	Stimulus – receptor- coordinator- effector- response
27	What is homeostasis	Maintenance of a constant internal environment
28	Give three internal conditions controlled in homeostasis	Body temperature Blood glucose concentration Water levels
29	Name three coordination centres	Brian, spinal cord, pancreas
30	Name two types of effectors	Muscles and glands

31	What is the endocrine system?	System of glands that secrete hormones into the bloodstream
32	What is the cause of Type 1 Diabetes?	Pancreas produces insufficient insulin
33	What is the cause of Type 2 Diabetes?	Body cells no longer respond to insulin.
34	What is the function of FSH?	Causes egg to mature in the ovaries and stimulates ovaries to produce oestrogen
35	What is the function of LH?	Stimulates the release of an egg.
36	What is the function of adrenaline in the body?	Increases heart rate and boosts delivery of oxygen and glucose to brain and muscles to prepare the body for "fight or flight"
37	What is the function of thyroxine in the body?	Stimulates basal metabolic rate, so is important for growth and development
38	Name one hormone controlled by negative feedback	Thyroxine
39	What is variation?	Differences in characteristics of individuals in a population
40	What can cause variation?	Genetic causes, environmental causes and a combination of genes and the environment
41	How do new phenotype variants occur?	Mutations
42	What type of cell division is involved in sexual reproduction?	Meiosis
43	What type of cell division is involved in asexual reproduction?	Mitosis
44	What is meiosis	Cell division that produces four daughter cells (gametes) each with a single set of chromosomes
45	What are the male and female sex chromosomes in humans?	XX – Female XY – male
46	What is the genetic material called?	DNA
47	What are alleles?	Different forms of the same gene.
48	What is a recessive gene?	A gene that needs to be present twice to be expressed
49	Define the term homozygous	Two of the same alleles present in an organism
50	Define the term heterozygous	Two different alleles present in an organism

Chemistry

Chemistry Paper 1		
No.	**Question**	**Answer**
1	What is an ion?	An atom which has lost or gained an electron(s)
2	Name the three subatomic particles, their mass and relative charge	Protons (1, +1), neutrons (1, 0), electrons (0, -1)
3	What is the mass number of an atom?	The number of protons and the number of neutrons added together in an atom
4	What is the maximum number of electrons can go in the second and third shells?	8
5	What is the plum pudding model of the atom?	Sphere (ball) of positive charge with negative electrons embedded in it
6	What did James Chadwick discover?	Uncharged particle called the neutron
7	What are Group 7 on the periodic table called?	The Halogens
8	What are Group 1 on the periodic table called?	The Alkali metals
9	Explain why the noble gases are inert (unreactive)	They have full outer shells, so do not need to gain or lose electrons
10	What are isotopes?	Atoms of the same element (same number of protons) with different number of neutrons.
11	How is the modern Periodic table ordered?	By Atomic Number
12	How does the reactivity of the alkali metals change as you go down the group?	Increases
13	What is a displacement reaction?	When a more reactive metal takes the place of a less reactive metal in a compound
14	How are covalent bonds formed?	Overlap of outer shell and sharing electrons
15	What are intermolecular forces?	The forces between molecules.
16	Why would an ion have a positive charge?	It has lost electrons
17	Why would an ion have a negative charge?	It has gained electrons
18	Explain in terms of electrons what occurs when lithium bonds with chlorine	One electron transferred from lithium to chlorine so both have a full outer shell and are stable like group 0 Producing a sodium ion and a chloride ion
19	Name the force that holds oppositely charged ions together.	Electrostatic force of attraction
20	Why do ionic substances conduct electricity when molten or dissolved?	Ions are free to move and carry a charge

21	Describe the structure of simple covalent molecules	Strong covalent bonds between atoms, weak forces holding the molecules together
22	Describe the main features of metals in terms of their structure	Positive metal ions arranged in ordered rows/columns, layers with delocalised electrons
23	Explain why pure metals are soft	Layers of metal ions are free to slide over each other
24	Explain why graphite conducts electricity	Delocalised electrons which are free to move
25	What is a fullerene?	Substance made of carbon atoms arranged in a cage
26	What is conservation of mass?	In a chemical reaction, atoms are not created or destroyed, just rearranged, so total mass before = total mass after the reaction.
27	What is relative formula mass? (Mr)	The sum of the relative atomic masses (Ar) of each atom in a substance
28	How can you convert a volume reading in cm^3 to dm^3?	Divide by 1000
29	What is an exothermic reaction?	A reaction where energy is transferred to the surroundings. (Temperature increases)
30	Give two examples of endothermic reactions.	Thermal decomposition reactions, citric acid and sodium hydrogencarbonate.
31	Is breaking bonds endothermic or exothermic?	Endothermic. Chemical bonds are strong so require energy to break (like when you have to put energy in to separate magnets from each other)
32	Which ions are in *NaCl*	(Sodium*)* *Na+* and chloride (*Cl-*)
33	In terms of electrons, what makes some metals more reactive than others?	They lose their outer electrons more easily
34	What is an ore?	Rock containing enough of a metal compound to be economically worth extracting
35	In terms of pH (number) what is an acid?	A solution with a pH of less than 7
36	In terms of pH (number) what is a neutral solution?	A solution with a pH of 7
37	What are the products of a reaction between a metal and an acid?	Salt + hydrogen
38	At which electrode would $Zn^{2+}_{(aq)}$ turn into $Zn_{(s)}$?	Cathode (negative) (needs to gain electrons)
39	What will be the products for the electrolysis of molten zinc oxide?	Zinc and oxygen
40	Why is sodium not produced in the electrolysis of sodium chloride solution?	It is more reactive than hydrogen so hydrogen is produced instead.
41	What is an electrolyte?	A solution containing ions which allows current to flow.
42	Where are metals formed?	At the cathode (negative electrode)
43	In the electrolysis of aluminium oxide, what are the anodes made of?	Graphite (carbon)

44	What is the name of the positive electrode?	Anode
45	In the electrolysis of aluminium oxide, why is the aluminium oxide mixed with cryolite	To lower the melting point
46	In the electrolysis of a metal halide solution, what is produced at the anode?	Halogen gas
47	In terms of reactivity what metals are extracted from ionic compounds by using electrolysis?	Metals that are more reactive than carbon.
48	What is an exothermic energy transfer?	Energy transfer to the surroundings.
49	What is a reaction profile?	Diagram showing how energy changes in a reaction.
50	What is the activation energy?	The minimum amount of energy a particle needs before it will be able to react when it collides with another particle
Chemistry Paper 2		
1	What is the rate of reaction?	How quickly reactants are used up or products are produced.
2	Explain why increasing the concentration increases the rate of reaction	More concentrated means more particles in solution, therefore more frequent collisions between reactants.
3	State the effect on increasing the pressure of a gas on the rate of reaction	Increases
4	What is a catalyst?	A substance that increases the rate of reaction but is not used up in the reaction.
5	How do catalysts increase the rate of a reaction?	Lowers the activation energy of the reaction, so more collisions result in a reaction.
6	What is a reversible reaction?	When the reactants turn into products and the products turn into reactants
7	What chemical symbol represents a reversible reaction?	⇌
8	What is dynamic equilibrium?	The point in a reversible reaction when the forward and reverse reactions are occurring at the same rate
9	What is a precipitate?	An insoluble solid in a solution
10	What is crude oil?	A mixture of hydrocarbons
11	Name five fuels we obtain from crude oil	Petrol, diesel oil, kerosene, heavy fuel oil and liquefied petroleum gas.
12	What is a hydrocarbon?	A compound made of atoms of hydrogen and carbon only
13	What is an alkane?	A hydrocarbon with only single carbon to carbon bonds
14	How does boiling point change with the length of an alkane?	The longer the alkane, the higher its boiling point

15	How does viscosity depend on chain length?	Longer the chain, higher the viscosity
16	What is cracking?	Breaking down a hydrocarbon with a long chain into smaller molecules
17	Name two methods to carry out cracking?	Steam cracking and catalytic cracking
18	What are the products of cracking?	Short chain alkanes and alkenes
19	What are akenes?	Hydrocarbons with at least one double carbon to carbon bond
20	Name the first four alkenes?	Ethene, propene, butene, pentene
21	How do you test for an alkene?	React it with bromine water goes orange to colourless
22	In terms of hydrocarbons what is a fraction?	A group of hydrocarbons with similar chain length
23	In chemistry what is a "pure" substance?	A substance made of a single element or compound
24	How can pure substances be distinguished from impure ones?	By their melting/boiling points
25	What is a formulation?	A mixture designed for a specific purpose.
26	What are some examples of a formulation?	Fuels, cleaning products, paints, medicines, alloys, fertilisers and foods.
27	What is chromatography?	A process of separating coloured mixtures, which can help to identify substances.
28	How can oxygen be tested for?	Relights a glowing splint
29	What is the test for Hydrogen?	A lit splint gives a squeaky pop
30	What is the test for carbon dioxide?	Turns limewater milky if bubbled through it.
31	What is the test for Chlorine?	Bleaches damp litmus paper white
32	How many spots will a pure compound produce on a chromatogram?	One
33	What is the atmosphere?	A layer of gas surrounding the Earth
34	What was the early atmosphere composed off?	Mainly carbon dioxide (CO_2)
35	How did the oceans form?	Water vapour condensing as the Earth cooled.
36	Why did the amount of carbon dioxide in the early atmosphere decrease?	1. Photosynthesis from algae and plants 2. Dissolved in the oceans, 3. Locked up in rocks and fossil fuels.
37	Why did the amount of oxygen increase?	Photosynthesis occurring in plants and algae.
38	Why are greenhouse gases needed?	To maintain temperatures on Earth to support life.

39	Name the three greenhouse gases?	Water vapour ($H_2O_{(g)}$), carbon dioxide (CO_2) and methane (CH_4)
40	What type of radiation reaches Earth from the Sun?	Short wave- ultraviolet
41	What type of radiation leaves Earth?	Long wave- infrared
42	Name two human activities that increase the amount of carbon dioxide?	Use of fossil fuels, deforestation, transport, industry and factories
43	Name two human activities that increase the amount of methane?	Agriculture and landfill.
44	What is climate change?	The increase of the temperature of Earth.
45	What is peer review?	Experts looking over a scientist's findings to check that the results are reliable.
46	What is an example of a resource that is recycled?	Metals such as scrap steel.
47	What is an example of a resource that is reused?	Glass bottles
48	What is potable water?	Water that is safe to drink as it has low levels of soluble salts and microorganisms.
49	What are sources of fresh water?	Ground water, lakes and rivers.
50	What stages are looked at during an LCA?	Extracting and processing raw materials, manufacturing and packaging, use during its lifetime, disposal at the end of its useful life, transport at each stage.

Physics

No.	Question	Answer
1	Name the eight energy stores	Kinetic, gravitational potential, elastic potential, thermal, chemical, nuclear, magnetic, electrostatic
2	Name the four ways that energy can be transferred.	Heating, radiation (waves), electric current and mechanically (by forces)
3	What does conservation of energy mean?	Energy cannot be created or destroyed only transferred to a different store.
4	What are the units of energy and unit symbol?	Joules J
5	What is work done?	Energy transferred when a force moves an object
6	What energy transfer occurs in boiling a torch?	The chemical store is depleted and the thermal store is filled. The energy is transferred by radiation and heating.
7	Name the unit that represents one joule transferred per second	Watt
8	What does a material's thermal conductivity tell you?	How well it conducts heat
9	Which materials have low thermal conductivity?	Thermal insulators
10	What is a renewable energy source?	An energy resource that will not run out, it is (or can be) replaced at the same rate as it is used
11	What is a non-renewable energy source?	An energy resource that will eventually run out, is not replaced at the same rate as it is being used.
12	What are the non-renewable energy resources?	Coal, oil gas and nuclear
13	What are the renewable energy resources?	Solar, tidal, wind, wave, geothermal, hydroelectric, biofuel.
14	Why are fossil fuels more reliable than wind energy?	It is not windy all the time but currently there is a constant supply of fossil fuels.
15	How does a material become charged?	Becomes negatively charged by gaining electrons and becomes positively charged by losing electrons.
16	What will two objects carrying the same type of charge do if they are brought close to each other?	Repel each other
17	What is an electric field?	Region of space around a charged object in which another charged object will experience an electrostatic force.
18	What happens to the strength of the electric field as you get further from the charged object?	It decreases
19	What is electrical current and what unit is it measured in?	The rate of flow of electrical charge (electrons) Measured in Amps or amperes
20	What piece of equipment measures current?	An ammeter in series
21	What is the pattern for current in a series circuit?	It is the same throughout the whole circuit.
22	What is the pattern for current in a parallel circuit?	It is shared between the components.
23	How do you calculate resistance and what are the units of resistance?	Resistance = Voltage / current Ohms (Ω)
24	What is potential difference and what are the units for potential difference?	Is a measure of how much energy is transferred between two points in a circuit. Volts (V)

25	What is the pattern for potential difference in a series circuit?	It is split between the components.
26	What is the pattern for potential difference in a parallel circuit?	It is the same throughout the whole circuit.
27	What is an ohmic conductor?	Conductor where current is directly proportional to the voltage so resistance is constant (at constant temperature.)
28	What happens to the resistance of a filament lamp as its temperature increases?	Resistance increases
29	What happens to the resistance of a thermistor as its temperature increases?	Resistance decreases
30	What happens to the resistance of a light-dependent resistor when light intensity increases?	Resistance decreases
31	Why is the current provided by a cell called a direct current? (d.c)	Only flows in one direction
32	What is an alternating current? (a.c.)	Current that repeatedly reverses direction
33	What kind of current is supplied by mains electricity and what is the frequency and voltage of mains electricity?	Alternating current 50Hz and 230V
34	What colours are the live, neutral and earth wires in a three-core cable?	Live = brown, neutral = blue, earth = green and yellow stripes
35	What is the function of the live wire in a plug?	Carries the Alternating Current to the device
36	What is the function of the neutral wire in a plug?	Completes the circuit so that current can flow
37	What is the function of the earth wire in a plug?	It is a safety wire to stop a device becoming live, if there is a fault.
38	What is the national grid?	A system of cables and transformers that links power stations and consumers.
39	What do step up transformers do to electricity?	Increase the potential difference and decrease the current.
40	Why do step up transformers increase efficiency?	To reduce the energy lost as heat to the surroundings
41	What is specific heat capacity?	The amount of energy required to raise the temperature of 1kg by 1'C.
42	What is specific latent heat of fusion?	Energy needed to change 1kg of the substance from a solid to a liquid at its melting point, without changing its temperature.
43	What is specific latent heat of vaporisation?	Energy needed to change 1kg of the substance from liquid to vapour at its boiling point without changing its temperature.
44	Name the three types of nuclear radiation.	Alpha, Beta and Gamma
45	What is radioactive activity?	The rate at which a source of unstable nuclei decays
46	What is meant by count rate?	Number of decays recorded each second (by a detector, e.g. Geiger-Muller tube.)
47	What is meant by the half-life of a radioactive source?	Time taken for half the unstable nuclei to decay or the time taken for the count rate to halve
48	What is an isotope?	Atoms of the same element (same number of protons) but different numbers of neutrons
49	What is irradiation?	Exposing an object to radiation

50	What is radioactive contamination?	Unwanted presence of substances containing radioactive atoms on or in other materials
Physics Paper 2		
1	What is a scalar quantity?	It has magnitude (size) only. For example: time, voltage, energy.
2	What is a vector quantity?	It has a magnitude and a direction. For example: velocity, force, displacement.
3	We represent vectors with arrows. What do the length and direction of the arrow show?	The length represents the magnitude and the direction shows the direction of the vector.
4	What is a force?	A force is a push or pull that acts on an object due to the interaction with another object.
5	What is a contact force?	The objects are physically touching. For example: friction, air resistance, tension and normal contact force.
6	What is a non-contact force?	The objects are physically separated. For example: gravitational force, electrostatic force and magnetic force.
7	What is weight?	Weight is the force acting on an object due to gravity.
8	What causes the gravitational force close to the Earth?	The mass of Earth causes the gravitational field around the Earth.
9	What is a resultant force?	A number of forces acting on an object may be replaced by a single force that has the same effect as all the original forces acting together
10	What is the same about the interaction pair of forces when two objects interact with each other?	The forces are the same magnitude (size).
11	What is the centre of mass?	The point through which the weight of an object can be considered to act.
12	What is elastic deformation?	An object can go back to its original shape and size when deforming forces are removed
13	What is inelastic deformation?	An object does not go back to its original shape and size when deforming forces are removed.
14	What is the difference between distance and displacement?	Distance is a scalar quantity and only has a magnitude (size), displacement is a vector quantity and has both magnitude and direction.
15	What is the difference between speed and velocity?	speed is a scalar quantity and only has a magnitude (size), velocity is a vector quantity and has both magnitude and direction.
16	What are the typical speeds of a person walking, running and cycling?	1.5m/a, 3.0m/s and 6.0m/s respectively
17	What are the typical speeds of a car and a train?	13-30m/s and 50m/s respectively
18	What is a typical speed for sound traveling in air?	330m/s
19	What is acceleration?	Change in velocity of an object per second
20	What are the units of acceleration?	m/s^2
21	State Newton's First Law:	An object at rest will remain at rest and a moving object will continue moving at constant velocity as long as no resultant force acts on the object.
22	What is needed for velocity of an object to change?	An unbalanced/resultant force

23	What is inertia?	The tendency of objects to continue in their state of rest or of uniform motion is called inertia.
24	State Newton's Second Law:	The acceleration of an object is proportional to the resultant force acting on the object, and inversely proportional to the mass of the object
25	What is the word equation for Newton's Second Law?	force = mass x acceleration
26	State Newton's Third Law:	Whenever two objects interact, the forces they exert on each other are equal and opposite.
27	What is the stopping distance of a vehicle?	It is the sum of the distance the vehicle travels during the driver's reaction time (thinking distance) and the distance it travels under the braking force (braking distance).
28	For a given braking force, how does stopping distance change with speed of the vehicle?	For a given braking force the greater the speed of the vehicle, the greater the stopping distance.
29	What can affect a driver's reaction time?	Tiredness, drugs and alcohol. Distractions may also affect a driver's ability to react.
30	What factors may affect the braking distance of a vehicle?	The braking distance of a vehicle can be affected by adverse road and weather conditions (such as wet and icy) and poor condition of the vehicle (such as the brakes and tyres).
31	What can happen if the braking force used to stop a vehicle is very large?	Brakes may overheat/car may skid
32	What are the two types of waves?	Longitudinal and transverse.
33	Describe a transverse wave.	Oscillations are at right angles, perpendicular, to the direction of travel.
34	What is an example of a transverse wave?	Water and electromagnetic waves.
35	What is the amplitude of a wave?	The maximum height of the wave from the centre line.
36	What is the wavelength of a wave and what is the unit?	The distance from one point on a wave to the same point on the next wave. E.g. peak to peak or trough to trough. The unit is metres
37	What is the frequency of a wave and what is the unit?	The number of waves per second and Hertz (Hz)
38	Describe a longitudinal wave.	Oscillations are along the same direction as the direction of travel.
39	What is an example of a longitudinal wave?	Sound
40	What is an area of compression on a longitudinal wave?	Where the waves are close together.
41	What is an area of rarefaction on a longitudinal wave?	Where the waves are far apart.
42	What are electromagnetic waves?	A spectrum of waves that travel at the same velocity through a vacuum or air.
43	List the EM spectrum from long to short wavelength.	Radio, microwave, infrared, visible, UV, X-rays, gamma
44	What is refraction?	A wave changing speed (and therefore direction) when it is being transmitted through a material.
45	A wave is refracted from air into a glass block- what direction will the wave move?	The wave will slow down as the medium has got more dense- therefore the wave will refract towards the normal.
46	A wave is refracted from a glass block into air- what direction will the wave move?	The wave will speed up as the medium has got less dense- therefore the wave will refract away from the normal.

47	What happens when like and unlike poles are brought together?	Like = repel, unlike = attract
48	What is the difference between a permanent and an induced magnet?	Permanent magnet produces its own magnetic field, induced is a material that becomes magnetic when it is put in a magnetic field.
49	What materials are magnetic?	Iron, nickel, cobalt and steel.
50	What is a solenoid?	Conductive wire that has been coiled.