I paste the document back, someone deleted it why is it like this, someone make a new one and copy it and send it

Edexcel a level unofficial mark scheme Paper 3

How did we find the paper - tally
Excellent: I
Good:|I|
Mid: |||
Not good: |||II||I|||
Shit: |
Thought it went well until I check unofficial ms

Question	number of marks		Answer
1a) Define first ionisation energy	2		energy (enthalpy change) needed to remove 1 mol of electron from 1 mol of gaseous atoms to form 1 mol of singly charged gaseous ions. Standard conditions
What group is the X Y and Z	2		I said Group 1 because ionisation energy jumped high after 1st IE. Jump due to breaking into an electron shell closer to the nucleus, which experience stronger electrostatic attraction that need more energy to overcome
which one has the highest atomic number	3		Lowest ionisation energy = highest atomic number X No it's Z with the highest ionisation energy

			no because ionisation energy decreases down group 1 **Which one (lit crying) - the first one you can check on google** **Z is for periodicity i guess**
Prop-2-en-1-ol mechanism with HBr	**3?**		
number of geometric isomers	**1**		**4, there are two double bonds, so 2^2** **could it be 8 bec each double bond make a cis and a trans isomer.**
why can't one of them have geometric isomerism	**1**		**the LHS CH2 is bonded to two hydrogen, the species are the same, hence no isomer**
what is solubility in water	**3**		**The funky long molecules less soluble, due to the long non-polar carbon chain disrupting the hydrogen bond between water molecules and the alcohol group** **I also said the magnitude (strength) of London forces between the long non polar one and its molecules outweigh the magnitude of H bonds between the molecule and water so it is less soluble**

Why are the Ch2 groups at right angles to each other	**2?**		**I said because the 2 p orbitals of the central carbon are perpendicular, and p-orbitals overlap in parallel in a double bond**
draw the addition polymer	**2**		**N monomer - [-repeating unit-]n I draw a repeating unit, didn't say draw a combination of 2 or 3 monomer. idk**
Ka of weak acid	**1?**		**4.6 (?) Anyone get like 4.6 x 10-4**
NaOH pH after neutralization I swear it was just find the ph of the NaOH	**2**		**I said around 12.6 (? 11.3?**
Neutralization curve	**3**		**pH increases quickly at first Then increases more slowly Straight line at 20cm^3**
pH at the half equivalence point	**1**		**4.7?**
Ka value at the half equivalence point	**3?**		**pH=pKa Ka=10^-pH**
Explain why addition of HCl does not affect the pH	**3**		**Large reservoir of propanoate ions and propanoic acid Hcl protonates propanoate, forming propanoic acid So ratio of propanoate and propanoic acid remains relatively constant, so pH is relatively constant**

			There isn't a large reservoir of propanoate ions however I swear? Is it not propanoate ions react with HCl to form the weak acid hence equilibrium shifts to right to remove the weak acid but large resevoir of propanoic acid means that the increase in acid conc is negligible hence equilibrium shift and thus increase in H+ conc is negligible.
Ethanol moles:	**5**		**9.9x10-4**
Ethanol g dm-3:	**3**		**114**
Suggestion of technician (using reflux)	**2**		**Advantage: faster / goes to completion** **Disadvantage: ethanol mixes with chromate so cannot be ti**
Reasons for using data logger over probe:	**3**		**Can monitor pH continously, produce a pH time graph** **Mitigate human error** **More accurate (I think pH meter measure to decimal of pH)** **No interpolation to get value of pka?** **Adding 1cm3 every time takes a long time**
why do you have to quench the reaction ?	**2**		**So the reaction doesn't continue in the extracted**

			sample. Allows time for titration to be carried out
What is used to quench the reaction?	**1**		• **NaHCO3 (is it not sodium thiosulfate? ??)no** • **NaOH also possible answer**
what is the reaction between the sulfuric acid and the Nahco3	**2**		***(neutralization with sulfuric acid) Oh did u have to show whole reaction? Woops i just showed it with respect to hydrogen ion rather than sulphuric acid**
Even though the iodopropane is an eye irritant, it can be done not in fume hood	**2**		**I say iodopropane is not gas, and does not release corrosive fume. Idk No toxic fumes released?** **Yeah that's what I said and just said that unless she drank it or snorted it she would be chill** **I said mass of products relative to volume of solution would be small so very dilute so risk is mitigated?**
Plot graph of titration	**2**		**Straight line graph, negative gradient, all point pass through LOBF WAIT NEGATIVE??**
Why does this experiment only	**4**		**Because propanoic acid is in large**

investigate the rate with respect to iodine concentration			**excess (0.05 mols compared with 0.001 mol) i think**
Why can titre volume be plotted not conc	**1**		**Titre volume directly proportional to conc of iodine**
Determine order wrt iodine	**2**		**Zero order Because straight line**
show that the empirical formula is the molecular formula for cobalt complex	**2**	**kg**	**Divide each mass by molar mass to find mole, divide all four mole by the smallest mole to find simplest ratio. Ratio same as the given formula Then just take the empirical formula you found, add up the masses of elements in it, then you get a value equal to Mr, proving equality**
Calculate number of moles of chloride ions from AgCl ppt	**2?**		**1 to 1, mole of AgCl same as mole of Cl (3.169*10**-4 or smth) Yessir**

draw shape of of Q complex and find charge	**3**		**Octahedral, 2 Cl and 4 NH3** **It had 4 NH3 and 3 Cl right?** **Ohhhhhhhh yeah octahedral yerp** **It does say you use above answer, so i guess 1 mole of CL is removed?** **I thought that was for determining charge of the complex** **I could be wrong, CL is like big, it don't fit in octahedral idk** **Me also, just thought it was unlikely for there to be chloride ligands with the ammonia as well** **4 ammonia and 2 chloride ain't gonna fit it's 4 ammonia around co** **Why tf did I draw [Cocl4]**
(NH4)2CO3, K2CO3, K2SO4 testing	**6**		**Test for the NH4: use dilute naoh + warm in water bath and that form nh3 which turns red limus blue** **Tests for the carbonates: acid + limewater / effervescence**

			Decomposition of metal carbonate releases co2 turns blue to red? **Tests for sulfates: HCl+BaCl, forms white precipitate** **Did we have to show the test for K+? Cause it said anions and cations?**
Define dynamic equilibrium	**2**		**rate of forward reaction is equal to the rate of backward reaction and reaction occurs in a closed system ?** **Conc of reactants and products are same** **Constant pressure**
Using entropy and equilibria, explain which complex ion is more stable	**4**		**Kc lay well to RHS for EDTA complex, also more of an increase in entropy 3 mole of reactant form 7 mole of product, ligand substitution link to Chelate effect,** **when formin** **Oh god this is right i said NH3 NOOOOO**
Suggest an improvement to the student's technique (pouring acid from beaker to burette)	**1**		**Don't pour overhead do the pouring on the ground** **(Did anyone say wear gloves? Coz the girl doesn't wear gloves)**

			I said move on a chair, or other platform so the burette top is at least eye level, to reduce risk of spilling **I said make sure the burett touches the funnel because she was holding a fair bit above so it could spill.**
The students method did not give reliable results, how can you change the method for titration	**4**		**What did u put for this** **I defo got this one wrong icl I just remember being confused when I read this** **Repeat titration** **Use starch indicator**
The student didnt remove the funnel, effect on n	**3?idk**		**no effect, since not all acid in burette added to the beaker, additional acid in the burette would do nothint** **how? surely the titre would be less** **Change in volume is lower than expected** **So volume of reacted naoh is greater** **So mol of acid is greater but mass is constant** **So Mr is lower** **So n is lower than expected** **I thought it would still round to same integer value of n**

			so overall n would be unchanged **Smaller change in volume so smaller titre so smaller moles of HCL so more NaOH moles initially reacted meaning more moles of big acid meaning smaller mr value so n is smaller** **Guys how sure are we on n being smaller? Im seeing different answers everywhere**
why was it in a warm room for 24 hours	**2**		**Vapourise ethanol Leave so goes to completion**
Tactician suggestion for and against	**(rep ated)**		**For: Much faster, the original method take 24 hour, oxidation under reflux like 20 minutes** **Against:** **Against, I said that using reflux might just lead to ethanoi b c acid messing up dichromate ions somehow. Just made shit up tbh**
Proton nmr	**5**		**Areas: 2, 6, 2, 3** **Shift: 2 alkane shifts, one ether, one carbon attached to an arene shift (around 1.5-3)**

			Splitting: singlet, singlet, quartet, triplet
Synthesis	**4?**		**1st intermediate: change OH to Br 2nd intermediate: change Br to MgBr 3rd intermediate: basically the product but OH is replaced with -O+MgBr Reagent: dilute acid (HCl)**
Benzene mechanism question	**3?**		**Mechanism with an arene and So3**
Standard solution question	**4**		**-transfer the solution into a 100cm^3 volumetric flask -transfer the washings into the volumetric flask -fill up the flask to 100cm^3 with distilled water -invert many times to make sure that the solution is evenly distributed/mixed/ homogeneous**
buffer calculation question	**4**		
Recrystallisation practical questions -removing soluble impurities	**3 or 4**		**-suction filtration -rinsing the crystals with a little bit of cold water**

Recrystallisation practical continued -removing solid impurities	**2**		**-hot filtration - gravity filtration??? Hot filtration is apparantly a type of gravity filtration? Idk if you had to be more specific tbh**
Practical Question -they found colourless liquid in the burette before the titration what should they do	**1 or 2**		**-rinse it with distilled water then rinse it with the sulfuric acid**
Water of crystallisation question	**5**		**n=2**

Total marks:

lets write em all out then organise later

General consensus seems like 9.9x10-4 moles for ethanol I think, but yeah looks like that method is right
I got like 0.0009355 something like those digits
That seems pretty close, possibly rounding error with your or my calc?
I didnt round anything tho ? but i may have got the order wong yeah
It was half of the dichromate right? - like just so happened to be
2:3 relationship between dichromate used and ethanol produced I think
Question said dichromate used in titration was the left over dichromate from the ethanol reaction
Oh not sure tbh
Yeah maybe, it was definitely around 9 tho no doubt
Idk maybe im bugging but i think I got it right and you as well
Just im remembering my answer a bit wrong

Surely there's more than 4 stereoisomers bc you can also have the other stereoisomer for each option sorry idk how to explain this

I said 2^16 isomers 💀 no deal
😭😭I think I said like 8 maybe?

Just what I did for ethanol gdm3 - not sure if its right:
Moles of ethanol x 50 (5cm sample to 250)
Then divide by 250 to get conc
Then multiply by mr of ethanol

Why are you multiplying concentration by mr to get mass😭

Grignard reagent question
add magnesium next to the Br,
With the KBr was it literally just bromination so bromine replacing OH? I was a little scared of that / yes

Final reagent i said hcl and the intermediate had an o- where the H added / I had this but with the MgBr on the oxygen

You react it with acid eg HCl
Yeah I said basically that but said LiAlH4 in dry ether as reagent cause wasn't sure, might be multiple reagents? Oh crap oh well ¾ marks I'll take it

Proton NMR question
All are CH2 and CH3, so same shift? (0-1.7)
No one of them is h-c-c=c which includes arenes and is a different shift
I think one of them had a carbon attached to an alcohol so it has a higher shift (ppm)
yeah think so, even if ppm wrong you get like 2 or 3 marks just from type lol

Did anyone get like 1.1 something for a question?? Maybe it was the buffer questions
actually yeah 1.14 I think around that
This was for conc of propanoic acid right

there is like 2 singlet, 1 quartet and 1 triplet I think

Women with burette

I said do it on the floor mate why would she do it on the floor what if there's a dog in the lab and she pours it on the dog -
Am more of a cat person so couldnt care less
REAL

feed da dog acid

*** Here is a picture of my dog. Thanks to your technique the girl poured acid on him and he perished. Think about your criminal activities next time you take A-Level Paper 3 vro……**
I take back what I said then you have a model dog

I said use a funnel with a bigger rim cause she was looking real shaky with the tube in that image

THAT WAS WORSE THAN P2

What was the electrophilic addition mechanism
Because the Br on the product was on the 3rd carbon but wouldn't it be more stable on the second C+ ? it said u need to form 3-bromopenten-ol or smt but it had to primary bec they said make it '3-bromo' they didn't want us to make the major product wait so the bromine would be on the left hand side Yes OH would be on first carbon 1 and Br would be on carbon 3

Okay good