BOARD OF STUDIES
NEW SOUTH WALES

Q29

a)(i) Galvanomic cell

(ii)

oxid $Fe^{2+}+2e^- \rightleftharpoons Fe(s)$	-0.44 v	x no use
Red $Cu^{2+}+2e^- \rightleftharpoons Cu(s)$	0.52 v +	
$Fe(s) \rightleftharpoons Fe^{2+}+2e^-$	0.44 V	
$Fe(s)+Cu^{2+}+2e^- \longrightarrow Cu(s)+Fe^{2+}+2e^-$	0.96 V	

b) because they sat and worked on these experiments for months to work out what was happening it meant that our scientists today already had a foundation to work from and already know the basics of electron transfer reactions so therefore it is easier to discover new things about it.

a)(i) in the case of wood they use water treatment & rinse the salt out & unbill the salt has been removed and then the artifact is constantly kept wet to stop it from distintegrating

c) (i) A chemical Rinse (or Reacts with) which absorbs salt

(ii) In the case of wood it is kept constantly submerged to stop it from disintigrating from contact with air, it is given various chemical treatments to clean and stabalise its structure with as little invasive work as possible

d) (i) the ~~prac~~ procedure I did in class consisted of a number of Conical flasks in each of the flasks we set up a different Condition and placed an Iron nail inside it to monitor the Rate of corrosion. the conditions used where 2x1.0m NaCl solution open to Air 2x 1.0m NaCl solution boiled out O_2 on evacuated flask 2x 2.0m NaCl solution open to Air 2x3.0M NaCl solution OtA 2x plain H_2O open to air and 2x 1.0M NaCl(aq) with Air being bubbled through it. this test was to see whether Salt was the only contributing factor or if others had an effect as well

(ii) over the short period of time in which our experiment took place we noticed that the fresh water open to Air and the salt water open to Air had very similar rates of corrosion whilst the ones with Air being bubbled reacted faster the evacuated one didn't corrode at all, and the flask with higher concentration of NaCl Reacted faster than 1.0M open to Air but slower than 1.0M with Air being bubbled through

So in Conclusion our experiment did support that the concentration of acid does contribute but other conditions also vary the Rate of corrosion.

e) the effects of Corrosion can be affected by the depth of the ocean in many different ways through experiments that we did in class we learned that factors such as temperature, pressure, concentration of NaCl, turbidity and Oxygen levels are all ~~major~~ Contributing factors. ~~The~~ structure of the bottom can also affect Rate of corrosion for example on a Sandy bottom the sand is constantly ~~Ripping~~ at the surface exposing new surfaces to be corroded. ~~The~~ temperature speeds or slows the reaction to an extent in cold water the reaction is slower ~~Sea~~ deep water is ~~quite~~ likely to be colder than shallow ~~Oxygen~~ Oxygen levels can be affected by the turbidity of the water eg if a wave is breaking on a wreck it gets a higher concentration of Oxygen to a wreck on the bottom

of the ocean.