

216. d. Q33.

-3-

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c.

4% carbon it also includes Si and Mn allowing this alloy to be hard and strong yet also malleable and workable. It is used for nuts, bolts, machinery due to its malleable and tough simultaneously tough properties.

Steel 4 is the strongest and toughest out of all 4. The addition of Chromium and Nickel heighten the stiffness and the tensile strength and it is completely un-malleable. It will not bend at all. This is useful in surgical instruments, Chromium and nickel also make it corrosion resistant making it useful in surgical instruments, special machinery and other high tech appliances.

d) Firstly <sup>4</sup> test tubes ~~are~~ are separated. One is filled with water and iron is put in with a stopper on top. Another ~~one~~ just contains iron in open air (no stopper). Thirdly another is filled with water and iron filings with no stopper and lastly another test tube is filled with a slightly acidic solution, iron and no stopper.

continued.

You may ask for an extra Writing Booklet if you need more space.

Continued d) to e)

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i) The 4 test tubes are left alone for a week in room temperature conditions. Afterwards it is noticeable how test tube 1 and 2 do not corrode yet test tube 3 corrodes and test tube 4 corrodes rapidly showing hydrated iron oxide.

It is evident how corrosion can only occur in the presence of oxygen and water and is accelerated in an acidic climate.

ii) Less dissolved oxygen is in the depths of the marine environment.

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