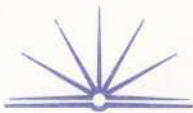


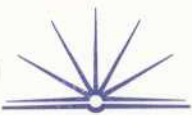
Question 23.

a) i) In the BNF technique shown, certain ~~elements~~ ~~undefined element~~ elements such $\langle \text{hexadecimal} \rangle$ and $\langle \text{decimal} \rangle$ have not been defined in the syntax of the used by this new network communication system. This can be a problem because when the element $\langle \text{number} \rangle$ is used, there is nothing in the syntax which states what a ~~hexadecimal~~ $\langle \text{hexadecimal} \rangle$ is, therefore resulting in an error.

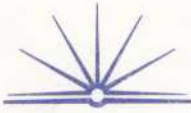
ii) $\langle \text{hexadecimal} \rangle ::= \langle \text{digit} \rangle \mid \langle \text{hexadecimal} \rangle$



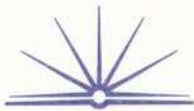
b.) Emerging technologies with regards to networks is fairly widespread. The development of neural networks have the ability to imitate human thought through multiple processors each having their own memory allocation. If this technology improved the speed of the doctors system communication would be incredibly high. With the creation of the internet the communications between practises in immediate towns can be immediate through email and web pages and so if the network were to fail, then information could ^{easily} be shared in this way. The creation of parallel processing or connecting to one server (concurrent) does tend to allow information and communication to be easily and



usage therefore could be improved
in speed \rightarrow Quantum computing through
elements of
atoms (protons / electrons) representing
0's and 1's is extremely fast and
the Doctors ability to communicate
would be instantaneous. Video-
conferencing would allow for visual
communication between those in
the network.



c) i) The analyst would need to question the management of the practice to find out what kind of data ~~has~~ needs to be represented by the system. The needs of the everyday users of the system ~~are also important~~ could be met by by finding getting their input on ~~the~~ their needs, especially with regards to the interface & how ^{information} data is to be output from the system.



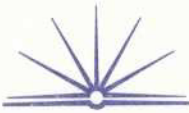
ii) End user development would seem to be unsuitable for this ~~so~~ ^{solution} problem as the problem is fairly complex, time is critical (3 marks limit) & the users only have a basic knowledge of computers.

RAD would be more appropriate as time is a factor, but would still seem unsuitable due to the complexity of the problem.

Also, ~~is~~ RAD lacks formal stages and documentation often suffers as a result. This means that future ^(which will probably happen as technology is moving forward) modification, updating etc will be hard due to poor documentation. Dependency on the speed

~~Prototyping~~ ^{still} would be good if the team works at, RAD may be the best option, in order to complete the project in time.

Prototyping would be good ^{if} user interaction were more critical, and ~~would~~ the most user friendly interface would certainly be developed using this approach, but since lots of this problem involves "behind the scenes" operations such as handling of payments and patient records, the structured approach may be more suitable if the team can work fast enough. In the structured approach, the documentation would be good, & ~~since~~ the quality would be high, with less errors than software produced using the other approaches. This smooth running



of the software would seem to be important as the practice needs the solution up and running well by the time the practice amalgamation occurs. If time allows for it, this approach would be best, otherwise, RAD would be more suitable.