Q23

~~ai) BNF becomes messy for defining non-terminal variables if they contain many characters or words, etc.~~

Q23)

ai) BNF technique is inefficient when it comes to repetitions or recursions. Since BNF does not support this, rather relying on defining each non-terminal variable by manual repetition. This was fixed in the extended Backus Naur Form which allowed for repetitions.

ii) <hexadecimal> ::= <letter> | <digit>

<letter> ::= A|B|C|D|E|F

<digit> ::= 0|1|2|...|7|8|9

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b) The main problem in this scenario is the isolation of the country towns from the city. This may prove a problem for computers in the towns with the lack of resources available from the city. The introduction of networking allows communications between the medical practice and the city. This allowing them to have resources and updates for their computer system.

Due to the fact that the practice has different doctors and offices in their respective towns, communication between fellow doctors may be a problem. The small country towns may lack any communication system could depend upon the introduction of a ~~netwo~~ networks system. This enables the practice to store and gather data to a common database. Communications between doctors would be simplified allowing them to consult each other for information or help.

The use of this system would greatly improve

efficiency and time of the practice. In turn, both patients and doctors would be beneficial of the efficiency.

ci) An analyst would need consider the user of the system. This would mainly be the doctor or secretary of each town. The analyst could use primarily the prototype of the ~~sto~~ system which is the most efficient way to involve the user as well as obtain feedback. The prototype would give the clients a hands-on experience and preview the interface of the program. In return, the clients would return feedback, allowing for better defining of the problem and improvements.

Another method of involving the different users is through the use of surveys and interviews. ~~This~~ is important in revealing the criteria of the doctor's use and therefore allowing better understanding of the problem. The survey or

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interview would enable the analyst to list the requirements needed through the information given by the clients.

ii) Since there is a time constraint on the development, the best approach is the Rapid Applications Development. RAD approach is designed to meet a certain time limit since it does not undergo all the formal stages of the full software development cycle. The 3month requirement would allow for the RAD approach. However, RAD does not go through the precise steps and therefore the product may not turn out as high quality as expected. The heavy use of CASE tools for the RAD approach is suited to the small town situations since there are few resources available (such as major programming languages).

The use of the prototype approach would

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do suit this situation as the prototype is able to meets time constraints. In addition, the prototype approach allows for more effective feedback ~~allows~~ which is needed for the short period of time provided.

The formal software development cycle approach would only be the final resort since it can be adjusted to the time limit. If the other two approaches does not seem to solve the problem to the best ability, then the use of the software development cycle could provide a quality product. However, it would need to be rushed and proper resources ~~used~~ need to be found.