

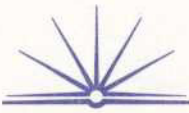
## Question 23

a) i) BNF is similar to EBNF only has less functions. One of the functions lacking in BNF that we see in this diagram is its inability to easily show repetition. This makes things like defining 'integer' more difficult as 'integer' can be comprised of any number of digits.

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

$\langle \text{digit} \rangle ::= 0 | 1 | 2 | \dots | 8 | 9 | 10$

$\langle \text{letter} \rangle ::= A | B | C | D | E | F$



b Due to the emerging network communications there will be increased and more efficient interaction between the doctors. Files can be shared, <sup>accessed</sup> and distributed easily within the network. Although the issue of privacy may be breached due to ease of access along a network, viruses would spread easily if one computer became infected. The use of this system has positive and negative effects. It is ~~up to~~ how it will be used, that its benefits will seem more obvious.

(c) (i) they could use the patients to see what they prefer when they visit the doctor. This provides for understanding what patient want and trying to implement it if possible. Also they could involve the doctor and receptionists in the way the user interface is designed and the inputs needed and outputs needed and the way in which it is done without the system to try and incorporate what is regularly done into the system.

(ii) The different software development approaches available for this would include: the structured approach, prototyping and Rapid Application Development. The structured approach is formal and ~~may~~ <sup>lead</sup> may ~~lead to~~ a more efficient system as all components are carefully created, implemented and tested. But with the time frame of 3 months, it may not be possible to implement the system within that time as it usually takes ~~at least~~ <sup>a long</sup> a long process to complete the structured approach. A prototyping approach could be taken to get feedback on a model and make it into a working system. This has the advantage of identifying exactly what the user wants whilst it could lead to problems in the system as steps taken are not clear and constant modifications need to be implemented to eventually make it into



a working model. The rapid application development is quite suitable for a time frame of 3 months as programmers could use other programs as a templates or guide or even implement parts into their program. However quality and reliability of system may be sacrificed ~~as~~ as the integration of all different components may lead to conflicts within ~~the~~ the system.