CMP 406: EXPERT SYSTEM C/A TEST 2013/2014 SESSION
Instruction: Answer all questions in the spaces provided.

1) Answer true or false
   a) Knowledge can be classified into procedural knowledge, declarative knowledge ad priori knowledge _____
   b) Knowledge refers to rules that are activated by facts or other rules. _____
   c) Expert systems draw inferences based on facts and knowledge_____
   d) Expert systems draw inferences by searching for underlying patterns _____
   e) Knowing how to stand is an example of declarative knowledge_____
   f) Semantic nets are generally represented by undirected graphs. _____
   g) Semantic network are less reliable than other knowledge representation techniques because inferring become a process of searching across the diagram _____
   h) Frames organize knowledge into structure. _____
   i) Expert system languages (like CLIPS) focus on ways to represent knowledge. _____
   j) High performance, understandable and creative are the characteristics of an expert system. _____
   k) Forward Chaining can be referred to as Bottom up reasoning _____
   l) In trees, Every node has exactly one parent _____
   m) Degenerate trees have only a single pathway from root to its one leaf _____
   n) Every node in a tree must give rise to zero or more child nodes _____

2) The technique of establishing the facts from the knowledge base of an expert system to prove a given goal is known as _____

3) The process of extracting the knowledge from experts to build an expert system is known as
   _____

4)   (a) Write a set of production rules to identify 2 types of fever based on symptoms
        (b) Modify the rule so that it will also recommend the treatment once the disease has been diagnosed

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5) Write the truth table for the following logics, given their definitions:
a)   Neither p or q $\neg (p \lor q)$
b)   P unless q $\neg q \to p$
d)   P because q $(p \land q) \land (q \to p)$

6) Draw a line in each case to match the following words to their meanings below following the given example
a. Procedural Knowledge   A knowledge that refers to knowing that something is true or false
b. Declarative Knowledge   A knowledge that comes before and is independent of knowledge from the senses
c. Tacit Knowledge   A knowledge that is considered to be universally true and cannot be denied
                                 without contradiction
d. a priori   A knowledge that is often referred to as knowing how to do something
e. a posteriori   A knowledge that is difficult to transfer(An example is knowing how to move
                                 your hand

7) Consider the statement below:
i)   Mariam is an instance of a trainer, and trainer is a type of consultant.
ii) A trainer trains a programmer and a programmer is an employee.
iii) Hamed is an instance of programmer.
From this we can see relationship that may exist between Maryam and Hamed. Draw a semantic diagram representing relationship between Maryam and Hamed, indicating, in the process, the relationship between the trainer, consultant, programmer and employee.

8) By considering the followings specific computer systems, draw a semantic net for computers using AKO and IS-A links: minicomputers, microcomputers, mainframe, supercomputer, calculator, mobile phone, PC, Computing systems, dedicated computer, general-purpose computer, Computer on a chip, single processor, multi-processor, Server system, client system,