DHARMSINH DESAI UNIVERSITY, NADIAD
FACULTY OF TECHNOLOGY
B.TECH. SEMESTER VII [IT]
SUBJECT: (IT714) KNOWLEDGE SYSTEMS

Examination	**: Third Sessional**	**Seat No.**	**: _____**
Date	**: 13/10/2017**	**Day**	**: Friday**
Time	**: 1:15 to 2:30**	**Max. Marks**	**: 36**

INSTRUCTIONS:
1. Figures to the right indicate maximum marks for that question.
2. The symbols used carry their usual meanings.
3. Assume suitable data, if required & mention them clearly.
4. Draw neat sketches wherever necessary.

Q.1 **Do as directed.**

(a) What is the use of *save* and *consult* predicates in prolog? [2]

(b) Give CNF of "You can fool some of the people all of the time." [2]

(c) Consider a fuzzy set old as defined below [2]
Old={(20,0),(30,0.2),(40,0.4),(50,0.6),(60,0.8),(70,1),(80,1)}
Find weak and strong alpha-cut for alpha=0.4.

(d) What is use of Bayes' theorem? [2]

(e) Give Conceptual dependency representation of "John begged Mary for a pencil". [2]

(f) Write prolog code which finds and display factorial of a given number. [2]

Q.2 Attempt ***Any Two*** from the following questions. [12]

(a) Construct a script for "movie in a theater". [6]

(b) Write a note on prolog as an expert system. Also write characteristics and limitation of an expert system. [6]

(c) What is Fuzzy control system? Draw clean diagram for it. Explain each component by taking Air conditioner as an example. [6]

Q.3 (a) Smith only like easy courses. AI courses are hard. All the courses in department-B are easy. C is a course in department-B. D is an AI course. [8]
Convert the given facts using first order logic.
Convert them to Conjunctive Normal Form.
Prove that 'Smith likes C' and 'Smith does not like D' using resolution.

(b) Write prolog code which displays first and last element of the list (it may be of any type). [4]

OR

Q.3 (a) All people who are not poor and are smart are happy. Those people who read are smart. John can read and is not poor. Happy people have exciting lives. Anyone can be found with an exciting life. [5]
Write the given sentences in predicate calculus, using appropriate predicates.
Find the answer that "Has John an exciting life?" using forward or backward chaining.

(b) Assume that the following logic is written in prolog. [7]

```
predicates
go(integer*,integer*)
rev(integer*,integer*,integer*)
clauses
go(X,Y) :- rev(X,[],Y).
rev([],L,L).
rev([H|T],R,Y) :- rev(T,[H|R],Y).
```

Explain every steps how this procedure works if I write go ([1,2,3],L) in goal.
Explain your answer carefully.