DHARMSINH DESAI UNIVERSITY, NADIAD
FACULTY OF TECHNOLOGY
B.TECH - IT - SEMESTER - VII
SUBJECT: (IT 714) KNOWLEDGE SYSTEM

Examination	**: First Sessional**	**Seat No.**	**:**
Date	**: 02/08/2019**	**Day**	**: Friday**
Time	**: 1.45pm to 3.00pm**	**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. **[12]**

(a) Limited DFS is a complete algorithm but it is not optimal. True or false? Justify **[2]**

(b) What are the conditions under which A* works optimally? **[2]**

(c) What is difference between ridge and local minima? **[2]**

(d) Define two heuristic functions for eight tile puzzle. What is difference between underestimate and over estimated heuristic functions? **[2]**

(e) Explain discourse analysis with example. **[2]**

(f) What is the ambiguity and which level of ambiguity present in the given phrase with Natural Language Processing? **[2]**

"John and Mary are married "

Q.2 Attempt *ANY TWO* of following questions. **[12]**

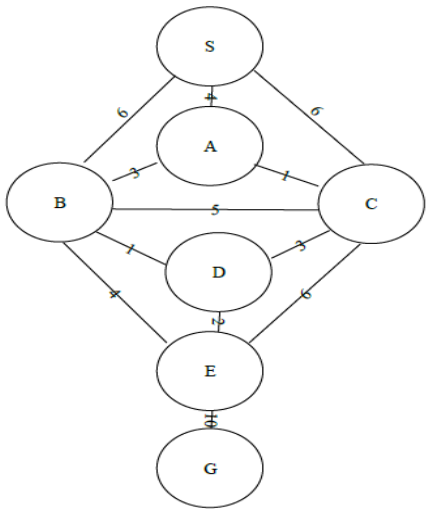
(a) What are the components of NLP? Write in detail about each of it. **[6]**

(b) What is the difference between the search (work) strategy of the following algorithms. Which algorithm will be better in terms of time and space complexity? **[6]**

1. Breadth first search
2. Iterative deepening DFS

(C) Apply best first search and A* algorithms for the given graph. where, Start Node: S and Goal Node: G. Compare the results. **[6]**

Heuristic values are: S—25, A—16, B—3, C—15, D—12, E—0, G—0



Q.3 Attempt following questions **[12]**

(a) Write about seven characteristics of the problem, by taking block world problem as an example. **[8]**

(b) Write prolog code to Accept name of the student, rollno, his subject name, maximum marks and obtained marks in the subject. (Take marks of atleast 4 subjects). Compute the percentage of a student. Display his result with other information. Use variables, arithmetic operators, I/O predicates appropriately. **[4]**

OR

Q.3 Attempt following questions **[12]**

(a) Write prolog code to accept employee name, age, job location, marital status and gender and Display **[6]**

1. List of married & unmarried employees
2. List of male & female employees
3. List of employees for given job location

(b) 1. What are different classes of a production system? Explain each with suitable example. **[4]**
2. How should be the control strategy? **[2]**