NMIMS
Deemed to be UNIVERSITY

SUPERVISOR'S SIGNATURE WITH DATE: Supriya 05-11-14

NAME: Chinmay Parikh

DATE: 5/11/14

TRIMESTER/SEMESTER: VII

DIVISION: A

ROLL NO.: A059

PROGRAMME: B Tech

SPECIALISATION: IT

MODULE (SUBJECT): A.I.

TOTAL NO. OF SUPPLEMENTARY SHEETS ONLY: —

QUESTION NOS.	1	2	3	4	5	6	7	8	9	10	11	12	TOTAL MARKS OBTAINED	MAXIMUM MARKS
(MARKS OBTAINED) (TO BE FILLED IN BY EXAMINER)	3	4	3										10	15

Supriya

SIGNATURE OF THE EXAMINER

INSTRUCTIONS TO BE STRICTLY FOLLOWED BY CANDIDATES

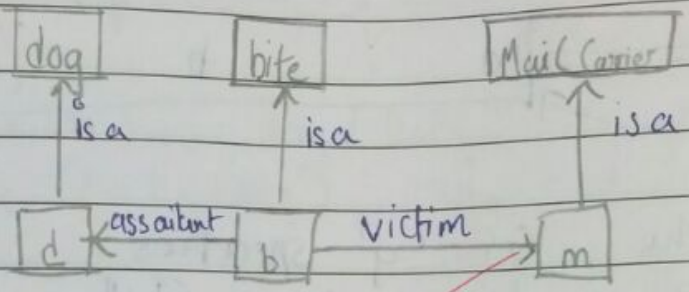
1. This answer-book contains eight pages. Check whether the relevant answer-book provided contains eight pages and whether the pages are properly numbered.
2. Candidates should occupy the correct seats as per the seating plan displayed and write appropriate details in the space provided for the purpose on the answer book.
3. Candidates must produce their photo identity card provided by the University for verification to the room supervisor during the examination. Candidates will not be permitted to appear for the examination without the identity card.
4. As per rules, Candidates, who are not in their seats by the time notified, will not be permitted to appear for the examination.
5. Candidates should ensure that all answer-books including supplementary sheets provided to them bear the signature of the room supervisor and date of examination without which the answer-book will not be examined.
6. Tie all supplementary sheets to the main answer-book relating to the same paper and enter on the first page of the answer-book only the total number of supplementary sheets tied together.
7. Begin answer to each question on a new page. For each answer, write the corresponding question number in the left hand side margin.
8. Do not write anything in the right hand side margin provided for marks to be assigned by the examiner.
9. Candidates will not be permitted to leave the examination hall until half an hour is

Question Nos.

Marks Awarded

1] Semantic Nets represent concepts and their relationships to other concepts, its a form of knowledge representation.

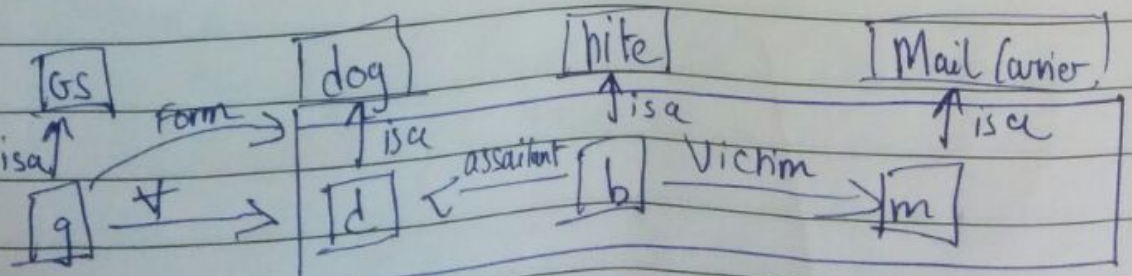
a] The dog bit the mail carrier



Partitioned Nets are used when we want to use part of the semantic net to be represented as one entity.

In the above example we define a dog 'd', biting 'b' of "Mail Carrier 'm'.

b] Every dog has bitten a mail carries, it is similar to the above, hence we use the above as a General Statement, with its form.



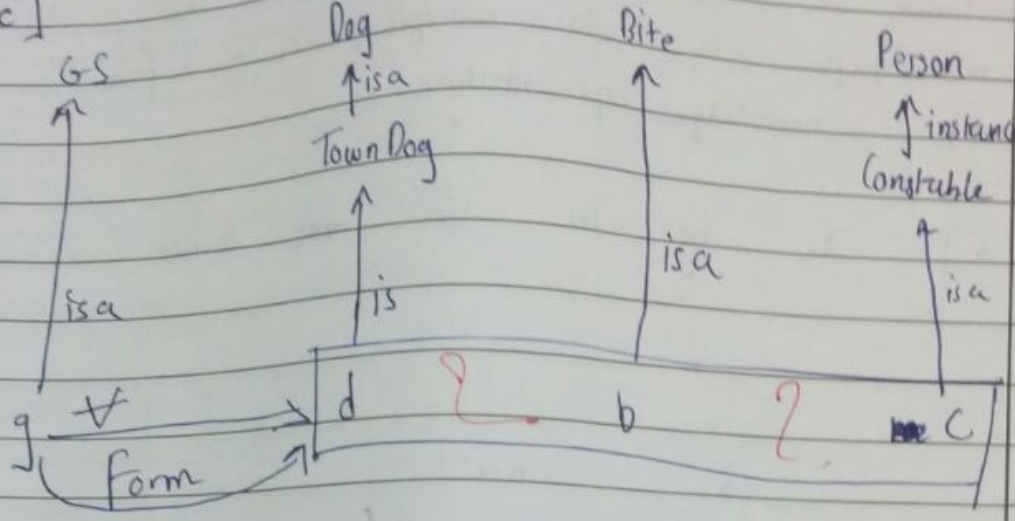
Question Nos.

Marks Awarde

Question Nos.

3]

c]



Here the GS 'g' specifies Every Town dog has bitten a constable 'c'.

3

Question Nos. | Marks Awarded | Question Nos.

2) Need for minmax

In game playing, e.g chess we have a tree with 35^{100} nodes.

To traverse 35^{100} before the time limit expires is very hard, the proposed generate and test would go through all 35^{100} nodes before giving best path,

Here we need a way to only Test the 'good' paths, hence we require a Heuristic Testing method.

But the generation of all posibilities is time consuming hence we also need a way to only generate (1) legal (2) Plausible moves to reduce the number of nodes generated. Hence the need of minmax.

What is Move chem & all etc. ?

Marks Awarded | Question Nos. | Marks Awarded

```
static Eval ( position , player ):
    if player == "Max" :
        return Goodness ( position )
    return - Goodness (position)

moveGen ( position , player ):
    moves = [ ]
    moves = plausibleMoveGen (position, player)
    return moves.

minmax ( position, depth , player ):
    if deepEnough (depth) == True :
        return [Value = staticEval (position, player),
                Path = Null ]
    else
        Successors = moveGen (position, player)
        if Successors == Null :
            return [ Value = staticEval (position,
                                         player),
                     Path = Null ].
        else
            for each s in Successors :
                BestScore = - 10
    rS = minmax ( s, depth+1, opp(player))
                if rS.Value > BestScore
                    BestScore = rS.Value.
                    BestPath = s.append (
                                    rS
                    BestPath = s.Path.append (rS.Path)
```

Question Nos. | Marks Awarded

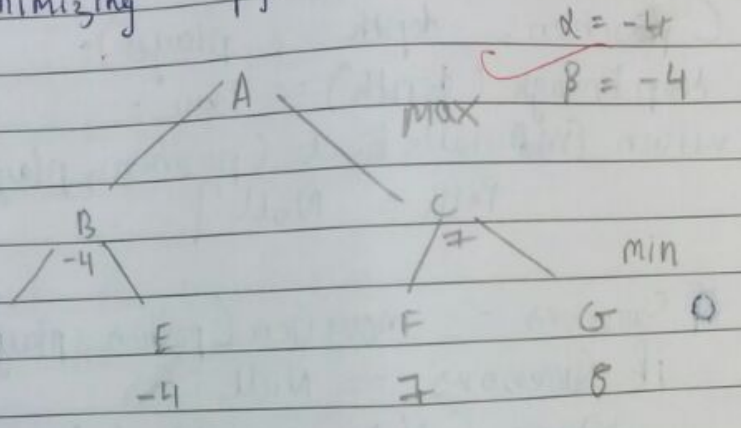
return [Best Value, Best Path].

By only looking and testing the best Paths, we can ignore less 'good' path by avoiding them, this is called pruning.

alpha is the ~~minimum~~ lower bound of the maximizing ply.

beta is the upper bound of the minimizing ply.

(4)



After traversing B (-4) we come to C and check F, where F = 7, Since we know $\alpha = -4$, we continue searching.

in the case Value < α we prune the tree.

and

in the case Value > β we prune the tree.

Marks Awarded | Question Nos.

3] a) $\exists x$, Student(x) $\wedge$ failed (x, History).

b) ~~$\exists x, \forall y$ loves (y, x)~~.

$\exists x, \forall y$, Student(x), Student(y), loves (y, x). $x \neq y$?

c) cat (Fred), dog (Dolly), dog (Max), likes (Fred, Dolly), $\neg$ likes (Fred, Max).

my cat ?

d) For all objects, if they are mushrooms and Poisonous and Purple, return False. or return True ?

$\forall x$, (mushroom (x), Poisonous (x) $\wedge$ Purple (x) $\Rightarrow$ False) $\vee$ True.

c) $\exists x, \exists y, \forall z$,
person (x), people (y), people (z),
fool (x, y, All time),
fool (x, z, sometime),
$\neg$ fool (x, z, All time).

d) Alternate
$\forall x$, object (x), (mushroom (x), (Poisonous (x) $\wedge$ Purple (x)) $\Rightarrow$ False).