18BECE30558
TITHI PATEL

PRACTICAL-8

Program : Write a program to implement BFS (for AI search problem)

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domains
X, H, N, ND=symbol
P, L, T, Z, Z1, L1, L2, L3, PS, NP, ST, SOL=symbol*

predicates
solve(L, L) member(X,L) extend(L, L) conc(X, L, L) breadthfirst(L, L) goal(X)

clauses
solve(start, solution):/*solution is a state from start to a goal*/ breadthfirst ([[start]], solution).
breadthfirst([[node|path]| _ ] ,[node|path]): /*solution is an extension to a goal*/
/*of one of path*/
goal(node).
breadthfirst([path|paths], solution): extend(path,newpaths), conc(paths,newpaths,path1),
breadthfirst(path1,solution).
extend([node|path],newpaths): bagof([newnode, node|path],(s(node,
newnode),notmember(newnode,[node|path])), newpaths),!. extend(path, []).
conc([], L, L).
conc([X|L1], L2, [X|L3]): conc(L1, L2, L3).
member(X, [X|T]).
member(X, [H|T]):
member(X, T).
```

OUTPUT:

goal: solve([a, e], S)
L= [“a”, “b”, ”c”, “d”, ”e”]

goal: solve([a, h],S)
L= [“a”, “b”, ”c”, “d”, ”e”, ”f”, “g”, “h”]