① Are the following applications of AI

a) Finger print touch ID   ✓ ✗   store info only.

b) Speech translation   ✓   NLP

c) Barcode scanners   ✗   signal processing

d) Web search engines based on key word   ✓✗ information retrieval

e) GPS navigation device adaptive to traffic condition   ✓

②

(i) initial state

$(\{ \}, \{M, G, F, P\})$

goal state

$(\{M, G, F, P\}, \{ \})$

(ii) ① Take F   ② Take G   ③ Take P   ④ Leave alone

(iii) $(\{ \}, \{M, G, F, P\})$

$\Rightarrow$ ② $\Rightarrow (\{M, G\}, \{F, P\})$

$\Rightarrow$ ④ $\Rightarrow (\{G\}, \{M, F, P\})$

$\Rightarrow$ ① $\Rightarrow (\{M, F, G\}, \{P\})$ ~~③~~ ③

$\Rightarrow$ ② $\Rightarrow (\{F\}, \{G, M, P\})$ ②

$\Rightarrow$ ③ $\Rightarrow (\{F, M, P\}, \{G\})$ ①

$\Rightarrow$ ④ $\Rightarrow (\{F, P\}, \{M, G\})$ ④

$\Rightarrow$ ② $\Rightarrow (\{F, M, P, G\}, \{ \})$ ②

③ DFS

open	closed
A	[ ]
EBJ	A
FGBJ	EA
GBJ	FEA
HIBJ	GFEA
BJ	IHGFEA ← Goal
CDJ	BIHGFEA
J	DCBIHGFEA
kL	J ⌣
MNL	k ⌣
L	NM ⌣
[ ]	L ⌣

BFS

open	closed
A	[ ]
EBJ	A
BJFG	EA
JFG CD	BEA
FGCD KL	JBEA
CDK LHI	GFJBEA
LHI MN — Goal	KDCGFJBEA
[ ]	NMIHL KDCGFJBEA

IDS

depth=1

A
E   B   J
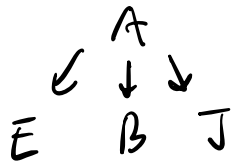
open	closed
A	[ ]
EBJ	A
BJ	EA
J	BEA
[ ]	JBEA

depth = 2

open	closed
A	[ ]
EBJ	A
FGBJ	EA
GBJ	FEA
BJ	GFEA
CDJ	BGFEA
⋮	

depth = 3

same as DFS