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subject :- AI

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Q.1 Explain PEAS descriptor for WUMPUS world

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i) permormance measure :-
- +100 for grabbing goad & coming back to start
- -200 if player is killed
- -1 per action
- -10 for using arrow

ii) Enviroment
- Empty rooms
- Room with WUMPUS
- Rooms neighbouring to WUMPUS which are smelly
- Rooms with bottomless pits
- Rooms with gold which is glitery
- Arrow to shoot WUMPUS

iii) Sensor (assuming Robotic agent)
- camera to get the view
- odour sensor to smell
- Audio sensor to listen to screen bump

iv) ERector (assuming robotic agent)
- motor to move left right
- Robot are to grab
- Robot mechanism to shoot arrow

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Wumpus world agent has following characters :-

a) Fully observable
b) deterministics
c) Static
d) Discrete
e) Sigle agent

Q Explain various elements of cognitive systems.

→

1) Cognitive computing is new type of computive with goal of more accurate models of how human brain / mind sensors, reasons & responds to stimulus

- Generally, the term cognitive computing is used to refer to new hardware and / or software that limit following functioning of human brain thereby improving human decision making cognitive computing applications links data analysis of adaptive page i.e adaptive user interfaces to adjust content for particular type of audience.
- following are elements of cognitive system.

a) interactive :-

They ~~are~~ may interact easily with user so, those users can define their needs comfortably. They may also interact with other processors device of cloud services as well as with people

b) Adaptive :-

They may be engineered to reed on dynamic dat is real time. they

may learn as information changes and as goals and requirements evalue.

c) Contexual :-
- They may understand, identify or extract contexual elements such as meaning syntax, location, approximate domain etc.

d) Interactive OR state :-
- They may used in defining a problem by asking questions or finding additional source input if problems statement is incomplete.

Q. Write a note on language model

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- Goal of language model is to compute probability of token (eeg. sentence or sequence of words) are useful in many different NLP applications.
- language model actually a grammer of language as it gives probability of word that will follow.
- In case of (LN) probability of a sentence as sequence of words is
  $P(w) = P(w_1, w_2, w_3, \ldots, w_n)$
- It can ~~allow~~ also be used to find probability of next word in sentence.
  $P(w_5 / w_1, w_2, w_3, w_4)$
- A model that computes either of there is language model.

~~The~~ There are various languages model available a few are

a) methods using markov assumption :-
- A process which is stochastic in nature is said to have markov property if conditional probability of future state depends upon ~~pre~~ present state.

b) N-Gram models :-
- From Markov assumptions we can formally define models where $k = n-1$ as following.
  $P(w_i / w_1 w_2, \ldots w_{i-1})$

c) Unigram model (K-1) :-

$P(\omega_1, \omega_2 \ldots \omega_n) = \prod P(\omega_i)$

d) Bigram model (K=2) :-

$P(\omega_i / \omega_1 \omega_2 \ldots \omega_{i-1}) = P(\omega_i / \omega_{i-1})$

$(\omega_i / \omega_{i-1}) = \frac{\text{count}(\omega_{i-1} \ldots \omega)}{\text{count}(\omega_i - \omega)}$

Q 4 Write a note on machine translation

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- machine translation is classic test of language Understand - It consists of both language analysis & generation. many machine translation system have huge commercial use following are few of e.g :-
- Google translate goes through 100 billion words per day.
- ebay uses machine translation techniques to enable cross - border trade & connect buyers / sellers ground globe.
- Facebook uses machine translation to translate in order to break language barriers.
- System became 1st software provider to ~~ton~~ launch a machine translation engine in more than 30 languages in 20
- microsoft brings AI powered translation to end users & developers on android IOS & Amazon whether or not they have access to internet

← In ~~addition~~, traditional machine translation system, parallel corpus, a collection of trees is used to each of width is translated into one or more other languages than original.

e.g :- given source language e.g French & language e.g English.

5 → Explain following terms :-

1) Pronology :-
It is study of organizing sounds system otically in an NCP (Natural language processing) systems.

2) morphology :-
It is study of construction of words from primitive meaningful units

3) Lexical analysis :-
- Lexical is words and phase in language lexical analysis deals with recognition & identification of structure of sentences. It divides program in sentences phrases & words.

4) Synthetic analysis :-
- In this sentences are parsed as noun verbs adjective & other parts of sentences. In this phase gramer of sentence is analyze in order to get relationship among different words in sentences.
e.g :- 'mango eats ue' will be register by analyzer.

5) Word sense disambiguation :-

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- While using words that have more than one meaning we have to select meaning which makes most sense in context.

For eg :- We are typically given list of word sence eg - from dichionary or from an oline Resource such as word net.