Total number of printed pages-7

(shuld sit in 199) 3 (Sem-6/CBCS) CSC HC 1

algorithm. 1s an neuristic search

## COMPUTER SCIENCE

(d) The correct (aronoH) ve a problem of

Paper : CSC-HC-6016

(Artificial Intelligence)

state loog Full Marks : 60 load (ii)

Time : Three hours

## The figures in the margin indicate full marks for the questions.

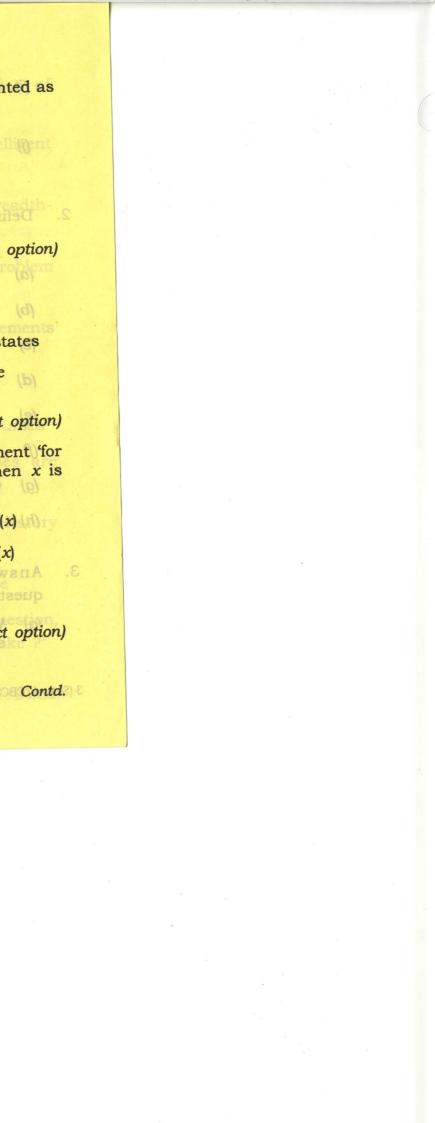
- 1. Answer the following questions as directed : (any seven) 1×7=7
  - (a) Which of the following is not an application of artificial intelligence ?
    - (i) Robotics
    - (ii) Computer vision
    - (iii) Database management system
  - (*iv*) Natural language processing (Choose the correct option)

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<ul> <li>(b) is an informed search algorithm. (Fill in the blank)</li> <li>(c) is an heuristic search algorithm. (Fill in the blank)</li> <li>(d) The correct way to solve a problem of state-space search is</li> <li>(e) The correct way to solve a problem of state-space search is</li> <li>(i) forward from the initial state</li> <li>(ii) backward from the goal state</li> <li>(iii) Both (i) and (ii)</li> <li>(iv) None of the above (Choose the correct option)</li> <li>(i) program</li> <li>(ii) Both (i) and (ii)</li> <li>(iv) None of the above (Choose the correct option)</li> </ul>	<ul> <li>(f) Knowledge in AI can be represented.</li> <li>(i) predicate logic</li> <li>(ii) propositional logic</li> <li>(iii) Both (i) and (ii)</li> <li>(iv) None of the above Choose the correct of Choose the correct of (f) a specific problem state</li> <li>(i) a specific problem state</li> <li>(ii) collection of all problem state</li> <li>(iii) initial state and goal state</li> <li>(iv) None of the above Choose the correct of (f) a scientist (x) scholar (x)</li> <li>(i) ∃ a scientist (x) scholar (x)</li> <li>(ii) All of the above Choose the correct</li> <li>(iv) None of the above (x)</li> <li>(iv) None of the above (x)</li> <li>(x) All of the above (x)</li> <li>(x) None of the above (x)</li> </ul>
3 (Sem-6/CBCS) CSC HC 1/G 2	3 (Sem-6/CBCS) CSC HC 1/G 3 4 0\1 OH OSO (206

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25	(i)	In first order logic, $\exists x \forall y$ is not similar
		to $\forall y \exists x$ . (State True or False)
	(i)	In first order logic, $\exists x \exists y$ is not similar
		to $\exists y \exists x$ . (State True or False)
2. Define the following terms : (any four)		
n)	optio	8=4×2 (Choose the correct
	(a)	Intelligent agent apage ataba (g)
	(b)	Heuristic searcholioage e (i) ate
	(c)	(ii) collection of all present
	(d)	(iii) initial state and reitinug
n)	(e)	Default reasoning
		Path cost nol pigol rabro taria (A)
is	(g)	every x, if x is a scientist, the intelligent' is any atate lood
	(h) (	Parsings (x) v a scientist (x) sgnisra

3. Answer any three of the following questions : 5×3=15

(a) What are the capabilities, computer should possess to pass Turing test ?

3 (Sem-6/CBCS) CSC HC 1/G 4 8 0\1 OH OSO (SOEO\0-me2) 8

(b) List down the characteristics of intelligent agent.

What are the categories of intelligent (c) 

(d) What are the advantages of breadthfirst search ? other add nielos a to the

(e) Define constraint satisfaction problem

with the help of an example.

(f) Give brief introduction of basic elements of first-order predicate logic.

(g) Assume the following facts : the advantages and disadvantages of

• Diganta only likes easy courses

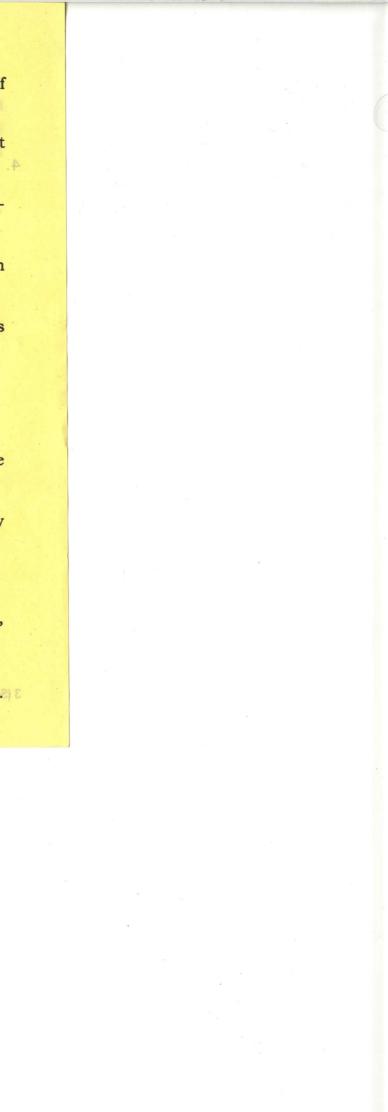
• Computer Science courses are hard

• All the courses in the History department are easy doing

• HIS301 is a history course

Use resolution to answer the question, 01=0+++ 'What course should Diganta like ?'

3 (Sem-6/CBCS) CSC HC 1/G 5 0 0 10H 020 (208 Contd.) 2



- (h) What is probabilistic reasoning ? Explain.
- alfelie What are the gategories of intelligent
- 4. Answer **any three** of the following questions : 10×3=30
  - (a) Explain the rational agent approach of AI.
  - (b) What is production system ? Write down the features of production system in artificial intelligence.
  - (c) Write A\* algorithm and discuss briefly the advantages and disadvantages of it.
  - (d) What are the problems encountered during hill climbing and what are the ways available to deal with these problems ?
  - (e) What is meant by means-ends analysis? Explain alpha-beta pruning. 4+6=10

3 (Sem-6/CBCS) CSC HC 1/G 6 2 0/1 OH 080 (2080) 8

3 (Sem-6/CBCS) CSC HC 1/G 7

800

- (f) Write a prolog program to implement two predicates evenlength (List) and oddlength (List) so that they are true if their argument is a list of even or odd length respectively.
- (g) Define natural language processing. Briefly explain top-down and bottomup parsing.

