

**BACHELOR OF TECHNOLOGY (CBCS) (2021-COURSE)**  
**B. Tech. Sem - VI COMPUTER SCIENCE & BUSINESS SYSTEM : WINTER : 2024**  
**SUBJECT: ITC-IV: ARTIFICIAL INTELLIGENCE**

Day : Wednesday  
Date : 27/11/2024

W-24183-2024

Time : 10:00 AM-01:00 PM  
Max. Marks : 60

**N.B.:**

- 1) All questions are **COMPULSORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Draw well labelled diagrams **WHEREVER** necessary.

Q.1 What is AI and what reapplications of AI (10)  
OR

Q.1 Explain in detail goal-based agents and utility-based agents. (10)

Q.2 List Informed Search Techniques. Explain the Concept of A\* algorithm with suitable example? (10)

Q.2 Describe the problems of hill climbing algorithm? Solve below example using hill climbing algorithm. (10)

<i>Init state</i>	<i>Goal state</i>
A	D
D	C
C	B
B	A

→

Q.3 Solve below Crypt arithmetic problem Using CSP. (10)

SEND	YOUR
+ MORE	+ YOU
MONEY	HEART

Q.3 What are the optimal strategies in adversarial search? (10)

Q.4 Explain First Order Logic in AI. (10)

Q.4 Explain Knowledge representation in AI. (10)

Q.5 Write down logical representations for the following sentences. (10)

- a) Horses, cows and pigs are mammals.
- b) An offspring of a horse.
- c) Bluebeard is a horse.
- d) Bluebeard is Charlie's parent.
- e) Offspring and parent are inverse relations.
- f) Every mammal has a parent.

Q.5 Explain Dempster-Shafer theory. (10)

Q.6 What are expert systems? Give the components of expert systems. (10)

Q.6 What is an Expert System? Explain in detail Components of Expert System. (10)

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