

2024

ARTIFICIAL INTELLIGENCE

Paper : BCA-HE-6066

Full Marks : 80

Time : 3 hours

The figures in the margin indicate

full marks for the questions.

1. Answer the following as directed :

1×10=10

- ☒ a) What is Intelligent System?
- ☒ b) Which if of the following is not an application of AI?
 - i) Robotic vehicle
 - ii) Speech recognition
 - iii) Speech synthesis
 - ☒ iv) Java
- ☒ c) Who is the founder of Turing Machine?
- ☒ d) Machine learning is used to adapt new circumstances and to detect and extrapolate patterns. (State true or false)
- ☒ e) What is episodic task environment?
- ☒ f) In blind or uninformed search, preference is given to the order of successor node generation and selection. (state true or false)
- ☒ g) What do you mean by predicates?
- ☒ h) In unification, predicate symbol must be same. (state true or false)

P.T.O.

(2)

✓ Production system consists of :

- i) Set of rules
- ii) Knowledge base
- iii) All of the above
- iv) None of the above

✓ What is conceptual graph?

2×5=10

2. Define the following terms :

- ✓ a) Neural networks
- ✓ b) Artificial Intelligence
- ✓ c) Intelligent agents
- ✓ d) Quantifiers in FOPL
- ✓ e) Unification

Ch 4 & 1 & 3

3. Answer **any six** from the following :

6×5=30

✓ a) Explain the following task environment :

- i) Static vs Dynamic
- ii) Known vs unknown

b) What is graph and tree representation?

✓ c) Explain And- or graph.

✓ d) Describe simple Hill Climbing algorithm.

✓ e) What is a game? Explain briefly.

✓ f) Explain minimax algorithm.

g) Unify $Q(a, g(x, a) f(y))$ and $Q(a, g(f(b), a) x)$

✓ h) What is semantic networks? Explain briefly.

✓ 4. Represent the following fact in predicate logic :

10

a) Gorilla is Black

b) John is tall.

c) All boys like cricket.,

d) Some boys like cricket.

e) All men are mortal.

$n > 0$
 n_1 is $n-1$
Factori (n_1, F_1)
 F_1 is $n * F_1$

(3)

5. a) ✓ Write a prolog program to calculate factorial of a given number

10

Or

- b) Write a prolog program to check whether a given number is prime or not.

6. ✓ Briefly explain the applications of Artificial Intelligence in few fields.

10

□□□□

is an agents current action
will not effect a future
action.