QP CODE: 24803813	24803813	Reg No	:	.....
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INTEGRATED MSC DEGREE EXAMINATION, JULY 2024

Fourth Semester

CORE - ICSC4CR5 - BASICS OF ARTIFICIAL INTELLIGENCE

INTEGRATED MSC COMPUTER SCIENCE-ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING,INTEGRATED MSC COMPUTER SCIENCE-DATA SCIENCE

2020 Admission Onwards

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Time: 3 Hours	Weightage: 30

Part A (Short Answer Questions)

*Answer any **eight** questions.*

*Weight **1** each.*

1.	Define Operator in Problem formulation.
2.	Define Constraint Satisfaction Problem.
3.	Define free variable and bound variable in first-order logic
4.	Define unification.
5.	Find df/dx and df/dy of the function f(x,y)= $(x^2-1)(y+2)$
6.	What is learning rate?
7.	Find the generationg function for the following sequence 0,1,-2,3,-4….
8.	How to balance the space and time complexities?
9.	What is the difference between correlation and regression analysis?
10.	What is Bayesian classification, and how does it differ from other classification techniques?

(8×1=8 weightage)

Part B (Short Essay/Problems)

*Answer any **six** questions.*

*Weight **2** each.*

11.	Write a short note on production system for water jug problem

12.	What is search in AI? Explain the importance of search strategies.
13.	Write a short note on the types of relation in semantic networks
14.	Check the continuity of the function at x=3, $f(x)= \frac{x-3}{x^2-9}$
15.	How backpropagation algorithm works?
16.	Write down the steps involved in finding the solution for the non-homogeneous recurrence relation?
17.	Write a note on Poisson and normal distributions
18.	Given a set of data {3, 5, 6, 8, 9}, calculate the mean, median, and mode, of the data.
	(6×2=12 weightage)

Part C (Essay Type Questions)

*Answer any **two** questions.*

*Weight **5** each.*

19.	What is a heuristic search? Explain how it differs from an uninformed search with an example.
20.	Explain 1)Gradient of a vector valued function. 2)Jacobian matrix and its layout types
21.	Solve the recurrence relation using generating function? 1). $a_{n+2}-3a_{n+1}+2a_n=0$, $a_0=2$ and $a_1=3$ 2).$a_r-2a_{r-1}-3a_r-2=0$, $a_0=3$ and $a_1=1$
22.	Explain in detail about conditional probability with an example
	(2×5=10 weightage)