



देव संस्कृति विश्वविद्यालय

शान्तिकुन्ज, हरिद्वार

आन्तरिक मूल्यांकन परीक्षा - INTERNAL EVALUATION TEST

**उत्तर-पुस्तिका**

परीक्षार्थी अनुक्रमांक (अंकों में)  
Student's Roll No. ( in numbers)

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पेपर कोड .....  
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परीक्षार्थी के हस्ताक्षर  
Signature of student's

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परीक्षक के हस्ताक्षर  
Signature of Examiner

लघुत्तरीय		योग/Total
A) Short Answer Type		
1	2	
दीर्घ उत्तरीय		
B) Long Answer Type		
1		
कुल योग अंकों में / TOTAL IN DIGITS		
कुल योग शब्दों में/TOTAL IN WORDS		

# Artificial Intelligence:-

Ans:-

Artificial Intelligence refers to any human-like intelligence exhibited by a computer, robot or other machine.

Artificial intelligence refers to the ability of a computer or machine to mimic the capabilities of the human mind - learning from examples and experience, recognizing objects, understanding and responding to language making decisions, solving problems. and combining these and other capabilities to perform function a human might perform, such as greeting a hotel guest or driving a car.

As common as AI is today, understanding AI and AI terminology can be difficult because many of the terms are used interchangeably; and while they are actually interchangeable in some cases, they are not in other case.

## Applications of A.I:-

- Chatbots
- AI in Ecommerce
- AI in Health Care
- AI in Agriculture
- AI in Cyber security
- AI in Sports betting Industry

Pattern Recognition :- It is the process of recognizing patterns by using machine learning algorithm. Pattern recognition can be define as the classification of data based on knowledge already gained or on statistical information extracted from pattern and their representation. One of the important aspects of the pattern recognition is its application potential.

Ex:- Speech Recognition, Speaker identification etc.

Features may be represented as continuous, discrete or discrete binary variables.

→ Clustering generated a partition of the data which helps decision making, the specific decision making activity of interest to us. Clustering is used in an unsupervised learning.



## Production System :-

3:-

Ans:- 2:- A production system (popularly known as a production rule system) is a kind of cognitive architecture that is used to implement search algorithms and replicate human problem solving skills.

- This problem-solving knowledge is encoded in the system in the form of little quanta popularly known as production.
- A production system is a computer program typically used to provide some form of Artificial Intelligence, which consists primarily of a set of rules about behavior but it also includes the mechanism necessary to follow those rules as the system responds to states of the world.
- It consists of two components
  - 1:- Rules
  - 2:- Action.
- Rules recognize the condition, and the action part has the knowledge of how to deal with the condition.
- The production system in AI contains a set of rules which are defined by the left side and right side of the systems.
- The left side contains a set of things to watch for (condition), and the right side contains the things to do (action).

Ans:- 3:- Problem Formulation in Artificial Intelligence:-

- Every problem should be properly formulated in Artificial Intelligence.
- Problem formulation is very important before applying any search algorithm.
- Every algorithm demands problem is specific form.
- Before problem formulation it is very important to know components of problem.

### Definition of Problem:-

The information about what is to be done? why it is important to build AI system? what will be the advantages of proposed system?

~~Ex:-~~ I want to predict the price of house using AI system~~X~~

### Problem Limitation:-

There always some limitations while solving problems. All these limitations or constraints must be fulfilled while creating systems.

### Solution or Goal:-

What is expected from system? The goal state or final state or the solution of problem is defined here. This will help us to propose appropriate solution for problem.

## Solution Space:-

Problem can be solve in many ways. Some solution, will be efficient than others. Some will consume less resource, some will be simple etc. There are always alternatives exists. Many possible ways with which we can solve problem is known as Solution Space.

## Operators:-

Operators are the actions taken during solving problem. Complete problem is solved using tiny steps or actions and all these consecutive actions, leads to solution of problem.

## Steps of Problem Formulation:-

1:- Define the

## Examples of Problem Formulation:-

### 8 Puzzle or Slide Puzzle:-

- States:- A state description specifies the location of each of the eight tiles and the blank in one of the nine square.
- Initial state:- Any random shuffled state can be designated as initial state.

### Action:-

- Slide Left
- or Slide Right
- or Slide UP
- And Slide Down



Transition model: Given a state and action, this returns the resulting state

Goal test:- This checks whether the state matches the goal

Path cost: Each step costs 1

