BK BIRLA CENTRE FOR EDUCATION

SARALA BIRLA GROUP OF SCHOOLS

SENIOR SECONDARY CO-ED DAY CUM BOYS' RESIDENTIAL SCHOOL

PERIODIC TEST II (2024-25)

ARTIFICIAL INTELLIGENCE (417)

Class: IX **Duration: 1 hr.**

Date: 03-12-2024 **Max Marks: 25**

Adm No: …… **Roll No. :**

NOTE : (i) All questions are compulsory.

(ii) Do as per the instructions given in the questions.

MARKING SCHEME

I. Multiple Choice Questions : **(12 X 1 = 12)**

(1) An entrepreneur is a/an

(a) Innovator (b) Risk Taker **(c) Both of these** (d) None of these

(2) The process of improving the skills and knowledge of entrepreneurs through various training and classroom programs is called

(a) Entrepreneurship development (b) Planning

(c) Organising (d) None of the above

(3) Manufactured components or parts are combined together in manufacturing business type :

(a) Analytical (b) Processing **(c) Assembling** (d) All of the above

(4) A person who starts an enterprise is :

(a) Manager (b) Organiser **(c) Entrepreneur** (d) None of these

(5) Soil is a ……. resource.

(a) Renewable (b) Non-renewable (c) Both of these (d) None of these

(6) Which fuel should be used in motor vehicles to reduce pollution ?

(a) CNG (b) LPG (c) PNG (d) None of these

(7) Transition to a green economy is a

(a) Fast and easy process **(b) Slow and difficult process**

(c) All of these (d) None of these

(8) An ecosystem consists of

(a) All the living organism in a given area

(b) All the non-living physical and chemical factors of the environment

(c) Both of these (d) None of these

(9) A method used to enable machines to classify/predict objects, problems or situations based on labelled data fed to the machine is called

(a) Unsupervised learning **(b) Supervised learning**

(c) Decision Trees (d) None of the above

(10) Learning based on feedback is called

(a) Unsupervised Learning (b) Supervised Learning

(c) Semi Supervised Learning **(d) Reinforcement Learning**

(11) …….. learning mimics the network of neurons in a brain.

(a) Machine **(b) Deep**

(c) Reinforcement (d) Supervised

(12) A teacher instructs the students to draw and colour five geometric objects in different colours. The sheets provided by the children are then put into an AI machine which is then sorted,

based on similar shapes and colours. The model is able to predict if the image is a red circle, a green rectangle or a white square, etc. This is an example of

(a) Neural Networks **(b) Supervised Learning**

(c) Unsupervised Learning (d) Reinforcement Learning

II. Short Answer Type Questions : (Answer any four) (4 X 2 = 8)

1. Explain any four rewards of an Entrepreneur.

Ans. :

Independence : He is his own boss. He can take all decisions by himself.

Ambition fulfilment : Some people want to convert their original ideas into a new product or service for example smart phone, electric vehicle, driver les train etc.

Excitement : Entrepreneurship involves adventure. Some people resign their well paid job and launch their own venture due to excitement.

Freedom : Entrepreneurship allows the freedon to try out one's ideas. Freedom seeking people choose entrepreneurship as a career.

Wealth Creaton : Successful entrepreneur create enormous wealth for themselves and their staff.

Status : Success in entrepreneurship brings considerable fame and prestige.

2. Explain any four characteristics of entrepreneurship.

Ans. :

Purposeful activity, Creative activity, Risk bearing activity, Organising, Gap filling, Dynamic process, Initiative taking, Multi dimensional

Purposeful activity : It s a goal oriented activity. Eac and every enterprise is launched either to earn money or to serve the society.

Creative activity : It is a creative response to change in environment. It involves introduction to something new or better.

Gap filling : it identifies and fill the gaps between what the society needs and what is available.

Initiative taking ; Entrepreneurship involves taking initiative.

3. Define 'Environment'. Why do we need to conserve natural resources ?

Ans. : Environment refers to the sum total of conditions which surrounds man at a given point in space and time. Environment is equated with nature wherein physical components of the earth support and affect life in the biosphere.

Conserving natural resources is essential for several reasons, and it plays a key role in ensuring the well-being of both current and future generations. Here are the main reasons why we need to conserve them:

- Sustainability of Life
- Environmental Protection
- Economic Stability
- Climate Change Mitigation
- Intergenerational Responsibility
- Resource Efficiency
- Health and Quality of Life
- Preservation of Biodiversity

4. Write and explain any four factors which cause imbalance in the environment.
Ans. :

Land use changes : Clearing of forests and burning of grasslands for crop cultivation, feeling of trees for commercial purposes, changes in cropping pattern in relation to new farming techniques, new high yielding seeds, use of weedicides, pesticides, fertilisers, irrigational facilities etc.
Constructions and excavations : Constructions of dams, reservoirs and canals, diversion and manipulation of river channels, construction of embankments and dykes to protect the area from floods, construction of road and bridges etc.
Agricultural practices : Mechanisation of agricultural, use of chemical fertilizers, pesticides and insecticides etc.
Weather modification programme : Cloud seeding to induce precipitation, dispersal and clearing of clouds and fogs, checking of hailstorms etc.
Nuclear programmes : Nuclear energy is being used increasingly for constructive as well as destructive purposes.

5. Write and explain any two differences between Supervised and Unsupervised learning.
Ans. :
Presence of Labeled Data:

- **Supervised Learning:** In supervised learning, the algorithm is trained on a labeled dataset. This means that each training example is paired with the correct output (label). The model learns to map inputs (features) to the correct output based on this labeled data, and the goal is to predict the correct output for new, unseen inputs.
- **Unsupervised Learning:** In unsupervised learning, the algorithm is provided with unlabeled data, meaning the model does not have predefined labels or categories to learn from. The goal is to uncover hidden patterns, structures, or relationships within the data without prior knowledge of outcomes.

Key Difference: Supervised learning uses labeled data (with known outcomes), whereas unsupervised learning uses unlabeled data (with no predefined outcomes).
Type of Tasks or Problems Addressed:

- **Supervised Learning:** Supervised learning is typically used for classification and regression tasks. In classification, the model assigns labels to input data (e.g., predicting whether an email is spam or not), while in regression, the model predicts a continuous value (e.g., predicting house prices based on features like size, location, etc.).

- **Unsupervised Learning:** Unsupervised learning is primarily used for clustering, dimensionality reduction, and discovering underlying structures in data. Clustering groups data points into clusters based on similarity, while dimensionality reduction simplifies complex data by reducing the number of variables while retaining important information.

6. What is a Decision Tree ? Write its two advantages.
Ans. :

A **Decision Tree** is a popular **supervised learning** algorithm used for both **classification** and **regression** tasks. It works by splitting the dataset into subsets based on different features (attributes), creating a tree-like structure where:

- Each **internal node** represents a feature or attribute of the data.

- Each **branch** represents a decision rule or condition that splits the data based on a feature.
- Each **leaf node** represents a final output (e.g., class label in classification, or continuous value in regression).

Two Advantages of Decision Trees:

1. **Easy to Interpret and Understand**:
   - One of the key advantages of decision trees is that they are very **easy to interpret**. The tree structure visually resembles human decision-making processes, making it intuitive for both technical and non-technical stakeholders. Each decision or split can be traced, making the model transparent and easy to understand.
   - This interpretability is especially valuable in fields like healthcare, finance, and law, where understanding how decisions are made is crucial for trust and compliance.

III. Long Answer Type Questions : (Answer any two) **(2 X 2.5 = 5)**

1. Name three different types of Business Activities and explain any two of them with example.

Ans. :

Manufacturing business, Service business and Hybrid business

Manufacturing business: These are concerned with the processing or transformation of raw materials and semi finished products into finished products. It is of three types : Analytical, Synthetical, Processing, Assembling.

Service business : It provides intangible products. They offer professional skills, expertise, advice, and other similar products.

Hybrid business : These companies are involved in more than one type of business. For example. A restaurant.

2. Write and explain any six measures to conserve and protect the environment.

Ans. :

- Industries should be made to install collectors to remove particulars waste from the chimneys
- Never litter
- Treatment of industrial liquid waste before discharging in drains
- Proper drainage
- Curbing emission from motor vehicles
- Using Compressed Natural Gas (CNG) in vehicles

3. Differentiate between Machine learning and Deep learning.

Ans. :

	Machine Learning	**Deep Learning**
Data dependencies	Excellent performances on a small/ medium dataset	Excellent performance on a big dataset
Hardware Dependencies	Can work on a low end machine	Requires powerful machine preferably with GPU
Features	Need to understand the features that represent the data	No need to understand the features that represent the data

Execution Time	From few minutes to hours	From hours to weeks. Neural networks need time for computation
Number of algorithm	Many	Few

********** ALL THE BEST **********