Max. Time Allowed: 2 hour   Max. Marks: 50

General Instructions:

1. Please read the instructions carefully.

2. This Question Paper consists of 21 questions in two sections: Section A & Section B.

3. Section A has Objective type questions whereas Section B contains Subjective type questions.

4.Out of the given (5 + 16 =) 21 questions, a candidate has to answer (5 + 10 =) 15 questions in the allotted(maximum) time of 2 hours.

5. All questions of a particular section must be attempted in the correct order.6.

6. SECTION A - OBJECTIVE TYPE QUESTIONS (24 MARKS):

i. This section has 05 questions
ii. Marks allotted are mentioned against each question/part.
iii. There is no negative marking.
iv. Do as per the instructions given.

7. SECTION B – SUBJECTIVE TYPE QUESTIONS (26 MARKS):
i. This section has 16 questions.
ii. A candidate has to do 10 questions.
iii. Do as per the instructions given.
iv. Marks allotted are mentioned against each question/part.

SECTION A: OBJECTIVE TYPE QUESTIONS

Q. 1 Answer any 4 out of the given 6 questions on Employability Skills (1 x 4 = 4 marks)

i. Tips to build the self confidence in tough situations is refers as ___
        a) Self control   b) Self motivation   c) Positive thinking d) Self evaluation

ii. This picture depicts the _____ of a person.

a) Self confidence   b) Weakness c) Rely on others d) social physique anxiety

iii. Which one of the following is a valid file extension for image file?
a) .jpg   b) .doc   c) .text   d) .txt

iv.Which of the following functions is not performed using a mouse?
a) Turn on   b) Hover   c) Right click   d) Drag and Drop

v. Rahul is the owner of a Sports shop, Identify his type of business activity.
a) Product business   b) Service business   c) Hybrid business   d) Small business

vi What is the aim of entrepreneurship?
a) Earn a profit b) Solve Customer's need innovatively c) Both of the above d) None of the above

Q. 2 Answer any 5 out of the given 6 questions (1 x 5 = 5 marks)

i. What is Artificial Intelligence?
a) Putting your intelligence into computer   b) Programming with your own intelligence.
c) Making a machine intelligent   d) Playing a game

ii. Who coined the word Artificial Intelligence?
a) Alan Turing   b) John McCarthy   c) Joy McCarthy   d) Allen Newell

iii .Which one of the following is an application of AI?
a) Remote controlled Drone   b) Self-Driving Car
c) Self-Service Kiosk   d) Self-Watering Plant System

iv. _____ is an AI game based on data science.
a) Rock, Paper, Scissors b) Emoji Scavenger c) Mystery animal d) Virtual Assistant

v. There are ____goals is sustainable development which were introduced in 2015.
a) 16   b) 17   c) 18   d) 30

vi. What are the advantages of smart home?
a) Smart home provides more comfort   b) Smart home saves energy
c) Smart home improves security   d) all of the above

Q. 3 Answer any 5 out of the given 6 questions (1 x 5 = 5 marks)

i. Which of the following is not a stage in the AI Project Cycle:
a) Problem Scoping   b) Data Acquisition   c) Data Exploration   d) Prototyping

ii. Which of the following comes under problem scoping?
a) System mapping   b) 4W's Canvas   c) Data features   d) Web scraping

iii. _____ refers the type of data you want to collect.
a) Data features   b) Modeling   c) Data set   d) Evaluation

iv.Which one of the following is the second stage of AI project cycle?
a) Data Exploration   b) Data Acquisition   c) Modeling   d) Problem Scoping

v.Which of the following is not a part of the 4Ws Problem Canvas?
a) Who?   b) Why?   c) What?   d) Which?

vi. Give the example of a source where you can acquire the data?
a) Sustainable development goals b) Environment   c) Agriculture   d) All of the above

Q. 4. Answer any 5 out of the given 6 questions (1 x 5 = 5 marks)

i. Smitha was learning neural networks. She understood that there were three layers in a neural network. Help her identify the layer that does processing in the neural network.
a) Output layer   b) Hidden layer   c) Input layer   d) Data layer

ii. _____ refers to the AI modelling where the machine learns by itself.
a) Learning Based   b) Rule Based   c) Machine Learning   d) Data Sciences

iii Which of the following is a subset of machine learning?
a) Data learning   b) Deep learning   c) Artificial Intelligence   d) All of the above

iv. Neural Network tends to perform better with _____ amount of data.
a) Small   b) Large   c) Moderate   d) Very small

v. Give 2 examples of Supervised Learning models.
a) Classification and Regression   b) Clustering and Dimensionality Reduction
c) Rule Based and Learning Based   d) Classification and Clustering

vi. What is the full form of ANN?
a) Artificial Neural Nerves   b) Artificial Neural Network
 c) Artificial Neural Number   d) Artificial Neural Name

Q. 5.Answer any 5 out of the given 6 questions (1 x 5 = 5 marks)

 i. From which function we can take input in scripting mode in python program.
a) input()   b) int()   c) input   d) output()

ii. Which of the following is not an arithmetic operator?
(a) + b) // c) **d) +=

iii. What is the index value of p
    in "
    computer
    ".
a) 3   b) -4   c) 4   d) 2

iv. What will be the output of the following expression? 5-2+3

a) 6   b) 4   c) -3   d) 0

v. What is the symbol of Interactive mode of python?

a) >   b) >>   c) >>>   d) <<<

vi Python identifier cannot be started with?

   a) Alphabet   b) Number   c) Special symbol   d) Both b and c

SECTION B: SUBJECTIVE TYPE QUESTIONS

Answer any 3 out of the given 5 questions on Employability Skills (2 x 3 = 6 marks)
Answer each question in 20 – 30 words.

Q. 6. Prepare a list of different factors (minimum two) that decrease our self-confidence. Below mentioned factors affect our self-confidence:
ANS -
i. When we think we cannot do a particular work.

ii. When we keep thinking of our past mistakes and feel bad about it, instead of learning from them.

iii. When we expect to be successful at the first attempt itself and do not try again. iv. When we are surrounded by people who have a negative attitude, which is reflected in their speech.

(Any 2) (1marks each)

Q. 7. What are the factors help in building self-confidence.
ANS -
- Social Interactions with family and social environment, like friends, relatives, teachers and media influences self-confidence of individuals.

- Physical activity is found to be directly related to self confidence.

Q. 8. Write the difference between computer hardware and computer software.
ANS -
Computer hardware –   Physical parts of a computer such as Input devices, output devices, central processing unit and storage devices are called computer hardware.

• Computer software – Software are the programs or applications that run on computer. For example, MS Word, MS PowerPoint, Operating systems, etc

Q. 9 Give any four characteristics of entrepreneurship.
ANS -
1. Innovation –
2. Dynamic economic activity
3. Risk bearing

4. Potential for profit

Q. 10. Challenges of Entrepreneurship Development.
ANS -
1. Lack of awareness about entrepreneurship schemes
2. Strict regulatory framework
3. Low margin market linkages
4. Lack of continued motivation
5. Lack of formal education
6. Low technical knowledge
7. Absence of managerial skills
8. Inadequate infrastructure and resources
9. Lack of finance availability

Answer any 4 out of the given 6 questions in 20– 30 words each (2 x 4 = 8 marks)

Q. 11. What are the three domains of AI?
ANS -
1.Data Science (Data for AI)
2. Natural Language Processing (NLP)
3.Computer Vision (CV)

Q. 12.What do you mean by AI Ethics?

ANS - AI ethics are a collection of principles that guide the development and use of artificial intelligence.

Q. 13. Suhana works for a company wherein she was assigned the task of developing a project cycle. Help her to identify the stages of AI project life cycle.
ANS – Stage of AI Project Cycle –
   i.   Problem Scoping
   ii.   Data Acquisition
   iii. Data exploration
   iv.   Modelling
   v.   Evaluation
   vi.   Deployment

Q. 14. What is rule based AI modeling?
ANS -
The rule-based approach to AI modeling is when the developer defines the relationship or patterns in data. The machine follows the developer's rules or instructions and completes its job properly.

Q. 15. What are the various ways to collect data?
ANS -
Surveys, web scraping, sensors, cameras, observations and API (Application Program Interface)

Q. 16. What is a variable? Give example.
A variable is a named location used to store data in the memory. For example, X=42, Y=45

Answer any 3 out of the given 5 questions on Employability Skills (4 x 3 = 12 marks)

Q.17.What is the difference between Artificial Intelligence, Machine Learning and Deep learning?
ANS - Artificial Intelligence Machine Learning Deep learning

AI for short, refers to any technique that enables computers to mimic human intelligence. An artificially intelligent machine works on algorithms and data fed to it and gives the desired output.

ML for short, enables machines to improve at tasks with experience. The machine here learns from the new data fed to it while testing and uses it for the next iteration. It also takes into account the times when it went wrong and considers the exceptions too.

DL for short, enables software to train itself to perform tasks with vast amounts of data.Since the system has got huge set of data, it is able to train itself with the help of multiple machine learning algorithms working altogether to perform a specific task.

Q.18. Name any 2 SDG goals and explain how AI can impact to achieve the SDG.
ANS -
Name any 2 (1:No Poverty 2: Zero Hunger 3: Good Health and Well-being4: Quality Education 5: Gender Equality 6: Clean Water and Sanitation7: Affordable and Clean Energy 8: Decent Work and Economic Growth9: Industry, Innovation and Infrastructure 10: Reduced Inequality11: Sustainable Cities and Communities 12: Responsible Consumption and Production 13: Climate
Action 14: Life Below Water 15: Life on Land)

Sustainable Development Goals on September 25, 2015, 193 Heads of State at the United Nations General Assembly set up a collection of 17 goals known as The Sustainable Development Goals (SDGs) or simply Global Goals.

The goals are to be achieved by all member states by year 2030. They are a universal call to action to end poverty, protect the planet and ensure all people enjoy peace and prosperity. The goals are broad, interdependent and cover social, economic and social issues and making them work is everyone's responsibility.

Q.19.Explain problem scoping template with an example.

ANS - The 4W's of Problem Scoping are Who, What, Where, and Why.
Suppose you have selected theme of agriculture then write how AI will help farmers to solve their problems.
1. Determine what will a good time for seeding?
2. Determine what will be a good time for harvesting?
3. Determine when and how much fertilizer will be applied to the selected crop?

Q.20. What is a dataset? Explain the types of dataset.

ANS - Dataset is a collection of data in tabular format. Dataset contains numbers or values that are related to a specific subject. For example, students' test scores in a class is a dataset. The dataset is divided into two parts
a. Training dataset – Training dataset is a large dataset that teaches a machine learning model. Machine learning algorithms are trained to make judgments or perform a task through training datasets. Maximum part of the dataset comes under training data (Usually 80%)

 b. Test dataset – Data that has been clearly identified for use in tests, usually of a computer program,is known as test data. 20% of data used in test data

Q.21. Match the following.
i) a + b   a) Logical operators
ii) 10>3   b) 25
iii) a==b   c) Arithmetic operators
iv) 5**2   d) True
v) 7//2   e) Comparison operators
vi) a>b and a>c   f) Assignment operators
vii) 3==4   g) 3
viii) a+=2   h) False

ANS -
i) c
 ii) d
iii) e
 iv b
v) g
vi) a
 vii) h
viii) f4