

PT4/ANNUAL EXAMINATION, 2022-23

ARTIFICIAL INTELLIGENCE

Time - 2 hrs.

Class – XI

M.M. – 50

Name of the student _____ Section ____ Date - 09.02.2023 (Thursday)

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. **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.

- I) Self-motivation is important because 1
- i) It increases individual's energy and activity.
 - ii) It directs an individual towards specific goals.
 - iii) It results in initiation and persistence of specific activities
 - iv) It affects cognitive processes and learning strategies used for completing similar tasks.
- a). Only i b). Both i and ii c). i, iii and iv d). All of the above
- II) For an entrepreneur, aversion to risk is: 1
- a) A failure b) An opportunity c) A psychological barrier d) An initiative
- III) The _____ is at the top of the document window. 1
- a) Standard Toolbar b) Formatting Toolbar c) Menu bar d) Tittle bar
- IV) Ravi works hard to get the best student award at the end of the year. What type of motivation is this? 1
- a) Internal b) External
- c) Both Internal and External d) Not any specific type of motivation
- V) In SMART goats, what does 'R' refer to? 1
- a) Required b) Relevant c) Replaceable d) Replicable
- VI) Which of the following is the default alignment of text? 1
- a) Justify b) Right c) Center d) Left

Q.2 Answer ANY 5 out of the given 6 questions.

- i. What is divided into multiple layers and each layer is further divided into several blocks called as nodes ? 1
- a) Neural Network b) CNN c) Machine Learning algorithm d) Supervised Learning

- ii. In which type of linear regression, the two variables vary linearly? 1
 a) Complex b) Linear c) Simple d) Logistic
- iii. The process of telling a story _____ is known as storytelling. 1
 a) Compelling b) Narratively c) Both (a) and (b) d) Intensely
- iv. Which of the following is NOT a design thinking stage? 1
 a) Ideate b) Test c) Data Scoping d) Define
- v. The _____ quadrant denotes the use's emotional state in an Empathy Map 1
 a) Feels b) Says c) Thinks d) Does
- vi. Which one of the following is NOT suitable for examining the relationship between two quantitative variables? 1
 a) Scatterplot b) Bar Chart c) Correlation d) Contingency Table

Q.3 Answer ANY 5 out of the given 6 questions.

- i. _____ takes True Positive and False Positive into consideration in confusion matrix. 1
 a) Accuracy b) Recall c) Precision d) F1 Score
- ii. Which of the following is the process of labelling a dataset into different classes? 1
 a) Regression b) Clustering c) Classification d) Decision Tree
- iii. _____ Works with binary data, where either the event happens(1) or event does happen(0). 1
 a) Logistic Regression b) Classification c) Clustering d) F1 Score
- iv. _____ Clustering build a tree of clusters. 1
- v. Outliers do not affect clustering process. (True/False) 1
- vi. What is Clusters ? 1

Q. 4 Answer ANY 5 out of the given 6 questions.

- i. The regression line is also called least _____ regression line. 1
- ii. The Pearson correlation coefficient, r , can take a range of values from _____. 1
- iii. _____ correlation means that the change in one variables(X) is not associated with the change in the other variable(Y). 1
 a) Positive b) Negative c) Zero d) None of these
- iv. The _____ is the value that appears most often in a given list of numbers. 1
- v. In the right-skewed distribution, the median and mean are less than the mode. (True/False) 1
- vi. Which of the following extracts information from the spoken and written word using algorithms? 1
 a) Machine Learning b) Chatbots c) Either a or b d) Natural Language Processing

Q.5 Answer ANY 5 out of the given 6 questions.

- i. Which of the following allows communication through the text interface or audio on websites? 1
 a) Computer Vision b) Chatbots c) Artificial Intelligence d) Driverless car
- ii. Which one of the following is a rectangular arrangement of numbers? 1
 a) Sets b) Matrix c) Vector d) Scalar
- iii. A _____ is defined as a list of numbers is one-dimensional form 1

- iv. What is union? 1
- v. _____ are the individual facts, statistics, or items of information, often numeric. 1
- vi. Data storytelling acts as an emotional glue to connect a diverse_____. 1

SECTION B: SUBJECTIVE TYPE QUESTIONS

Answer ANY 3 out of the given 5 questions on Employability Skills. Answer each question in 20 – 30 words.

- Q. 6 Why is self-management important? Give one example. 2
- Q. 7 Define any two of the following personality disorders 2
 - a) Paranoid b) Anti-social c) Obsessive Compulsive
- Q. 8 What do you understand by ICT? Give examples. 2
- Q. 9 Define Time management? Explain a Time Management strategies. 2
- Q. 10 Name two qualities of a person with entrepreneurial skills. Explain in a sentence each. 2

Answer ANY 4 out of the given 6 questions in 20 – 30 words each.

- Q. 11 What is confusion Matrix? Explain with example. 2
- Q. 12 Describe some applications of clustering 2
- Q. 13 Does correlation indicate causation? Why? Why not? 2
- Q. 14 Explain the term skewness and its types. 2
- Q. 15 Interpret the values of correlation :1,0,-1 with diagram 2
- Q. 16 Explain four quadrants of the Empathy Map 2

Answer ANY 3 out of the given 5 questions in 50 – 80 words each.

- Q. 17 Consider the following confusion Matrix and calculate the following metrics: 4
 - i) Accuracy ii) Precision iii) Recall iv) F1 Score

CONFUSION MATRIX		REALITY	
		TRUE	FALSE
PREDICTION	TRUE	105	40
	FALSE	60	325

- Q. 18 Explain different types of clustering. 4
- Q. 19 The values of X and their corresponding values of Y are shown in table below. 4

X	0	1	2	3	4
Y	2	4	5	6	8

Find the least square regression line $y=ax+b$ (Stepwise)

Estimate value of y when $x=10$.

- Q. 20 Explain in detail the 5W1H method, a simple and efficient method of questioning from customers. 4
- Q. 21 What is AI bias? What are the sources of bias? Describe them. 4

