

केंद्रीय विद्यालय संगठन , बेंगलुरु संभाग

KENDRIYA VIDYALAYA SANGATHAN, BENGALURU REGION

प्रथम प्री बोर्ड परीक्षा -2024-25

FIRST PRE-BOARD EXAMINATION 2024-25

CLASS: X

MAX MARKS: 50


SUBJECT: ARTIFICIAL INTELLIGENCE

TIME ALLOWED: 2HRS

General Instructions:

1. This Question Paper consists of 21 questions in two sections: Section A & Section B.
2. Section A has Objective type questions whereas Section B contains Subjective type questions.
3. 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.
4. SECTION A - OBJECTIVE TYPE QUESTIONS (24 MARKS)
5. SECTION B – SUBJECTIVE TYPE QUESTIONS (26 MARKS)

Section A (Objective Type Questions)		
Q1	Answer any 4 out of the given 6 questions on Employability skill (1X4=4 Marks)	Marks
i	Statement 1: A realistic goal is one that cannot be achieved with in limited time. Statement 2: Breaking down big goal in to smaller parts helps in achieving the goal. a) Both statements 1 and statement 2 are correct. b) Both statements 1 and statement 2 are incorrect. c) Statement 1 is correct but statement 2 is incorrect. d)Statement 1 is incorrect but statement 2 is correct.	1
ii	Which of these is NOT a common communication barrier? (a) Linguistic barrier (b) Interpersonal barrier (c) Financial barrier (d) Organisational barrier	1
iii	The first screen that appears on monitor after loading OS is called _____ (a) Icons (b) Desktop (c) Wall paper (d) None of the above	1
iv	When you are under _____ for a prolonged period of time, it can cause health problems and mental troubles as well. a) Stress (b) Discipline c) Timeliness (d) Goal – Setting	1
v	Qualities of entrepreneur are: a) Never giving up (b) Hard working c)Perseverance (d) All the above	1
vi	Which organisation has made the Sustainable Development Goals. (a) United Nations (b) League of Nations (c) UNICEF (d) World Health Organisation	1
Q2	Answer any 5 out of the given 6 questions (1X5=5 marks)	
i	Companies use _____ application of NLP, to identify opinions and feelings/emotions online to help them understand what customers think about their products and services. a) Sentiment Analysis (b) Automatic Summarization c) Text classification (d) Virtual Assistants	1
ii	A Category of intelligence relating to the ability to process information on the environment around us is _____ a) Musical Intelligence (b) Naturalist Intelligence c)Interpersonal Intelligence (d) Kinaesthetic Intelligence	1

	a) Sensors c) Web Scraping	b) Surveys d) System Hacking	
v	_____ is defined as the percentage of correct predictions out of all the observations. a) F1 Score c) Accuracy		1
vi	b) Precision d) Recall		
vi	Statement 1: Email filter is an application of Data Science. Statement 2: Recommendation of products on shopping websites is also an application of Data science. a) Both statements 1 and statement 2 are correct. b) Both statements 1 and statement 2 are incorrect. c) Statement 1 is correct but statement 2 is incorrect. d) Statement 1 is incorrect but statement 2 is correct.		1
Q5	Answer any 5 out of the given 6 questions (1X5=5 marks)		
i	The possible difficulties a machine would face in processing natural language is _____ a) Arrangement of the words and meaning b) Multiple Meanings of a word c) Perfect Syntax, no Meaning d) All of the above		1
ii	Which is an AI based chatbot? a) Script bot c) Both		1
	b) Smart bot d) None		
iii	Smita makes a machine which is designed to learn by itself using the provided data and make accurate Predictions/ Decisions, Which of the following enables the machines for making Predictions/ Decisions? a) Artificial Intelligence c) Machine Learning		1
	b) Deep Learning d) None of the above		
iv	In this 4W canvas block, which W, focuses on the context/situation/location of the problem.		1
v	A company is analysing customer reviews to understand the overall sentiment (positive, negative, or neutral) towards their product. They use a tool to process the text data and categorize it into these three sentiment labels. What aspect of data science is the company primarily using in this scenario? a) Data Visualization c) Data Analysis		1
	b) Data Cleaning d) Data Preprocessing		
vi	Which one of the following scenarios would result in a high false positive cost? a) A model that correctly identifies emails as spam when they are actually spam, in a scenario where spam filtering is highly accurate. b) A model that correctly identifies a customer as likely to purchase a product, in a scenario where the product is frequently bought. c) A model that incorrectly identifies a patient as having a disease when they do not actually have it, in a scenario where the disease is rare but treatment is expensive d) A model that fails to detect fraudulent transactions but correctly identifies legitimate transactions, in a scenario with many transactions but few fraud cases.		1
SECTION- B			
Descriptive type Questions (Write in 20-30 words each)			
Answer any 3 out of given 5 questions on employability skill. (2X3=6 marks)			
6		The symbol shown represents 'School Ahead', which type of communication uses such symbols and write any 2 advantages of using that type of communication.	2
7	'Security break is leakage of information stored in a computer'. Write any two ways in which a security break can happen.		2
8	Imagine you are a high school student working on a group project for your AI class. The project involves designing an AI-based solution for a local community issue. You are responsible for coordinating tasks, meeting deadlines, and ensuring that everyone in the group contributes effectively.		2

	Identify two self-management skills that are essential for successfully completing this group project and explain how each skill can be applied in this scenario.										
9	In the world where customer requirements are constantly changing, which quality an entrepreneur should have to succeed? Discuss.	2									
10	List two ways in which we can use resources sensibly and become responsible for our own environment	2									
	Answer any 4 out of given 6 questions in 20-30 words each. (2X4=8 marks)										
11	“A firefighter has to get to a burning building as quickly as he can. There are three paths that he can take. He can take his fire engine over a large hill (5 miles) at 8 miles per hour. He can take his fire engine through a windy road (7 miles) at 9 miles per hour. Or he can drive his fire engine along a dirt road which is 8 miles at 12 miles per hour” Which words in the above corpus have the highest values and the ones which have the least frequency what are they called?	2									
12	a) When anyone searches about Surgeon on the internet, the picture of a Male appears. Why it happens. b) What should be done to avoid it	2									
13	Neeta has been working on an AI Project. She has completed the problem scoping, but she has forgotten the next stage. help her by listing all the remaining steps in the sequence and explain the objectives of these steps.	2									
14	Explain the term aspect ratio. How it is expressed	2									
15	Data Sciences majorly work around analysing the data and when it comes to AI, the analysis helps in making the machine intelligent enough to perform tasks by itself. There exist various applications of Data Science in today’s world. Give any 2 examples of data sciences in our day to day life with brief information	2									
16	Draw the confusion matrix for the following data <ul style="list-style-type: none"> • the number of true positive = 50 • the number of true negative =78 • the number of false positive = 43 • the number of false negative = 48 	2									
	Answer any 3 out of given 5 questions in 50-80 words each. (4X3=12 marks)										
17	Sumit is amused, when his friend explains him how AI technologies can be integrated with non-AI technologies. Help him understand this integration with 2 examples.	4									
18	Identify the type of learning based approach in the figure and also explain various learning approaches. 	4									
19	Differentiate between rule-based and learning-based AI modelling approaches.	4									
20	Consider the following text data and perform a step-by-step process for text normalization Provide the normalized version of the text: “The quick, brown fox jumps over the lazy dog. THE QUICK, BROWN FOX JUMPS OVER THE LAZY DOG!!!”	4									
21	An AI model made for the prediction of Water Shortage in Schools in a state (Water Shortage in School) <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>The Confusion Matrix</th> <th>Reality: 1</th> <th>Reality: 0</th> </tr> </thead> <tbody> <tr> <td>Prediction: 1</td> <td>75</td> <td>5</td> </tr> <tr> <td>Prediction: 0</td> <td>5</td> <td>15</td> </tr> </tbody> </table> <ul style="list-style-type: none"> i. Calculate Precision, Recall and F1 Score ii. Identify the total number of predictions made by the model correctly. 	The Confusion Matrix	Reality: 1	Reality: 0	Prediction: 1	75	5	Prediction: 0	5	15	4
The Confusion Matrix	Reality: 1	Reality: 0									
Prediction: 1	75	5									
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