केंद्रीय विद्यालय संगठन , बेंगलुरु संभाग

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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.	1
1	Statement 2: Breaking down big goal in to smaller parts helps in achieving the goal.	1
	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.	
ii	Which of these is NOT a common communication barrier?	1
	(a) Linguistic barrier (b) Interpersonal barrier	
	(c) Financial barrier (d) Organisational barrier	
iii	The first screen that appears on monitor after loading OS is called	1
	(a) Icons (b) Desktop	
	(c) Wall paper (d) None of the above	
iv	When you are under for a prolonged period of time, it can cause health	1
	problems and mental troubles as well.	
	a) Stress b) Discipline	
	c) Timeliness d) Goal – Setting	
\mathbf{V}	Qualities of entrepreneur are:	1
	a) Never giving up b) Hard working	
	c)Perseverance d) All the above	
vi	Which organisation has made the Sustainable Development Goals.	1
	(a) United Nations (b) League of Nations	
	(c) UNICEF (d) World Health Organisation	
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	1
	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	
ii	A Category of intelligence relating to the ability to process information on the environment	1
	around us is	
	a) Musical Intelligence b) Naturalist Intelligence	
	c)Interpersonal Intelligence d) Kinaesthetic Intelligence	

iii	Fill in the blank: Neural Network is a mesh of multiple	1
iv	Identify the application of Computer Vision from the following:	1
	a) Voice Assistant b) Face recognition	
	c) Recommendations d) None of the above	
V	Which of the following is a common data source used in data science?	1
	a) Social Media Posts b) Weather Reports	
	c) Sensor Data d) All of the Above	
vi	Identify the domain of AI in the following image:	1
	a) Data Science b) Natural Language Processing	
	c) Computer Vision d) Rule Base	
Q3	Answer any 5 out of the given 6 questions (1X5=5 marks)	
i		1
1	Which of the following is an example of a voice based virtual assistant? a)Alexa b)Siri c) Cortana d) All of the above	1
ii	, , , , , , , , , , , , , , , , , , , ,	1
11	is defined as the ability to perceive the visual world and the relationship of one	1
	object with other. a) Mathematical Logical Reasoning b) Musical Intelligence	
	c) Spatial Visual Intelligence d) Linguistic Intelligence	
iii	Which of the following tasks is typically associated with computer vision?	1
111	a) Predicting stock prices	1
	b) Translating text from one language to another	
	c) Identifying faces in images	
	d) Classifying emails as spam or not spam	
iv	What does 'overfitting' refer to in the context of machine learning models?	1
- '	a) A model that performs well on both training and testing data	
	b) A model that is too simple to capture the underlying patterns in the data	
	c) A model that performs exceptionally well on training data but poorly on testing data	
	d) A model that has been successfully deployed in a production environment	
V	In the context of computer vision, what does "object detection" involve?	1
	a) Analysing and converting text data into numerical data	
	b) Identifying and locating objects within an image	
	c) Sorting emails based on their content	
	d) Predicting weather conditions based on historical data	
vi	It is defined as the fraction of positive cases that are correctly Identified:	1
	a) F1 Score b) Precision c) Accuracy d) Recall	
Q4	Answer any 5 out of the given 6 questions (1X5=5 marks)	
i	work around a script which is programmed in them.	1
	a) Script bots b) Smart bots	
	c)Both of the above d)None of the above	
ii	Assertion (A): The confusion matrix provides a summary of prediction results on a	1
	classification problem.	
	Reason (R): The confusion matrix includes values for true positives, true negatives, false	
	positives, and false negatives, which help in evaluating the performance of a classification	
	model.	
	a) Both Assertion and Reason are correct, and Reason is the correct explanation for Assertion.	
	Assertion. b) Both Assertion and Reason are correct, but Reason is not the correct explanation for	
	Assertion.	
	c) Assertion is correct, but Reason is incorrect.	
	d) Assertion is incorrect, but Reason is correct.	
iii	When a machine possesses the ability to mimic human traits, i.e., make decisions, predict	1
111	the future, learn and improve on its own, it is said to have	1
	a) Artificial Intelligence b) Natural Intelligence	
	c) Machine Understanding d) Machine Intelligence	
iv	Which of the following is not an authentic source for data acquisition?	1
_ '		

	1) C	
	a) Sensors b) Surveys c) Web Seroning d) System Healting	
*7	c)Web Scraping d) System Hacking is defined as the percentage of correct predictions out of all the	1
V	observations.	1
	a) F1 Score b) Precision	
	c) Accuracy d) Recall	
vi	Statement 1: Email filter is an application of Data Science.	1
	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.	
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	1
	a) Arrangement of the words and meaning	
	b) Multiple Meanings of a word	
	c) Perfect Syntax, no Meaning	
	d) All of the above	
ii	Which is an AI based chatbot?	1
	a) Script bot b) Smart bot	
	c) Both d)None	
iii	Smita makes a machine which is designed to learn by itself using the provided data and	1
	make accurate Predictions/ Decisions, Which of the following enables the machines for	
	making Predictions/ Decisions?	
	a) Artificial Intelligence b) Deep Learning	
	c) Machine 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	1
	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 b) Data Cleaning	
	c) Data Analysis d) Data Preprocessing	
vi	Which one of the following scenarios would result in a high false positive cost?	1
* 1	a) A model that correctly identifies emails as spam when they are actually spam, in a scenario	1
	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.	
	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	2
	such symbols and write any 2 advantages of using that type of communication.	
7	'Security break is leakage of information stored in a computer'. Write any two ways in	2
	which a security break can happen.	
8	Imagine you are a high school student working on a group project for your AI class. The	2
	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.	

	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	2
	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	
10	frequency what are the called?	
12	a) When anyone searches about Surgeon on the internet, the picture of a Male appears.	2
	Why it happens.	
10	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	2
	has forgotten the next stage. help her by listing all the remaining steps in the sequence and	
14	explain the objectives of these steps. Explain the term aspect ratio. How it is expressed	2
	1	
15	Data Sciences majorly work around analysing the data and when it comes to AI, the	2
	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	
16	Draw the confusion matrix for the following data	2
10	• the number of true positive = 50	2
	• the number of true positive = 50	
	• the number of false positive = 43	
	• the number of false negative = 48	
	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	4
	non-AI technologies. Help him understand this integration with 2 examples.	
18	Identify the type of learning based approach in the figure and also explain various learning approaches.	4
	Input Raw Data Outputs	
	Interpretation Processing	
	Algorithms	
	Unlabeled Data	
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	4
	Provide the normalized version of the text: "The quick, brown fox jumps over the lazy dog.	
2.1	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	4
	(Water Shortage in School)	
	The Confusion Matrix Reality: 1 Reality: 0	
	Prediction: 1 75 5	
	Prediction: 0 5 15	
	i. Calculate Precision, Recall and F1 Score	
	ii. Identify the total number of predictions made by the model correctly.	