

केंद्रीय विद्यालय संगठन , कोलकाता संभाग
KENDRIYA VIDYALAYA SANGATHAN, KOLKATA REGION
 अर्ध-वार्षिक परीक्षा / Half-Yearly Examination – 2026-27

कक्षा / CLASS- VIII

अधिकतम अंक / MAX MARKS – 60

विषय / SUB - CT & AI

समय / TIME- 2.30 घंटे /Hours

QUESTION PAPER(SET-2)

General Instructions:

1. All questions are compulsory.
2. This Question Paper consists of **37 questions** in four sections: Section A,B,C & D.
3. Section A has MCQ,B has Fill in the Blanks,C has Short Answer and Section D contains Think & Apply type questions.
4. All questions of a particular section must be attempted in the correct order.

Q.No.	QUESTIONS	MARKS
A	SECTION-A (MULTIPLE CHOICE QUESTIONS)	
	All questions are compulsory	14x1=14
1	A group of students wants to build an AI system to help visually impaired people cross the road safely. Which stage of the AI Project Cycle involves identifying who will use the system, what problem it solves, and why it is needed? (a) Data Exploration (b) Problem Scoping (c) Evaluation (d) Modelling	1
2	Identifying similarities or trends among and within problems is known as: a) Pattern Recognition b) Generalization c) Decomposition d) Evaluation	1
3	Which term refers to filtering out unnecessary details and focusing only on relevant information? a) Algorithm b) Abstraction c) Pattern Recognition d) Decomposition	1
4	PQR is a 3-digit number such that it is the square of a multiple of 4. What will be the highest possible remainder when PQR is divided by 20? a) 19 b) 16 c) 15 d) 12	1
5	What will come in place of '?' in the given algorithmic series: 5, 17, 65, 257, ? a) 1024 b) 1025 c) 1285 d) 771	1
6	A recipe for baking a cake is an example of: a) Decomposition b) An Algorithm c) Abstraction d) Pattern Recognition	1
7	In the AI Project Cycle, identifying 'Who is the stakeholder, What is the problem, Where does the problem lie and Why does it need to be solved' is done in which stage? (a) Data Acquisition (b) Problem Scoping (c) Modelling (d) Evaluation	1
8	A team is building an AI model to predict crop yield. After collecting weather and soil data, they clean it and study its patterns before building the model. Which stage of the AI Project Cycle are they working on? (a) Problem Scoping (b) Modelling (c) Evaluation (d) Data Exploration	1

9	Which domain of AI enables machines to understand and interpret visual information from images and videos? (a) Computer Vision (b) Natural Language Processing (c) Data Science (d) Robotics	1
10	A hospital uses an AI system that scans X-ray images to detect signs of pneumonia. Which domain of AI does this application primarily belong to? (a) Data Science (b) Statistical Modelling (c) Natural Language Processing (d) Computer Vision	1
11	Bias in an AI model is most likely to occur due to: (a) Using too many algorithms (b) Using more colours in the interface (c) Using a faster computer (d) Training data that does not represent all groups fairly	1
12	Which of the following is an example of 'fair' AI data collection? (a) Collecting data from a diverse and representative population (b) Collecting data from only one age group (c) Ignoring data from rural areas (d) Using outdated data only	1
13	An AI-based hiring tool was trained mostly on resumes of male applicants from the past. As a result, it started ranking female candidates lower, even when equally qualified. This is an example of: (a) Data Fairness (b) Data Bias (c) Data Exploration (d) Data Encryption	1
14	A voice assistant works accurately for people speaking in a particular accent but struggles to understand other accents. What should be done to make this AI system fairer? (a) Stop using the assistant (b) Use it only for the accent it understands (c) Train it on voice data covering diverse accents and speech patterns (d) Reduce the number of users	1

B	SECTION-B Fill in the Blanks (All questions are compulsory)	10x1=10
15	Recognizing that many problems share common characteristics helps in applying the same solution, and this is called _____.	1
16	The cube of a number is obtained by multiplying the number by itself _____ times.	1
17	Computational thinking helps us to solve problems the way a _____ would process them.	1
18	Computational thinking is a problem-solving process that involves breaking down a problem into smaller, manageable parts called _____.	1
19	The first stage of the AI Project Cycle, where the problem is clearly defined using the 4Ws, is called _____.	1
20	In the AI Project Cycle, the stage where the trained model's performance is tested and checked for accuracy is called _____.	1
21	_____ is the domain of AI that deals with understanding and processing human language by machines.	1

22	AI applications used in agriculture, such as predicting crop diseases from leaf images, belong to the domain of _____.	1
23	When an AI system produces unfair or inaccurate outcomes because of unrepresentative training data, it is said to have _____ in its data.	1
24	Ensuring that an AI system treats all groups of people equally and without discrimination is known as data _____.	1
C	Section-C: Short Answer (All questions are compulsory)	8x2=16
25	Mitali writes the following successive cubic difference patterns on the board: $2^3 - 1^3 = 1 + 2 \times 1 \times 3$ $3^3 - 2^3 = 1 + 3 \times 2 \times 3$ $4^3 - 3^3 = 1 + 4 \times 3 \times 3$ Using this algorithmic rule: (a) Evaluate the exact numerical value of $12^3 - 11^3$. (b) In the resulting expression $18^3 - 17^3$, write the expansion, evaluate its final value, and state which DIGIT appears the HIGHEST number of times in the result.	2
26	Explain the role of AI in agriculture.	2
27	Differentiate between finding the 'square' and the 'cube' of a number, giving one example of each.	1+1
28	List and briefly explain any four stages of the AI Project Cycle.	2
29	What is meant by 'Data Acquisition' in the AI Project Cycle? Give one example of a data source.	2
30	Mention any four real-life applications of Artificial Intelligence, along with the domain each belongs to.	2
31	How is AI used in the field of healthcare? Give two examples.	2
32	What is meant by 'fairness' in AI? Why is it important while designing AI systems?	1+1
D	Section-D: Think & Apply (All questions are compulsory)	5 x 4 =20
33	Riya is preparing for her school's Annual Day function. She has to manage decorations, arrange for a sound system, prepare a dance performance, and organize refreshments — all before the event day. Read the above case and answer the following: (a) Which component of Computational Thinking is Riya using when she divides her work into decorations, sound, dance, and refreshments? (b) Name one more component of Computational Thinking she could use to plan her tasks more effectively, and explain how. (c) Why is this approach better than trying to handle the entire event planning at once?	1+2+1
34	A teacher asks students to identify which numbers between 1 and 100 are perfect squares and which are perfect cubes. (a) Explain how Pattern Recognition can help a student quickly identify perfect squares without checking every number individually. (b) Explain how Decomposition can be used to divide this task between a group of four students working together.	2+2

35	A school wants to build an AI system to reduce food wastage in the mess by predicting how much food should be prepared each day. Using the stages of the AI Project Cycle (Problem Scoping, Data Acquisition, Data Exploration, Modelling, Evaluation), explain how the team should proceed from identifying the problem to evaluating the final model.	4
36	Your city's traffic department wants to use AI to reduce traffic congestion at major junctions. Suggest which domain(s) of AI (Computer Vision, NLP, Data Science) could be used for this project, and explain with reasoning how each suggested domain would help solve the problem.	1+1+1+1
37	An AI-based loan approval system was found to be rejecting applications from people living in certain neighbourhoods more often, even when their financial background was similar to approved applicants. As a young AI learner, explain what might have caused this problem, what type of issue this represents, and suggest two steps the developers could take to make the system fairer.	1+1+1+1

****END****