

SET	A
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INDIAN SCHOOL MUSCAT
FINAL EXAMINATION 2023

ARTIFICIAL INTELLIGENCE (417)

CLASS:IX

Max.Marks: 50

QN.NO	VALUE POINTS	MARKS SPLIT UP
	SECTION – A (Each question carries 1 mark)	
1.	B. Memory Unit	1
2.	C. Business management	1
3.	C. Web camera	1
4.	B. Input unit	1
5.	B. Fuzzy logic	1
6.	C. Responsible consumption and production	1
7.	A. Data exploration	1
8.	B. continuous data	1
9.	A. Neural networks	1
10.	D. Automatic washing machine	1
11.	A. 6	1
12.	c. 25	
13.	c. LIST	
14.	a. print	
15.	C. .PY	
	SECTION – B (Each question carries 2 marks)	
16.	Definition + Any four skills	1+1
17.	Definition + Any two benefits	1+1
18.	Explain role + Explain any two (CU, MU, ALU)	1+1

	OR Difference + Example	
19.	a. Explanation supervised and reinforcement learning b. Explanation - chatbot OR a. Definition + Any application b. Explanation - self driving car	1+1
20.	Any four benefits + Any 2 data visualization tool	1+1
21.	+ operator – with integer acts as addition operator & with string acts as concatenation operator * Operator - with integer acts as multiplication operator & with string acts as replication operator Ex; 12+2 =12; “School”+“ISM”=SchoolISM 12*2=24; “School”*2=SchoolSchool OR HarryPotter 231433 1200 INDIAN SCHOOL	2
	SECTION – C (Each question carries 3 marks)	
22.	Any 2 applications + Explanation - Fuzzy logic	2+1
23.	Explanation - ANI, AGI and ASI OR MT- MACHINE TRANSLATION SDG- SUSTAINABLE DEVELOPMENT GOALS IVR-INTERACTIVE VOICE RESPONSE	1+1+1
24.	Definition + EXPLAIN 4w’s (Who, What, Where and Why)	1+2
25.	Definition + Explanation - importance of Neural networks	1+2
26.	len=4 br=2 area=len * br peri = 2 * (len+bre) print(“Area= “, area) print(“Perimeter= “, peri)	3

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27.	i. Explanation - String slicing & String Indexing (1 ½marks) ii. a. 0 b. 21 c. D (1 ½ marks)	1 ½ + 1 ½
	SECTION – D (Each question carries 4 marks)	
28.	Definition - (a. Time stamped data b) Machine data c) Open data d) Big data OR Expalation – (a. Root node b) division node c) leaf node d) branch)	1+1+1+1 1+1+1+1
29.	a. Rule based approach + Definition a. Learning based approach + Definition	2 + 2

		SET	B
QN.NO	VALUE POINTS	MARKS SPLIT UP	
	SECTION – A (Each question carries 1 mark)		
1.	B. Climate action	1	
2.	a.Data exploration	1	

3.	a.Neural networks	1
4.	d. Control unit	1
5.	a.Expert systems	1
6.	b. Memory Unit	1
7.	d.Automatic washing machine	1
8.	c. Business management	1
9.	d. microphone	1
10.	b.continuous data	1
11.	c.py	1
12.	a. 7.5	
13.	b. 9	
14.	c.List	
15.	d.Int	
	SECTION – B	
	(Each question carries 2 marks)	
16.	<p>Write the significance of * operator with respect to integers and strings with example.</p> <p>* Operator - with integer acts as multiplication operator . * Operator with string acts as replication operator Ex; 12*2=24; “School”*2=SchoolSchool (1 mark) String indexing with example (1 mark)</p> <p style="text-align: center;">OR</p> <p>a.Write the output:</p> <p>120</p> <p>“DATASCIENCE” (1 mark)</p> <p>b. string slicing definition and example.(1 mark)</p> <p>Definition + Any four skills</p>	1+1
17.	<p>Definition NLP + Any application (1 mark) Explanation - self driving car (1 mark)</p> <p style="text-align: center;">OR</p> <p>c. Explanation supervised and reinforcement learning (1mark) d. Explanation – chatbot (1 mark)</p>	1+1
18.	Difference between input and output units with an example of each.(1 mark)	1+1

	<p>Name the different units of computer (1 mark)</p> <p>OR</p> <p>Explain role of CPU (1 mark) + Explain any two (CU, MU, ALU) (1 mark) Difference + Example</p>	
19.	<p>Self management is the ability to control one's thoughts, emotions, behaviors etc., in any given situation.(1 mark)</p> <p>Benefits of Self management skills</p> <ul style="list-style-type: none"> • Develop good habits • Overcome bad habits • Motivate to achieve goals in life • Helps to overcome difficult situations (any two – 1mark) <p>c. Definition + Any application d. Explanation - self driving car</p>	1+1
20.	<p>Data visualization tools are software applications that render information in a visual format such as a graph, chart, or heat map for data analysis purposes.(1 mark)</p> <p>Benefits Of Data Visualisation</p> <ul style="list-style-type: none"> • Better understanding of Data • Allows user interaction • Provides real time analytics • Helps in decision making • Reduces Data complexity • Provides the relationships and models contained in the data(Any four benefits 1 mark) 	1+1
21.	<p>Entrepreneurship is the ability of an individual to convert innovative ideas into action. In other words the process of starting a new business is called Entrepreneurship.(1 mark)</p> <p><u>Entrepreneurship skills</u></p> <ul style="list-style-type: none"> • Business management • Teamwork and leadership • Communication and listening. • Customer service • Financial management (any two – 1mark) 	2
	<p style="text-align: center;">SECTION – C</p> <p style="text-align: center;">(Each question carries 3 marks)</p>	
22.	<p>+ operator – with string acts as concatenation operator Ex; “School”+“ISM”=SchoolISM</p> <p>* Operator - with string acts as replication operator “School”*2=SchoolSchool (1 ½ marks)</p> <p>a. 22 b. n c. 1 (1 ½Marks)</p>	<p>1 ½ + 1 ½</p>
23.	Side=5	3

	$\text{area} = \text{Side} * \text{Side}$ $\text{peri} = 4 * \text{Side}$ <code>print("Area= ", area)</code> <code>print("Perimeter= ", peri)</code>	
24.	Any 3 applications of AI - (1 ½ marks) Deep Learning is the process of implementing Neural Networks on high dimensional data to gain insights and form solutions. Deep Learning is an advanced field of Machine Learning that can be used to solve more advanced problems. (1 ½ Marks)	1 ½ + 1 ½
25.	Explanation - ANI, AGI and ASI (1 mark each) OR a. SDG- SUSTAINABLE DEVELOPMENT GOALS b. IVR-INTERACTIVE VOICE RESPONSE c. MT- MACHINE TRANSLATION (1 mark each)	1+1+1
26.	A neural network is a method in artificial intelligence that teaches computers to process data using interconnected nodes or neurons in a layered structure that resembles the human brain.(2 mark) It creates an adaptive system that computers use to learn from their mistakes and improve continuously.(1 mark)	2+1
27.	a. Explanation of the three AI modelling approaches- (1 ½marks) Project cycle is a step by step process to solve the problems using proven scientific methods and drawing the inference about it. Components of project cycle are the steps which contributes in completing the Project - Problem scoping,data acquisition,data exploration,modeling ,evaluation (1 ½ marks)	1 ½ + 1 ½
	SECTION – D (Each question carries 4 marks)	
28.	a. Rule based approach + Definition b. Learning based approach + Definition	1+1+1+1 1+1+1+1
29.	a. A Decision tree is a flowchart-like tree structure, where each internal node denotes a test on an attribute, each branch represents an outcome of the test, and each leaf node (terminal node) holds a class label(2 marks) b. Root node:It is the top node in the decision tree (1 mark) Leaf node: The terminal nodes in a decision tree are called leaf nodes.(1 mark) OR a) Spatiotemporal Data - Spatiotemporal Data: The data which contains information related to geographical location and time is considered as spatiotemporal data. It records the location through GPS and time-stamped data where the event is captured or data is collected.(1 mark)	2 + 2

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	<p>b) Big data - Big Data: Big data refers to the data that cannot be stored by any system or traditional data collection software like DBMS or RDBMS software can be considered as Big data.(1 mark)</p> <p>c) Real-time Data -Real-time Data: The data which is available with an event is considered as realtime data.(1 mark)</p> <p>d) Open data -Open Data: It refers to freely available reusable data(1 mark)</p>	
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		SET	C
QN.NO	VALUE POINTS	MARKS SPLIT UP	
	SECTION – A (Each question carries 1 mark)		
1.	b.Monitor	1	
2.	c.ALU	1	
3.	b. continuous data	1	
4.	d. Financial management	1	
5.	b. Memory Unit	1	
6.	c. Affordable and clean energy	1	
7.	a. Data exploration	1	
8.	d.100	1	

9.	a. Neural networks	1
10.	c.py	1
11.	c. Fuzzy logic	1
12.	d. Automatic washing machine	1
13.	a. Tuple	1
14.	c.print()	1
15.	b.32	1
	SECTION – B (Each question carries 2 marks)	
16.	Difference between input and output unit (1 mark) Example- 1 mark. OR Parts of CPU (1 mark), explanation - 1 mark	1+1
17.	Benefits Of Data Visualisation <ul style="list-style-type: none"> • Better understanding of Data • Allows user interaction • Provides real time analytics • Helps in decision making • Reduces Data complexity • Provides the relationships and models contained in the data(Any four benefits ½ mark each) 	1+1
18.	Entrepreneurship is the ability of an individual to convert innovative ideas into action. In other words the process of starting a new business is called Entrepreneurship.(1 mark) <u>Entrepreneurship skills</u> <ul style="list-style-type: none"> • Business management • Teamwork and leadership • Communication and listening. • Customer service • Financial management (any two – ½ mark each) 	1+1
19.	Explain supervised learning.- 1 mark reinforcement learning – 1 mark OR a. Definition NLP + Any application (1 mark)	1+1

	b. Give an example for Humanoid robot.- sofia - 1 mark	
20.	Self management is the ability to control one's thoughts, emotions, behaviors etc., in any given situation.(1 mark) Benefits of Self management skills <ul style="list-style-type: none"> • Develop good habits • Overcome bad habits • Motivate to achieve goals in life • Helps to overcome difficult situations (any two – 1mark) 	1+1
21.	+ operator – with string acts as concatenation operator Ex; “School”+“ISM”=SchoolISM (1 mark) * Operator - with string acts as replication operator “School”*2=SchoolSchool (1 mark) OR Write the output: <ul style="list-style-type: none"> a. 200 b. DATADATADATADATA c. 20 d. 10 (½ marks each) 	1+1
	SECTION – C (Each question carries 3 marks)	
22.	Problem scoping Definition (1 mark) + EXPLAIN 4w's (Who, What, Where and Why) (2 marks)	1+2
23.	Difference between string indexing and slicing (2 Marks) Example – 1 mark.	2+1
24.	A neural network is a method in artificial intelligence that teaches computers to process data using interconnected nodes or neurons in a layered structure that resembles the human brain.(2 mark) It creates an adaptive system that computers use to learn from their mistakes and improve continuously.(1 mark)	3
25.	a. Any 2 applications of AI - (1 marks) b. Deep Learning is the process of implementing Neural Networks on high dimensional data to gain insights and form solutions. Deep Learning is an advanced field of Machine Learning that can be used to solve more advanced problems. (2 Marks)	1 +2
26.	radius=4 area= 3.14 *radius * radius circ =2 x 3.14 * radius	1+1+1

	<pre>print("Area= ", area) print("circumference = ", circ)</pre>	
27.	<p>a. IVR-INTERACTIVE VOICE RESPONSE b. MT- MACHINE TRANSLATION c. SDG- SUSTAINABLE DEVELOPMENT GOALS (1 mark each)</p> <p>OR</p> <p>Explanation - ANI, AGI and ASI (1 mark each)</p>	1+1+1
	SECTION – D (Each question carries 4 marks)	
28.	<p>a. Data visualization tools are software applications that render information in a visual format such as a graph, chart, or heat map for data analysis purposes.(2 marks) Tableau • Fusion charts • Google charts • Microsoft Excel • Jupyter (any two – 1mark)</p> <p>b. Data Acquisition is the process of collecting accurate and reliable data for the project. (1 mark)</p> <p>OR</p> <p>b) Machine data - The result or output of a specific program, system or technology is considered as machine data. It consists of data related to a user's interaction with the system like the user's logged-in session data, specific search records, user engagement such as comments, likes and shares etc.(1 mark)</p> <p>b) Spatiotemporal data - Spatiotemporal Data - Spatiotemporal Data: The data which contains information related to geographical location and time is considered as spatiotemporal data. It records the location through GPS and time-stamped data where the event is captured or data is collected.(1 mark)</p> <p>c) Big data - Big data refers to the data that cannot be stored by any system or traditional data collection software like DBMS or RDBMS software can be considered as Big data.(1 mark)</p> <p>c) d) Time stamped data - This structure helps the system to predict the next best action. It is following a specific time-order to define the sequence. This time can be the time of data captured or processed or collected.(1 mark)</p>	
29.	<p>c. Learning based approach + Definition d. Rule based approach + Definition</p>	1+1+1+1

