

COMMON PRE-BOARD EXAMINATION 2023-24
ARTIFICIAL INTELLIGENCE (417)
(SET 1)

Date:29-01-2024
CLASS X

Max Marks:50
Time:2 Hours

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 (1 x 4 = 4 marks)	
i.	<p>There was a young boy who was fond of playing football and wanted to become a football player. He joined a football academy and came regularly to practice but never made it to the team. For four days, the boy didn't show up for practice. The matches had begun and his team was playing the finals. He showed up for the finals. He went up to the coach and pleaded him to let him play for the match. The coach had never seen the boy plead like this before. The Game started and the boy played like a ball on fire. Every time he got the ball, he shot a goal. Needless to say, he was the star of the game and his team won. What type of motivation did the boy demonstrate?</p> <p>a) External b) Internal c) Both internal and external d) Not any specific type of motivation</p>	1
ii.	<p>Here are the steps that take place when starting a computer. Rearrange the steps in the correct order.</p> <p>i) Desktop appears after login ii) Login screen appears iii) Power on Self-Test (POST) starts iv) Operating system starts v) Welcome screen appears</p> <p>a) i) -> ii) -> iii) -> iv) -> v) b) ii) -> iv) -> iii) -> v) -> i) c) iii) -> iv) -> v) -> ii) -> i) d) iii) -> v) -> iv) -> ii) -> i)</p>	1
iii.	<p>Raj learnt that if a laptop gets overheated, the internal parts get damaged. What happens if he leaves his device plugged in even after it is charged 100%?</p> <p>(a) It can break (b) It can stop functioning (c) It can overheat (d) Data can get corrupt</p>	1
iv.	<p>Identify the incorrect statement(s) from the following:</p> <p>(i) Deep learning is a subset of Machine Learning (ii) Machine Learning is a subset of Deep Learning (iii) Artificial Intelligence is a subset of Deep Learning (iv) Deep Learning is the advanced form of AI and ML</p> <p>(a) only (i) (b) (ii) and (iii) (c) (i) and (ii) (d) Only (iii)</p>	1
v.	<p>_____refers to focusing human efforts for maintaining a healthy body and mind capable of better withstanding stressful situations</p> <p>a) Mental Health b) Emotional Health c) Self-Management d) Stress Management</p>	1

vi.	Priya was confused with the terms used in the evaluation stage. Suggest her the term used for the percentage of correct predictions out of all the observations. (a) Accuracy (b) Precision (c) Recall (d) F1 Score	1
Q. 2 Answer any 5 out of the given 6 questions (1 x 5 = 5 marks)		
i.	Mary has two people who work for her. Every day, she spends one hour with them to learn about what they've done that day. (a) Creates a new product (b) Divides income (c) Manages the business (d) Takes risks	1
ii.	The _____ canvas helps you in identifying the key elements related to the problem. a) Problem scoping b) 4Ws Problem c) Project cycle d) Algorithm	1
iii.	“Efforts are made to increase the solar power generation so that our electricity needs are met and at the same time, we do not pollute the environment or use up natural resources”. Which SDG can you relate this statement to? (a) Life on land (b) Clean water and sanitation (c) Affordable and clean energy (d) Reduced inequalities	1
iv.	_____ is caused when natural or a man-made disturbance disrupts the natural balance of an ecosystem. a) Pollution b) Damage c) Natural disaster d) Ecological Imbalance	1
v.	The Indian Government banned a few apps stating – “ <i>servers in the hostile nation are receiving and using the acquired data improperly</i> ”. Which terminology suits best for this action? (a) AI Ethics (b) Data Privacy (c) AI Bias (d) AI Access	1
vi.	Which algorithms result in two things, a vocabulary of words and frequency of the words in the corpus? (a) Sentence segmentation (b) Tokenisation (c) Bag of words (d) Text normalization	1

Q.3	Answer any 5 out of the given 6 questions (1x5=5 marks)	
i.	When a user installs an app in the smartphone, it asks for access to gallery, contacts, etc. After accepting this, it gives the user agreement which most users accept without realizing the implications. What is the concern here? (a) Data Privacy (b) Unemployment (c) AI bias (d) No concern	1
ii.	Which feature of NLP helps in understanding the emotions of the people mentioned with the feedback? (a) Virtual Assistants (b) Sentiment Analysis (c) Text classification (d) Automatic Summarization	1
iii.	What will be the outcome, if the Prediction is “Yes” and it matches with the Reality? What will be the outcome, if the Prediction is “Yes” and it does not match the Reality? a) True Positive, True Negative b) True Negative, False Negative c) True Negative, False Positive d) True Positive, False Positive	1
iv.	Artificial Intelligence is about _____. a) Playing a game on Computer b) Making a machine Intelligent c) Programming on Machine with your Own Intelligence d) Putting your intelligence in Machine	1
v.	A corpus contains 4 documents in which the word ‘diet’ was appearing once indocument1. Identify the term in which we can categorise the word ‘diet’. (a) Stop word (b) Rare word (c) Frequent word (d) Removable word	1
vi.	Which of the following is not an application of artificial intelligence? a) Face recognition system b) Chatbots c) LIDAR d) DBMS	1

Q. 4	Answer any 5 out of the given 6 questions (1 x 5 = 5 marks)	
i.	We can’t make “good” decisions without information. (True/False)	1
ii.	Prediction and Reality can be easily mapped together with the help of: a) Prediction b) Reality c) Accuracy d) Confusion Matrix	1

iii.	Give 2 examples of Supervised Learning models. a) Classification and Regression b) Clustering and Dimensionality Reduction c) Rule Based and Learning Based d) Classification and Clustering	1
iv.	_____ refer to the type of features that we want to collect.	1
v.	Which of the following is the type of data used by NLP applications? (a) Images (b) Numerical data (c) Graphical data (d) Text and Speech	1
vi.	What was one of the earliest applications of data science? a) Genetics & Genomics b) Internet Search c) Fraud and Risk Detection d) Targeted Advertising	1

Q. 5	Answer any 5 out of the given 6 questions (1 x 5 = 5 marks)	
i.	_____ helps us to summarise all the key points into one single Template so that in future, whenever there is a need to look back at the basis of the problem, we can take a look at this and understand the key elements of it.	1
ii.	The term Sentence Segmentation is a) the whole corpus is divided into sentences b) to undergo several steps to normalise the text to a lower level c) in which each sentence is then further divided into tokens d) the process in which the affixes of words are removed	1
iii.	What is the purpose of website recommendations? a) To improve user experience b) To promote products c) To suggest similar products d) All of the above	1
iv.	Which one of the following scenario result in a high false positive cost? (a)viral outbreak (b)forest fire (c)flood (d)spam filter	1
v.	Which of the following is not part of the AI Project Cycle? a) Data Exploration b) Modelling c) Testing d) Problem Scoping	1
vi.	What is Digital Image Processing? a) It's an application that alters digital videos b) It's a software that allows altering digital pictures c) It's a system that manipulates digital medias d) It's a machine that allows altering digital images	1

SECTION B: SUBJECTIVE TYPE QUESTIONS

Answer any 3 out of the given 5 questions on Employability Skills (2 x 3 = 6 marks)

Answer each question in 20 – 30 words.

Q. 6	Enlist any 2 SDGs which are formulated to address the problems related to water?	2
Q. 7	What is a confusion matrix? What is it used for?	2
Q. 8	Write down the steps to implement bag of words algorithm.	2
Q. 9	Name the four main categories of Communication.	2
Q. 10	If you do an image search for vacations on a popular search engine, the first few searches mostly return the picture of beaches. What is the concern here? Explain.	2

Answer any 4 out of the given 6 questions in 20 – 30 words each (2 x 4 = 8 marks)

Q. 11	All of us use smartphones. When we install a new app, it asks us for several permissions to access our phone's data in different ways. Why do apps collect such data?	2
Q. 12	What is a corpus?	2
Q. 13	Explain the term resolution with an example.	2
Q. 14	Give 2 points of difference between a script-bot and a smart-bot	2
Q. 15	Raj has a small convenience store in his locality. There are many other convenience stores in the area. Yet, Raj's store survives the competition and does well. Which stage of an entrepreneur's career process can you relate this to? Explain.	2
Q. 16	What do entrepreneurs do when they run their business? Mention any two points.	2

Answer any 3 out of the given 5 questions in 50– 80 words each (4 x 3 = 12 marks)

Q. 17	Write the applications of NLP (Natural Language Processing). (Any four)	4
Q. 18	Your grandmother watches you use AI applications. She wants to understand more about it. Help her understand the term artificial intelligence by giving the right definition and explain to her with an example how machines become artificially intelligent.	4
Q. 19	Ashwat is amazed to learn about his sister Ananya who is multi-talented and has excelled in academics, music, dancing, sports and painting. He was quite curious when Ananya told him that he too possessed all these intelligences like every human being does, but only at different levels. He wondered which intelligence she was talking about. Can you help Ashwat in learning about different types of intelligences by naming and explaining any four types of intelligences?	4
Q. 20	Akhil wants to learn how to scope the problem for an AI Project. Explain him the following: 1. 4W Problem Canvas 2. Problem Statement Template	4
Q. 21	Neural networks are said to be modelled the way how neurons in the human brain behave. A similar system is mimicked by the AI machine to perform certain tasks. Explain how neural networks work in an AI model and mention any three features of Neural Networks.	4

***** ALL THE BEST *****