UNIVERSITY OF CALCUTTA · Previous Year Question Paper

2025

ARTIFICIAL INTELLIGENCE — HONOURS

Paper: SEC-2.2

(Artificial Intelligence)

Full Marks: 50

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The figures in the margin indicate full marks.
Candidates are required to give their answers in their own words as far as practicable.

Answer *any twenty-five* questions. 2×25

1. What is Artificial Intelligence (AI)?
(A) A system that mimics human behaviour without using any data
(B) A system that learns from data and improves its performance
(C) A natural phenomenon that occurs in animals
(D) A type of hardware used in robotics.

2. Which of the following is a branch of AI?
(A) Quantum Physics (B) Machine Learning
(C) Thermodynamics (D) Fluid Mechanics.

3. Who is considered the father of Artificial Intelligence?
(A) Alan Turing (B) John McCarthy
(C) Marvin Minsky (D) Geoffrey Hinton.

4. Which type of learning requires labeled data for training?
(A) Supervised learning (B) Unsupervised learning
(C) Reinforcement learning (D) Semi-supervised learning.

5. What is the primary goal of unsupervised learning?
(A) To predict future outcomes based on historical data
(B) To classify data into predefined categories
(C) To find hidden patterns or intrinsic structures in data
(D) To optimize decision-making through trial and error.

6. Which of the following is a popular type of generative model used in AI for creative applications?
(A) Decision Trees (B) Convolutional Neural Networks (CNNs)
(C) Generative Adversarial Networks (GANs) (D) Support Vector Machines (SVMs).

7. What distinguishes AI from traditional computer programs?
(A) AI can only run on cloud platforms
(B) AI does not require programming
(C) AI can learn from data and improve performance
(D) AI does not follow fixed logic.

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8. Computer Vision is mostly related to

(A) Voice data (B) Image and video data

(C) Text analysis (D) Data mining.

9. Which of the following is a clustering algorithm?

(A) Naïve Bayes (B) K-Means

(C) Linear Regression (D) Decision Tree.

10. Sentiment analysis belongs to which domain?

(A) Robotics (B) Computer Vision

(C) NLP (D) Data Structures.

11. What is the primary goal of responsible AI practices?

(A) To maximize automation

(B) To increase profits

(C) To ensure ethical, fair and safe deployment of AI systems

(D) To reduce AI model size.

12. Generative AI models are designed to

(A) store information

(B) delete old data

(C) create new content such as images, text or music

(D) backup cloud data.

13. In reinforcement learning, the agent learns by

(A) studying labeled data

(B) being explicitly programmed for each action

(C) receiving rewards or penalties based on its actions

(D) storing historical records only.

14. A model that outputs 'yes' or 'no' is a

(A) Regression model (B) Classification model

(C) Clustering model (D) Optimization model.

15. The RNN model is ideal for

(A) Images (B) Sequential data

(C) Static graphs (D) Decision trees.

16. A chatbot that uses NLP can perform which of the following?

(A) Recognize handwritten digits

(B) Drive autonomous vehicles

(C) Conduct real-time conversations with users

(D) Process video frames.

17. What is a major cause of bias in AI systems?

(A) Too much memory
(B) Biased training data
(C) Fast computation
(D) Use of neural networks.

18. How does AI pose a risk to privacy?
(A) By encrypting data
(B) By replacing passwords
(C) By using personal data without consent
(D) By deleting records.

19. What is a potential negative impact of biased AI systems?
(A) Improved accuracy
(B) Unequal treatment to different groups
(C) Reduced training time
(D) Greater diversity.

20. An example of regression task is
(A) Predicting house prices
(B) Text summarization
(C) Categorizing emails into spam or not
(D) Finding number patterns.

21. What is Deep Learning?
(A) High-level programming
(B) AI-based expert system
(C) Subfield of ML using neural networks
(D) Text-based searching.

22. Which of the following is an example of unsupervised learning?
(A) Sentiment analysis
(B) Image classification
(C) Clustering customer data
(D) Fraud detection.

23. What role does AI play in medical imaging?
(A) Scanning patients manually
(B) Sending lab results
(C) Detecting patterns in scans like X-rays and MRIs
(D) Printing medical reports.

24. Which of the following is a major component of AI?
(A) Data Structures
(B) Operating Systems
(C) Knowledge Representation
(D) Cryptography.

25. In finance, AI is widely used for
(A) managing cafeteria inventory
(B) detecting fraudulent transactions
(C) office maintenance scheduling
(D) HR performance reviews.

26. In AI, what does the term 'heuristic' refer to?
(A) A guaranteed solution
(B) A shortcut to find a good solution
(C) An exact algorithm
(D) A random solution.

27. Given below are certain steps. What is the correct order for solving an AI problem?
(i) Gathering knowledge
(ii) Defining problem
(iii) Applying solution

(iv) Planning

(v) Forming the state space.

(A) (i), (v), (ii), (iv) and (iii)
(B) (i), (ii), (iii), (iv) and (v)
(C) (ii), (i), (v), (iv) and (iii)
(D) None of these.

28. Knowledge in AI can be represented as

(A) Predicate logic
(B) Propositional logic
(C) Both (A) and (B)
(D) None of the above.

29. Which of the following is a component of expert system?

(A) Inference engine
(B) knowledge base
(C) User interface
(D) All of the above.

30. The Turing Test is used to determine whether a machine can

(A) perform arithmetic
(B) store information
(C) exhibit intelligent behaviour
(D) compile a program.

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