
COMP1004 Introduction to Artificial Intelligence and Data Analytics (Quiz 2)**19:10 – 20:00 26 Nov 2022 (SAT)****Student ID:** _____ **Name:** _____**Answering Sheet**

1.F	2.T	3.F	4.F	5.F	6.T	7.F
8.T	9.F	10.F	11.D	12.D	13.D	14.D
15.A	16.B	17.C	18.C	19.B	20.A	21.BC
22.ABCD	23.ABCD	24.ABC	25.ABCD			

-----**We will only review the answering sheet above**-----

True/False: *given a statement, you shall indicate whether the statement is true or false.*

1. (True/False) If we are to design neural networks to conduct multi-class classification, we usually adopt the Softmax function as the training loss.
2. (True/False) Naïve Bayes is a supervised learning model.
3. (True/False) Natural Language Processing is another name for Speech Processing.
4. (True/False) No dialogue agent has passed the Turing test.
5. (True/False) Task-based Dialogue Agents are for mainly open-domain chitchats?
6. (True/False) We may overfit a complex model if we train it on small-scale data.
7. (True/False) A vector is an unordered list of numbers.
8. (True/False) In the training of word embeddings, the goal is to enable words with similar meanings to exhibit larger cosines.
9. (True/False) Deep Learning generally has better interpretability than Decision Tree.
10. (True/False) Unsupervised learning allows us to train a machine learning model without data.

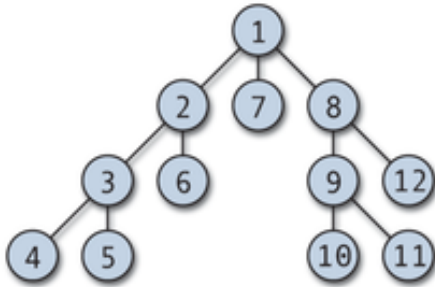
Multi-choice: *given a question with 4 candidate choices, only one correct choice correctly answers the question. You shall select the correct choice to get the mark.*

11. (Multi-choice) The video websites, e.g., Youtube, may recommend videos to users with _____ technology.
 - A. Natural Language Processing.
 - B. Social Network Analysis.
 - C. Collaborative Filtering.

D. All of the above.

12. (Multi-choice) In the following graph, what is the degree of node 1?

- A. 0
- B. 1
- C. 2
- D. 3



13. (Multi-choice) Which of the following is NOT an ethical issue in Artificial Intelligence?

- A. Data Privacy
- B. Training Transparency
- C. Bias and Fairness
- D. Surrogate Pregnancy

14. (Multi-choice) Given two images, x and y, where x is grey-level, and y is colored.

Meanwhile, the resolution of x is higher than y. What is the relative file size of the two images?

- A. x has a larger file size than y
- B. x has a smaller file size than y
- C. x has an equal file size than y
- D. We cannot have a certain answer from the conditions.

15. (Multi-choice) If you were an HR designing model able to filter out low-quality resumes, which technologies are you most likely employ?

- A. Natural Language Processing
- B. Collaborative Filtering
- C. Instance Segmentation
- D. Speech Recognition

16. (Multi-choice) Social network analysis measures “small-world phenomena” over _____ on the social graph.

- A. Average node degrees
- B. Average path length

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- C. Minimal node degrees
 - D. Minimal path length
17. (Multi-choice) Suppose you were a doctor in Hospital ABC and want to team up with an Artificial Intelligence researcher for method development to automatically examine an X-ray picture and detect the possible problem therein. Which of the following will be most likely the one you need?
- A. Data mining expert Prof. W.
 - B. Graph analysis expert Prof. X.
 - C. Computer vision expert Prof. Y.
 - D. Speech processing expert Prof. Z
18. (Multi-choice) Which of the following recommender system algorithm may possibly recommend new items well even though these items have no history of user interaction with them or feedback to them?
- A. Item-based Collaborative Filtering
 - B. User-based Collaborative Filtering
 - C. Content-based Filtering
 - D. Social Information Filtering
19. (Multi-choice) Which of the following questions is the least likely to be answered with a machine-learning model?
- A. What are the similar words of a given the word?
 - B. What is a user's average friends in a social network?
 - C. What is the weather for tomorrow?
 - D. What are the objects in an image?
20. (Multi-choice) For tweet sentiment classification with neural networks, if a tweet can be labeled "positive," "neutral," or "negative," we should activate the output layer with _____ function.
- A. Softmax
 - B. Sigmoid
 - C. Cross-entropy
 - D. Decision

Multi-answer: given a question with 4 candidate choices, there might be 1,2,3,4 choice(s) correctly answer the question. You shall select all the correct choices and exclude all the wrong choices to get the mark. In other words, no partial mark will be allocated.

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21. (Multi-answer) Given the image in the following, you may employ ____ task(s) in Computer vision to answer this question “how many dogs are there in the picture?”



- A. Semantic Segmentation
 - B. Object Detection
 - C. Instance Segmentation
 - D. Face Recognition
22. (Multi-answer) Which application(s) in the following may be benefited from Natural Language Processing technology?
- A. Sentiment analysis for movie reviews
 - B. Medical dialogue systems
 - C. Email spam detection
 - D. News recommendation
23. (Multi-answer) Which of the following is categorized in machine learning?
- A. Supervised Learning
 - B. Unsupervised Learning
 - C. Reinforcement Learning
 - D. Classification
24. (Multi-answer) We can use ____ to handle sentiment classification for tweets.
- A. Naïve Bayes
 - B. Logistic Regression
 - C. Deep Learning
 - D. Linear Regression
25. (Multi-answer) The voice assistants, e.g., Siri from Apple, employ the technology of ____.
- A. Speech Recognition
 - B. Natural Language Processing
 - C. Chatbots
 - D. Conversational Agents