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BAHR DAR UNIVERSITY
BAHR DAR INSTITUTE OF TECHNOLOGY
FACULTY OF COMPUTING

Introduction to Emerging Technologies Mid Exam

Total mark 30% | Time allowed 60 Minutes | Date: August 11, 2021 | Target group 1st Year Students

General Instruction

- Switch off your phone
- W
-

to precisely and concisely
hibited

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Section 6A

Part I. Write true if true, false if false if the statement is incorrect (5 pts.)

- False 1. NoSQL technologies are designed to store data in a row and column format.
- False 2. Currently available AI systems cannot beat the imaginative and creative thinking power of human beings.
- False 3. The primary goal of HCI is to improve the interaction between computer to computers.
- False 4. A much bigger percentage of all the data in our world is semi-structured data.
- False 5. HDFS is a centralized file system in Hadoop ecosystem.

Part II. Choose the best answer from the given alternatives (15 pts)

- C 1. Which of the following is the goal of data condition in the Big Data Value Chain?
A. Persistence of data in a scalable way
B. Conducting data-driven business activities
C. Ensuring quality of data
D. Highlighting relevant data
- C 2. Which of the following is an example of unstructured data?
A. Spreadsheet
B. XML
C. NoSQL databases
D. SQL databases
- A 3. Which of the following device is responsible for executing software instructions in digital electronic systems?
A. Microprocessor
B. Logic Device
C. Storage device
D. Network device
- A 4. Which of the following component of AI systems is responsible for taking action?
A. Interacting layer
B. Interpreting layer
C. Sensing layer
D. Perception layer
- D 5. The type of AI machines which only focus on current scenarios and react on it as per possible best action.
A. Self-Awareness
B. Limited memory
C. Theory of mind
D. Reactive Machine

6. A highly increasing amount of data, which cannot be stored, processed, and analyzed using the Relational database management systems
 A. Data science
 B. Big data
 C. Hadoop
 D. NoSQL
7. Which one of the following, can't be considered as the key features of Hadoop?
 A. Reliability
 B. Low Scalability
 C. Flexibility
 D. Economical
8. Which one of the following is the influencer of AI, which enables software components to communicate with each other?
 A. Big data
 B. Cloud computing
 C. Data science
 D. API
9. Which Industrial revolution era is characterized by electricity and mass production?
 A. Digital
 B. Technological
 C. Mechanical
 D. AI
10. Which one of the following can be the motivating factor for the development of IR 4.0?
 A. Artificial Intelligence
 B. Big data analytics
 C. Cloud computing
 D. All of the above
11. Which of the following is some sort of hardware architecture or software framework that allows the software to run?
 A. Hadoop file system
 B. Platform
 C. API
 D. Chat bot
12. The level of AI that is not available today
 A. Context awareness and Retention
 B. Rule based systems
 C. Domain specific expertise
 D. Self-aware systems
13. The strength of narrow AI is:
 A. It can exhibit the capabilities of the human brain.
 B. It is able to capture scientific creativity, general wisdom, and social skills.
 C. It focuses on a specific task which enables to do tasks well.
 D. It is much smarter than the best human brains practically in every field.
14. Which of the following Hadoop component is used for a distributed data storage unit?
 A. HDFS
 B. MapReduce
 C. ZooKeeper
 D. Hadoop YARN
15. The field of artificial neural networks with several hidden layers is _____.
 A. Machine learning
 B. NLP
 C. Deep learning
 D. Cloud computing

Part III. Discuss and explain each question carefully

1. List at least four disadvantages of AI? (2 pts.)

- ✓ high cost.
- ✓ no original creativity.
- ✓ increasing dependence on machine.
- ✓ no feelings and emotion.
- ✓ Unemployment
- ✓ can not think outside the box.

2. List and discuss at least three characteristics of big data. (2 pts.)

1. Volume - large amount of data.
2. Velocity - data at live stream/motion.
3. Variety - consists of different types of data.
4. Veracity - how the data can trust/accurate?
→ data in doubt

3. What are the goals of artificial intelligence (list at least 4)? (2 pts.)

- ✓ replicate human intelligence
- ✓ solve knowledge-intensive tasks.
- ✓ intelligent connection of perception and action.
- ✓ create expertise system exhibit domain specific task.
- ✓ build machines in order to do specific work.

4. List four disciplines contributing to Human-Computer Interaction (HCI) (2 pts.)

- ✓ Computer Science.
- ✓ Cognitive Psychology.
- ✓ Engineering and Design.
- ✓ Language.
- ✓ Artificial Intelligence.

5. Is it possible to map the way of human thinking to artificial intelligence components? If your answer is Yes, how? (2 pts.)

Yes, it is possible to map the way of human thinking to artificial intelligence components by the following stages:
Stage 1 - observing and collecting the inputs of data / information from the surrounding envt. put in to the brain.
Stage 2 - interpret and evaluate the inputs of data coming from the surrounding envt.
Stage 3 - Finally make decisions / take action.

So, it is possible to map the way of human thinking to AI components.