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## B.Tech DEGREE EXAMINATION, DECEMBER 2023

Fifth Semester

### 18CSE305T - ARTIFICIAL INTELLIGENCE IN AGILE SYSTEMS

*(For the candidates admitted during the academic year 2020 - 2021 & 2021 - 2022)*

**Note:**

- i. **Part - A** should be answered in OMR sheet within first 40 minutes and OMR sheet should be handed over to hall invigilator at the end of 40<sup>th</sup> minute.
- ii. **Part - B** and **Part - C** should be answered in answer booklet.

**Time: 3 Hours**

**Max. Marks: 100**

#### PART - A (20 × 1 = 20 Marks)

Answer all Questions

Marks BL CO

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|---|--|---|---|---|
| 1. Relate the principle of agile practice from the list given below for real world applications<br>(A) Embrace change, Frequent delivery, Cooperation, Autonomy and motivation<br>(C) Space and Time complexity, Embrace change                               | (B) Good coding , shortened space, Autonomy and motivation<br>(D) User friendly coding, Embrace change | 1 | 2 | 1 |
| 2. Relate the artificial Intelligence approach used for Face Recognition system applications<br>(A) Weak AI approach<br>(C) Cognitive AI approach   | (B) Applied AI approach<br>(D) Strong AI approach  | 1 | 1 | 1 |
| 3. Relate the process in which the user requirements are expressed in Extreme Programming<br>(A) Implementation tasks<br>(C) Scenarios  | (B) Functionalities<br>(D) Agent approach  | 1 | 2 | 1 |
| 4. Select the framework activities of the Extreme Programming<br>(A) Analysis, design, coding, testing<br>(C) Planning, design, coding, testing   | (B) Planning, analysis, design, coding<br>(D) Planning, analysis, coding, testing                      | 1 | 1 | 1 |
| 5. Infer the consequences of Communication overhead between Strategy and Context<br>(A) Builder Pattern<br>(C) Façade Pattern   | (B) Fly weight pattern<br>(D) Strategy Pattern   | 1 | 2 | 2 |
| 6. Which of the following pattern creates object without exposing the creation logic to the client and refer to newly created object using a common interface<br>(A) Factory Pattern<br>(C) Abstract Factory Pattern  | (B) Façade Pattern<br>(D) Singleton Pattern  | 1 | 1 | 2 |
| 7. Match the given process with the pattern given below<br>Creating a abstract class , create the concrete class that extends abstract class and generating object of concrete classes are performed<br>(A) Singleton pattern<br>(C) Abstract factory pattern | (B) Factory pattern<br>(D) Strategy Pattern  | 1 | 1 | 2 |
| 8. Relate the pattern, all the classes coupling is reduced in implementing real world software applications<br>(A) Iterator pattern<br>(C) Mediator pattern   | (B) Façade pattern<br>(D) Proxy pattern  | 1 | 2 | 2 |

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|---|---|---|---|
| 9. Relate the correct process involved in agile process application   | 1 | 2 | 3 |
| (A) The result of each sprint is a high-quality increment of software or customer value                               |   |   |   |
| (B) The result of each sprint is a low-quality increment of software or customer value                                |   |   |   |
| (C) Mistakes cannot be caught early by working in short spurts  |   |   |   |
| (D) The other patterns that participate with the pattern  |   |   |   |
| 10. Find the optimal number of members for an Agile team for an application development                               | 1 | 1 | 3 |
| (A) 25  |   |   |   |
| (B) approximately 10 people   |   |   |   |
| (C) approximately 35 people   |   |   |   |
| (D) 50  |   |   |   |
| 11. Infer the Agile perspective on errors and mistakes in project development   | 1 | 2 | 3 |
| (A) Mistakes can be caught early by working in short spurts that allow for immediate review, learning, and adjustment |   |   |   |
| (B) Not allowing for immediate review, learning, and adjustment   |   |   |   |
| (C) Mistakes cannot be caught early by working in short spurts for reviews  |   |   |   |
| (D) Ensure that no more than one instance of a class exist  |   |   |   |
| 12. Which Agile framework breaks workload into smaller increments to improve team focus and simplify testing          | 1 | 1 | 3 |
| (A) Scrum   |   |   |   |
| (B) Connective  |   |   |   |
| (C) Collaborative   |   |   |   |
| (D) Iterative   |   |   |   |
| 13. Infer the importance of Liskov Substitution Principle in software project development                             | 1 | 2 | 4 |
| (A) Ensure that more than one instance of a class exists  |   |   |   |
| (B) Less amount of business knowledge is needed   |   |   |   |
| (C) Cannot find autonomous acquisition of knowledge   |   |   |   |
| (D) helps us model good inheritance hierarchies   |   |   |   |
| 14. Which of these can be used to fully abstract a class from its implementation                                      | 1 | 1 | 4 |
| (A) Objects   |   |   |   |
| (B) Packages  |   |   |   |
| (C) Interfaces  |   |   |   |
| (D) Substitution Principle  |   |   |   |
| 15. Which of the following is an incorrect statement about packages   | 1 | 1 | 4 |
| (A) Interfaces specifies what class must do but not how it does   |   |   |   |
| (B) Interfaces are specified public if they are to be accessed by any code in the program                             |   |   |   |
| (C) All variables in interface are implicitly final and static  |   |   |   |
| (D) All variables are static and methods are public if interface is defined public                                    |   |   |   |
| 16. Interpret among the following best describes polymorphism   | 1 | 2 | 4 |
| (A) It is the ability for a message/data to be processed in more than one form  |   |   |   |
| (B) It is the ability for a message/data to be processed in only 1 form   |   |   |   |
| (C) It is the ability for many messages/data to be processed in one way   |   |   |   |
| (D) It is the ability for undefined message/data to be processed in at least one way                                  |   |   |   |
| 17. Infer the real time challenges of big data from the following   | 1 | 2 | 5 |
| (A) Storing huge Volume of data   |   |   |   |
| (B) Data Processing   |   |   |   |
| (C) Data encryption, Data segregation, Identity and access control Implementation of endpoint security                |   |   |   |
| (D) Accessing huge volume of data   |   |   |   |

18. Relate the Risks of artificial Intelligence from the following	1	2	5
(A) Easy to assist human for all operations			
(B) Lack of AI Implementation Traceability, Black Box Algorithms and Lack of Transparency			
(C) Less powerful than human			
(D) Fails to enable analyzing property			
19. Relate the data analytics tools from the following	1	2	5
(A) C, C++			
(B) Java			
(C) RapidMiner., KNIME., Power BI			
(D) Visual Studio IDE			
20. Interpret the process of AI can be used to check patients into hospitals and collect patient information	1	2	5
(A) Data and statistics			
(B) AI-assisted robotic surgery			
(C) Virtual nursing assistants			
(D) Image analysis			

**PART - B (5 × 4 = 20 Marks)**

Answer any 5 Questions

Marks BL CO

21. Analyze the need for agent in real world application, compare and contrast human with artificial intelligence based agent and Explain agent and its components in detail	4	4	1
22. Identify the process of Gang of Four design patterns, illustrate the need for strategy planning and the real time applications of strategy planning in detail	4	3	2
23. Compare and contrast abstract class and concrete class in the implementation of real world application in detail	4	4	2
24. Examine the business value of agile in artificial intelligence in detail with real world examples	4	4	3
25. Identify the various components of the agile database techniques stack with neat diagram in detail	4	3	3
26. Compare and contrast class interfaces and object interfaces relating with real world situations in detail	4	4	4
27. Analyze the procedure for implementing Real time data analytics by providing the advantages and disadvantages in detail	4	4	5

**PART - C (5 × 12 = 60 Marks)**

Answer all Questions

Marks BL CO

28. (a) Examine the need for agile practices in software applications and illustrate the various principle of agile practices in detail. Identify how the agile practices are different form Traditional project implementation practices	12	3	1
(OR)			
(b) Identify the need for Extreme programming in real world applications. Analyze the key practices of Extreme Programming in detail. Compare Extreme programming with Traditional programming practices in detail			
29. (a) Identify the motivation parameters for mediator pattern and provide the solution for the same with the clear illustration of structure , participants and collaborators of Mediator pattern In detail	12	3	2
(OR)			
(b) Identify the intent of singleton pattern with the motivation, structure, applicability , participants , consequences with the advantages and disadvantages of real time implementation in detail			

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|-----|---|----|---|---|
| 30. | (a) Examine the need for Agile Methodologies for Data Science with various methodologies for agile in data science and illustrate how to Organizing Agile for AI Data Scientist in detail           | 12 | 4 | 3 |
|     | <b>(OR)</b>   |    |   |   |
|     | (b) Examine the responsibility of an agile data engineer with skills in implementing a real world application and provide the advantages in using agile process in data engineering                 |    |   |   |
| 31. | (a) Analyze the need for Dependency inversion principle and discuss how the agile methodology is applied in Dependency inversion principle for handling real world situation with example in detail | 12 | 4 | 4 |
|     | <b>(OR)</b>   |    |   |   |
|     | (b) Examine the need for Layering in Artificial intelligence and illustrate how layering can be applied using agile methodology in real world application   |    |   |   |
| 32. | (a) Identify the Need for agile in health care with Agile Principles in Hospital regarding health care with Scrum usage in Health care with real time examples                                      | 12 | 3 | 5 |
|     | <b>(OR)</b>   |    |   |   |
|     | (b) Identify the various Concerns in Outsourcing Healthcare App Development using Agile system in real time applications in detail  |    |   |   |

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