

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

B.Tech Degree S6 (S,FE) Examination December 2025 (2019 Scheme)

Course Code: AMT308**Course name: COMPREHENSIVE COURSE WORK**

Max. Marks: 50

Duration: 1 Hour

- Instructions:**
- (1) Each question carries one mark. No negative marks for wrong answers
 - (2) Total number of questions: 50
 - (3) All questions are to be answered. Each question will be followed by 4 possible answers of which only ONE is correct.
 - (4) If more than one option is chosen, it will not be considered for valuation.

1. What is the value of the postfix expression $6\ 3\ 2\ 4\ +\ -\ *?$
a) 74 b) -18 c) 22 d) 40
2. The prefix form of $A-B/(C * D ^ E)$ is?
a) $-A/B * C ^ DE$ b) $-A/BC * ^ DE$ c) $-ABCD * ^ DE$ d) $-/* ^ ACBDE$
3. Which of the following applications makes use of a circular linked list?
a) Recursive function calls b) Undo operation in a text editor c) Implement Hash Tables d) Allocating CPU to resources
4. Which of the following tree data structures is not a balanced binary tree?
a) Splay tree b) B-tree c) AVL tree d) Red-black tree
5. Which algorithm is used in the top tree data structure?
a) Backtracking b) Divide and Conquer c) Branch d) Greedy
6. Which is the most appropriate data structure for reversing a word?
a) stack b) queue c) graph d) tree
7. A data structure in which elements can be inserted or deleted at/from both ends but not in the middle is?
a) Priority queue b) Dequeue c) Circular queue d) Queue
8. If several elements are competing for the same bucket in the hash table, what is it called?
a) Diffusion b) Replication c) Collision d) Duplication
9. Consider an implementation of an unsorted singly linked list. Suppose it has its representation with a head pointer only. Given the representation, which of the following operations can be implemented in $O(1)$ time?

- i) Insertion at the front of the linked list
 - ii) Insertion at the end of the linked list
 - iii) Deletion of the front node of the linked list
 - iv) Deletion of the last node of the linked list
- a) I and II b) I and III c) I, II and III d) I, II and IV
10. What is the maximum number of edges in a bipartite graph having 10 vertices?
a) 24 b) 21 c) 25 d) 16
11. To access the services of the operating system, the interface is provided by the
a) Library b) System calls c) Assembly instructions d) bly instructions d)
12. Which one of the following errors will be handled by the operating system?
a) lack of paper in printer b) connection failure in the network c) power failure d) all of the mentioned
13. When a process is in a “Blocked” state waiting for some I/O service. When the service is completed, it goes to the
a) Terminated state b) Suspended state c) Running state d) Ready state
14. A deadlock avoidance algorithm dynamically examines the _____ to ensure that a circular wait condition can never exist.
a) operating system b) resources c) system storage state d) resource allocation state
15. Which process can be affected by other processes executing in the system?
a) cooperating process b) child process c) parent process d) init process
16. Which module gives control of the CPU to the process selected by the short-term scheduler?
a) dispatcher b) interrupt c) scheduler d) none of the mentioned
17. Memory management technique in which a system stores and retrieves data from secondary storage for use in main memory is called?
a) fragmentation b) paging c) mapping d) none of the mentioned
18. From the following, which is not a common file permission?
a) Write b) Execute c) stop d) read
19. A process is thrashing if
a) it is spending more time paging than executing b) it is spending less time paging than executing c) page fault occurs d) swapping can not take place
20. If we preempt a resource from a process, the process cannot continue with its normal execution and it must be

- a) aborted b) rolled back c) terminated d) queued
- 21 K-Nearest Neighbors (KNN) is classified as what type of machine learning algorithm?
- a) Instance-based learning b) Parametric learning c) Non-parametric learning d) Model-based learning
- 22 Which algorithm is best suited for a binary classification problem?
- a) K-nearest Neighbors b) Decision Trees c) Random Forest d) Linear Regression
- 23 Which one of the following models is a generative model used in machine learning?
- a) Support vector machines b) Naïve Bayes c) Logistic Regression d) Linear Regression
- 24 An artificially intelligent car decreases its speed based on its distance from the car in front of it. Which algorithm is used?
- a) Naïve-Bayes b) Decision Tree c) Linear Regression d) Logistic Regression
- 25 The learner is trying to predict housing prices based on the size of each house. The variable “size” is
- a) dependent variable b) label set variable c) independent variable d) target variable
- 26 Which of the following statements is false about Ensemble learning?
- a) It is a supervised learning algorithm b) It is an unsupervised learning algorithm c) More random algorithms can be used to produce a stronger ensemble d) Ensembles can be shown to have more flexibility in the functions they can represent
- 27 What is the application of machine learning methods to a large database called?
- a) Big Data Computing b) Internet of Things c) Data Mining d) Artificial Intelligence
- 28 Which of the following machine learning techniques helps in detecting the outliers in data?
- a) Classification b) Clustering c) Anomaly Detection d) All of the above
- 29 The most significant phase in genetic algorithm is _
- a) Mutation b) Selection c) Fitness function d) Crossover
- 30 What does K stand for in K mean algorithm?
- a) Number of clusters b) Number of Data c) Number of attributes d) Number of iterations
- 31 Which type of data can be stored in the database?
- a) Image oriented data b) Text, files containing data c) Data in the form of audio or video d) All of the above
- 32 Which of the following is not an example of DBMS?
- a) MySQL b) Microsoft Access c) IBM DB2 d) Google

- 33 The ability to query data, as well as insert, delete, and alter tuples, is offered by
 a) TCL b) DCL c) DDL d) DML
- 34 The traditional storage of data organized by the customer, stored in separate folders in filing cabinets is an example of _____ type of 'database' management system.
 a) Object-oriented database management system b) Relational database management system c) Network database management system d) Hierarchical database management system
- 35 Which of the following is a single valued attribute
 a) Register Number b) Address c) Subject Taken d) Reference
- 36 A table on the many side of a one to many or many to many relationship must:
 a) Be in Second Normal Form (2NF) b) Be in Third Normal Form (3NF) c) Have a single attribute key d) Have a composite key
- 37 Functional Dependencies are the types of constraints that are based on_
 a) Key b) Key revisited c) Superset key d) None of the mentioned
- 38 A method of modelling and describing user tasks for an interactive application is referred to as:
 a) Customer journey b) Primary persona c) Use case d) Web design persona
- 39 Who created the first DBMS?
 a) Edgar Frank Codd b) Charles Bachman c) Charles Babbage d) Sharon B. Codd
- 40 In which of the following formats data is stored in the database management system?
 a) Image b) Text c) Table d) Graph
- 41 Which term is used for describing the judgmental or commonsense part of problem solving?
 a) Heuristic b) Critical c) Value based d) Analytical
- 42 Decision support programs are designed to help managers make
 a) budget projections b) visual presentations c) business decisions d) vacation schedules
- 43 _____ is the common language for AI.
 a) Lisp b) Python c) PHP d) Java
- 44 Natural language processing has two subfields, namely:
 a) algorithmic and heuristic b) time and motion c) understanding and generation d) symbolic and numeric
- 45 The technique of computer vision that relies on the image templates is known as:
 a) model-based vision b) binocular vision c) robot vision d) edge detection
- 46 A blind search will be acceptable when this situation occurs:

- a) small search space b) complex game c) real-life situation d) All of the above
- 47 The maximum depth to which the alpha-beta pruning can be applied.
- a) Eight States b) Six States c) Ten States d) Any depth
- 48 Automatic Reasoning tool is used in
- a) Personal Computers b) Micro Computers c) LISP Machines d) All of the above
- 49 If according to the hypothesis, the result should be positive, but in fact it is negative, then it is known as
- a) False negative hypothesis b) False positive hypothesis c) Specialized hypothesis d) Consistent hypothesis
- 50 In the TSP problem of n cities, the time taken for traversing all cities, without having prior knowledge of the length of the minimum tour will be
- a) $O(n)$ b) $O(n^2)$ c) $O(n!)$ d) $O(n/2)$
