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FOR KSET PREPARATION

KSET 2024 Computer Science and Applications Question Paper

EXAM	YEAR	TYPE
KSET	2024	Question Paper

A1

VERSION CODE

ELIGIBILITY/COMPETITIVE EXAM 2024

PAPER-2

Total Number of Questions: 100

Maximum Marks : 200

Serial Number :

MENTION YOUR REGISTER NUMBER

Subject: COMPUTER SCIENCE & APPLICATION

INSTRUCTIONS FOR CANDIDATES

DOs:

1. This question booklet is issued to you at **9.55 a.m.** by the room invigilator.
2. Check whether the Register Number has been entered and shaded in the respective circles on the OMR answer sheet.
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2. This question booklet contains **100** questions and each question will have one statement and four different options / responses & out of which you have to choose one correct answer.
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ಸರಿಯಾದ ಕ್ರಮ CORRECT METHOD				ತಪ್ಪು ಕ್ರಮಗಳು WRONG METHODS							
①	●	③	④	⊗	②	③	④	①	●	●	④
				●	②	③	④	①	●	③	④

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8. After separating the top sheet (Office copy), the invigilator will return the bottom sheet replica (Candidate's copy) to you.
9. All questions carry equal marks.
10. Use of Mobile Phones, Calculators and other Electronic / Communication gadgets of any kind is prohibited inside the Examination venue.

1. Which one of the following logical equivalences involve biconditional statements?

(1) $p \rightarrow q \equiv \neg p \vee q$

(2) $p \vee q \equiv \neg p \rightarrow q$

(3) $(p \rightarrow q) \wedge (p \rightarrow r) \equiv p \rightarrow (q \wedge r)$

(4) $\neg (p \leftrightarrow q) \equiv p \leftrightarrow \neg q$

2. From the following arguments, determine whether they are correct or incorrect.

(i) Ice cream is delicious to eat. Rahul's dessert is not ice cream. Therefore, Rahul's dessert is not delicious to eat.

(ii) All registered voters are eligible to participate in elections. Ranjith is not eligible to participate in elections. Therefore, Ranjith is not a registered voter.

(1) Both (i) and (ii) are correct

(2) (i) is incorrect and (ii) is correct

(3) (i) is correct and (ii) is incorrect

(4) Both (i) and (ii) are incorrect

3. Relation R is defined on set A = {a,b,c,d,e}, where R = {(a,d), (b,c), (c,a), (d,e)}. Determine if R forms a tree. If it does, find the root.

(1) R is not a tree

(2) R is a tree with root a

(3) R is a tree with root b

(4) R is a tree with root d

4. Which one of the following expressions is in canonical SoP form considering the A, B, C as Boolean variables?

(1) A + B

(2) $A.\overline{B}.C + A.B.\overline{C}$

(3) A + C

(4) A.B + C

5. The chances of a defective material in three boxes x, y and z are 1/5, 1/6 and 1/7 respectively. A box is selected at random and the material drawn is found to be defective. Find the probability that it came from box A.

(1) 40/107

(2) 41/107

(3) 42/107

(4) 43/107

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6. Match the following terms related to the given Pigeonhole principle scenario and choose the correct answer.

	Term		Definition
a)	Pigeonhole principle	i.	States that when m < n, not all pigeons can be assigned
b)	Contradiction	ii.	More than one Pigeon assigned to the same Pigeonhole
c)	Assigned Pigeons	iii.	Each Pigeonhole contains atmost one Pigeon
d)	Overcrowded hole	iv.	The assumption that all Pigeons are assigned

(1) a – i, b – iv, c – iii, d – ii
(2) a – ii, b – i, c – iii, d – iv
(3) a – i, b – ii, c – iv, d – iii
(4) a – iii, b – ii, c – i, d – iv

7. Leg G be a group of order 6; H be a subgroup of G, such that $1 < |H| < 6$. Choose the best option from below.

(1) Both G and H may not be cyclic
(2) G may not be cyclic; but H is always cyclic
(3) G is always cyclic; but H may not be cyclic
(4) Both G and H are always cyclic

8. Match the following terms with their correct definitions and choose the correct option.

	Term		Definition
a)	Weighted Graph	i.	A graph with no labelled edges
b)	Weight	ii.	A graph where each has numerical value
c)	Unweighted Graph	iii.	A numerical value associated with an edge
		iv.	A graph that has no vertices

(1) a – ii, b – iii, c – i
(2) a – i, b – iv, c – ii
(3) a – ii, b – i, c – iii
(4) a – iii, b – ii, c – iv

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9. Given the following Linear Programming Problem,

minimize $Z = 6x + 3y$

Subject to the constraints

$4x + y \geq 80$

$x + 5y \geq 115$

$3x + 2y \leq 150$

$x \geq 0, \ y \geq 0$

The minimum value of Z is _____

(1) 228 (2) 150

(3) 285 (4) 240

10. In the LPP,

max $Z = 15x_1 + 45x_2$

Subject to $x_1 + 16x_2 \leq 250$

$5x_1 + 2x_2 \leq 162$

$x_2 \leq 50$

$x_1, x_2 \geq 0$

If C_2 is kept fixed at 45, determine how much C_1 can be changed without affecting the optimal solution?

(1) $15 - (195/16) \leq C_1 \leq 15 + 195/16$ (2) $-15 \leq C_1 \leq 15$

(3) $15 - (16/15) \leq C_1 \leq 15 + 16/15$ (4) $15 - C_2 \leq C_1 \leq C_2$

11. A bidirectional 4-bit shift register is storing the nibble 1110. Its input is low. The data input waiting on the serial data input line is 0111. What is the value of shift register after two clock pulses?

(1) 1110 (2) 0111

(3) 1000 (4) 1001

12. Which algorithm includes repeated addition of two predetermined values A and B to a product P and then performs a rightward arithmetic shift on P?

(1) Strassen algorithm (2) Simple algorithm

(3) Booth's algorithm (4) Specific algorithm

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13. For the given decimal number 1234,

(i) Hexadecimal equivalent is 4D2

(ii) Octal equivalent is 2322

From the above statements choose the correct option

(1) (i) is true but (ii) is false
(2) Both (i) and (ii) are true
(3) Both (i) and (ii) are false
(4) (ii) is true but (i) is false

14. The time between the receival of an interrupt and its service is called

(1) Interrupt delay
(2) Interrupt latency
(3) Cycle time
(4) Switching time

15. Which one of the following statements is TRUE for memory-mapped I/O?

(1) The I/O devices have separate address space
(2) The I/O devices and memory share the same address space
(3) A part of the memory is specially set aside for I/O operation
(4) The memory and I/O devices have an associated address space

16. In a pipeline unit, with K stages and n instructions,

(i) Speedup of the pipeline unit compared to sequential processor is $\frac{Kn}{K + (n - 1)}$

(ii) The pipeline has to be flushed if the pipeline unit encounters branch instruction.

From the above statements choose the correct option

(1) Both (i) and (ii) are false
(2) (i) is true but (ii) is false
(3) Both (i) and (ii) are true
(4) (ii) is true but (i) is false

17. In Relative Addressing Mode, the effective address = _____

(1) address part of instruction + PC
(2) address part of instruction + index register
(3) address part of instruction + base register
(4) address part of instruction + register indirect

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18. Which one of the following is a form of "locality of reference"?

(i) temporal

(ii) spatial

(iii) write-through

(iv) sequential

(1) (i), (ii) and (iii)
(2) (i), (ii) and (iv)
(3) (i), (iii) and (iv)
(4) (ii), (iii) and (iv)

19. The DMA transfer is initiated by _____

(1) Operating system
(2) Processor
(3) The process being executed
(4) I/O devices

20. How many switch points are there in a crossbar switch network that connects 9 processors to 6 memory modules?

(1) 15
(2) 9
(3) 6
(4) 54

21. How many times will the following C Loop execute?

for (j = 1; j < = 10; j = j – 1)

(1) Forever
(2) Never
(3) 0
(4) 1

22. What will be the output of the following C code?

```
int main ( ) {
int a [ ] = {1, 2, 3, 4, 5}, *P;
P = a
+ + *P;
Printf(" %d ", *P);
P + = 2;
Printf (" %d ", *P);
}
```

(1) 2 4
(2) 3 4
(3) 2 2
(4) 2 3

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23. From the following Code in 'C', what will be the output?

```
# include < stdio. h >
int main ( )
{ int *ptr, a = 10;
ptr = &a;
*ptr + = 1;
printf ("%d, %d", *ptr, a);
}
```

(1) 10, 10 (2) 10, 11

(3) 11, 10 (4) 11, 11

24. Predict the output of the following C++ Code:

```
#include <iostream>
using namespace std;
int main ( ) {
char arr [ ] = "Hello";
char *P = arr;
cout < < P < < "   "< < *P;
return 0 ;
}
```

(1) Hello Hello (2) Hello H

(3) H H (4) H Hello

25. Identify the output of the following C++ Code

```
# include <iostream>
using namespace std;
int main ( ) {
int a = 4, b = 0 × 5;
Cout < < (a & b) < < endl;
return 0;
}
```

(1) Compiler error (2) 5

(3) 4 (4) 20

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26. Which function is used to remove characters from a string in C++?

(1) remove ( )
(2) delete ( )
(3) strip ( )
(4) erase ( )

27. In the Digital Differential Analyser algorithm, the decision increment either x or y is based on:

(1) The midpoint of the line
(2) The product of x and y coordinates
(3) The error value
(4) Whether the slope is greater than 1 or less than 1

28. We rotate a point P(2,5) by 60° about a pivot point (1,2). The new transformed Point P' would be _____

(1) (– 4, 1)
(2) (1, – 4)
(3) (– 1, 4)
(4) (1, 4)

29. The algorithm that is typically used to compute points on a Bezier curve is _____

(1) Midpoint algorithm
(2) Bresenham's algorithm
(3) de Casteljau's algorithm
(4) DDA algorithm

30. In the Cohen-Sutherland line clipping algorithm, the region codes (out codes) are:

(1) 2-bit codes for each region
(2) 8-bit codes for each region
(3) 16-bit codes for each region
(4) 4-bit codes for each region

31. Which of the following can act as possible termination conditions in K-means?

(a) For a fixed number of iterations
(b) The assignment of observations to clusters does not change between iterations except for cases with a bad local minimum
(c) Centroids do not change between successive iterations
(d) Terminate when reduction in the sum of square distances between points and their assigned cluster centroids falls below threshold.

(1) (a), (b) and (c)
(2) (a), (c) and (d)
(3) (a), (b) and (d)
(4) (a), (b), (c) and (d)

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32. What is the process of examining large and varied data sets to uncover hidden patterns, unknown correlations, market trends, customer preferences and other useful information?

(1) Data Mining
(2) Data Warehousing
(3) Data Integration
(4) Data Processing

33. Match the following and choose the correct option:

List I	List II
a) Document-oriented database	i. HBase
b) Key-value database	ii. Neo 4J
c) Column-oriented database	iii. Redis
d) Graph databases	iv. MongoDB

(1) a – ii, b – iv, c – iii, d – i
(2) a – ii, b – iii, c – iv, d – i
(3) a – iv, b – iii, c – i, d – ii
(4) a – ii, b – i, c – iii, d – iv

34. The Relational Algebra does not have

(1) Selection Operator
(2) Projection Operator
(3) Aggregation Operator
(4) Division Operator

35. Which one of the following statements is FALSE?

(1) Candidate keys are the minimal keys whose superset is not a subkey
(2) Dependent entities are also called as weak entities
(3) Generalization is a relationship that exists between a higher-level entity set and the lower-level entity set
(4) A relationship is an association among entities

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36. Let R_1 (a,b,c) and R_2 (x,y,z) be two relations in which 'a' is foreign key of R_1 that refers to the primary key of R_2. Consider the following four options:

(a) Insert into R_1

(b) Insert into R_2

(c) Delete from R_1

(d) Delete from R_2

Which of the following is correct about the referential integrity constraint with respect to above?

(1) Operations (a) and (b) will cause violation

(2) Operations (b) and (c) will cause violation

(3) Operations (c) and (d) will cause violation

(4) Operations (d) and (a) will cause violation

37. Identify the correctness of the following statements:

(i) Second Normal Form eliminates partial key dependencies

(ii) Third Normal Form eliminates partial key dependencies

(1) (i) is correct and (ii) is incorrect

(2) Both (i) and (ii) are correct

(3) Both (i) and (ii) are incorrect

(4) (i) is incorrect and (ii) is correct

38. Which one of the following statements is FALSE?

(1) In Discretionary Access Control, the owner can determine the access privileges

(2) Discretionary Access Control has tighter security compared to Mandatory Access Control

(3) Discretionary Access Control is flexible with no rules and regulations

(4) Decisions will be based on the identity of the user and ownership in Discretionary Access Control

39. In a distributed system environment the location transparency allows the database users, programmers and administrators to treat the data as if it resides in a single location. An SQL query with location transparency needs to specify _____

(1) Fragments

(2) Inheritance

(3) Locations

(4) Local format

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40. Data selection deals with the

(1) actual discovery phase of a knowledge discovery process

(2) data collection and selection of right data for KDD process

(3) A subject-oriented, time-variant data collection in support of environment

(4) non-volatile collection of data

41. Which one of the following is TRUE?

(1) Unless enabled, a CPU will not be able to process interrupts

(2) Loop instructions cannot be interrupted till they complete

(3) A processor checks for interrupts before executing a new instruction

(4) Only level triggered interrupts are possible on microprocessors

42. A section of Code or set of operations in which a process may be changing shared variables is known as a _____

(1) Atom

(2) Procedure

(3) Deadlock

(4) Critical Section

43. Given below are two statements: One is labelled as Assertion (A) and the other is labelled as Reason (R)

Assertion (A): Random Access Memory (RAM) is volatile and stores data/programs currently in use.

Reason (R): RAM is a storage medium that retains its contents even after the supply of electricity has been turned off.

In the light of the above statements, choose the correct answer from the options given below:

(1) Both (A) and (R) are true and (R) is the correct explanation of (A)

(2) Both (A) and (R) are true but (R) is not the correct explanation of (A)

(3) (A) is true but (R) is false

(4) (A) is false but (R) is true

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44. Consider the following threads, T_1, T_2, T_3 executing on a single processor, synchronzied using three binary semaphore variables S_1, S_2, S_3.

Operated upon using standard wait ( ) and signal ( ).

The threads can be context switched in any order and at any time.

T_1	T_2	T_3
While (true) {	While (true) {	While (true) {
Wait (S_3);	Wait (S_1);	Wait (S_2);
Print ("C");	Print ("B");	Print ("A");
Signal (S_2);}	Signal (S_3);}	Signal (S_1);}

Which initialization of the semaphores would print the sequence BCABCABCA .....?

(1) $S_1 = 1; S_2 = 1; S_3 = 1$

(2) $S_1 = 1; S_2 = 0; S_3 = 0$

(3) $S_1 = 0; S_2 = 1; S_3 = 1$

(4) $S_1 = 1; S_2 = 1; S_3 = 0$

45. Consider the 3 processes, P1, P2 and P3 shown in the below table.

Process	Arrival Time	Time Unit Required
P1	0	5
P2	1	7
P3	3	4

The Completion order of the 3 processes under the policies FCFS and RR2 (Round Robin Scheduling with CPU quantum of 2 time units) are _____

(1) FCFS: P1, P2, P3 RR2: P1, P2, P3

(2) FCFS: P1, P3, P2 RR2: P1, P3, P2

(3) FCFS: P1, P2, P3 RR2: P3, P1, P2

(4) FCFS: P1, P3, P2 RR2: P1, P2, P3

46. _____ is the disk scheduling algorithm used in Solid State Drives (SSDs)

(1) SCAN

(2) SSTF

(3) C-SCAN

(4) FCFS

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47. Listed below are some Operating System abstractions and the hardware components, which matching pair is correct?

	List - I		List - II
a)	Thread	i.	Interrupt
b)	Virtual address space	ii.	Memory
c)	File system	iii.	CPU
d)	Signal	iv.	Disc

(1) a – iii, b – ii, c – iv, d – i
(2) a – iii, b – iv, c – i, d – ii
(3) a – ii, b – iii, c – iv, d – i
(4) a – iv, b – ii, c – i, d – iii

48. _____ is a popular cryptographic algorithm for digital signatures and public key infrastructure.

(1) RSA
(2) MD5
(3) AES
(4) SHA – 1

49. In _____ technique, Virtual Memory Managers (VMMs) do not virtualize real hardware but instead creates an optimized virtual system.

(1) Paravirtualization
(2) Emulator
(3) Application containment
(4) Programming-Environment Virtualization

50. Match the following and choose the correct option:
In Linux Virtual File System

	List - I		List - II
a)	An inode object	i.	Represents an entire file system
b)	A file object	ii.	Represents an individual directory entry
c)	A super block object	iii.	Represents an open file
d)	A dentry object	iv.	Represents an individual file

(1) a – iii, b – ii, c – iv, d – i
(2) a – iv, b – iii, c – ii, d – i
(3) a – ii, b – i, c – iii, d – iv
(4) a – iv, b – iii, c – i, d – ii

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51. What are the phases of the Adaptive Software Development Model?
(1) Speculation, Collaboration and Learning
(2) Requirements, Analysis, Design, Evolution and Delivery
(3) Feasibility Study, Business Study, Functional Model Iteration, Design and Build Iteration, Implementation
(4) Planning, Design, Coding, Testing

52. What is the primary purpose of Sprint Retrospective in SCRUM FRAMEWORK?
(1) To plan for another Scrum's Sprint
(2) To review test cases from the beginning
(3) To review the past Scrum's Sprint and identify any improvement
(4) None of the above

53. The first step in writing a use case is to define the set of _____ that will be involved in the story.
(1) Actors
(2) Devices
(3) User
(4) Storyteller

54. How to estimate the effort using cost per person-month to calculate total cost of a software, if it has 10 persons-months and the average cost per person-month as $ 5000.
The total cost is:
(1) $ 50,000
(2) $ 40,000
(3) $ 60,000
(4) $ 70,000

55. Consider the given statements.
(1) Statement 1 : Cost of conducting technical reviews for Software Engineering work products
(2) Statement 2 : Cost of data collection and metrics evaluation
(3) Statement 3 : Cost of testing and debugging
These statements are the examples of _____.
(1) External Failure Costs
(2) Prevention Costs
(3) Internal Failure Costs
(4) Appraisal Costs

56. _____ approach is used when a project encompasses the use of existing software that must be modified in some way as part of a project
(1) Fuzzy Logic Sizing
(2) Standard Component Sizing
(3) Function Point Sizing
(4) Change Sizing

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57. A timeline chart is also called _____

(1) PERT
(2) Gantt Chart
(3) CPM
(4) WBS

58. A software is requiring 5000 Lines (LoC). Using basic COCOMO model, the effort E is calculated as

$$E = 3 \times (KLoC)^{1.2}$$

With these details, derive the estimated effort rightly in person-months.

(1) $E = 3 \times (5)^{1.2}$
(2) $E = 3 \times (10)^{1.2}$
(3) $E = 3 \times (4)^{1.2}$
(4) $E = 3 \times (2)^{1.2}$

59. A _____ complements the technical review by assessing a configuration object for characteristics that are generally not considered during the review.

(1) Version Control
(2) Change Control
(3) Software Configuration Audit
(4) Status Reporting

60. A software processes user requests and produces responses as below:

- Number of Inputs : 4
- Number of Outputs : 2

What is the 'functional independence' based on the 'output to input' ratio?

(1) 2
(2) 4.0
(3) 0.5
(4) 0.0

61. The average time complexity of quick sort is _____

(1) O (N log(N))
(2) O(N)
(3) $O(N^2)$
(4) O(log(N))

62. In a complete binary tree, if an element is assigned the number i (where $1 \leq i \leq n$), then which of the following statements is TRUE regarding its children?

(1) If $2i + 1 > n$, the element has no right child
(2) If $2i > n$, the elements has a left child
(3) The left child is always assigned the number $2i - 1$
(4) The right child is assigned the number 2i

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63. What is the primary advantage of using balanced search trees, such as AVL **OR** red-black trees, for solving a histogramming problem when the number of distinct keys m is small compared to n?

(1) They require more memory to store all keys

(2) They are easier to implement than sorting methods

(3) They can solve the problem in O (m × n) time

(4) They can solve the problem in O (n log m) time

64. Which one of the following is not a step of Dynamic Programming?

(1) Characterize the structure of optimal solutions

(2) Recursively defines the values of optimal solutions

(3) Compute the value of optimal solutions in a Bottom-Up minimum

(4) Compute the value of optimal solutions in a Top-Down minimum

65. Which of the following statements is **TRUE** when AVL search trees are utilized to represent a dictionary, ensuring that each dictionary operations is performed in logarithmic time?

(i) The height of an AVL tree with n elements / nodes is O (log n) and every value of n, $n \geq 0$, there exists an AVL tree

(ii) An n element AVL search tree can be searched in O (height) = O (log n) time

(iii) A new element can be inserted into an n-element AVL search tree so that the result is an n + 1 element AVL tree and such insertion can be done in O (log n) time

(iv) An element can be deleted from an n-element AVL search tree, $n > 0$, so that the result is an n – 1 element AVL tree and such a deletion can be done in O (log n) time

(1) i and ii only

(2) i, ii, and iii only

(3) ii and iv only

(4) i, ii, iii and iv

66. _____ are a set of problems that can be solved in polynomial time by deterministic algorithms.

(1) NP class problems

(2) P class problems

(3) Travelling salesman problem

(4) Knapsack problem

67. _____ are numbers that cannot form a palindrome when repeatedly reversed and added to itself.

(1) Lemoine's numbers

(2) Perfect numbers

(3) Amicable numbers

(4) Lychrel numbers

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68. Which of the following statements is **TRUE** regarding the time complexity of Prim's algorithm using adjacency matrix?

(1) O (V + E)
(2) O (V ^ 2)
(3) O (E log V)
(4) O (V log V)

69. Which one of the following statements is **TRUE**?

(1) Parallel merge sort is based on divide and conquer algorithm
(2) Parallel merge sort is based on backtracking
(3) Odd-Even Transposition sort is based on Insertion sort technique
(4) Odd-Even Transposition set is based on Selection sort technique

70. _____ is performed to reduce the likelihood of the erroneous outputs in randomized algorithms.

(1) approximation
(2) amplification
(3) characterization
(4) randomization

71. The grammar that is used to accept $L = \{a^i b^j \mid i > j\}$ is given by :

(1) $S \rightarrow aSb, S \rightarrow aS, S \rightarrow a$
(2) $S \rightarrow aSb, S \rightarrow bS, S \rightarrow b$
(3) $S \rightarrow abS, S \rightarrow b$
(4) $S \rightarrow abS, S \rightarrow bS, S \rightarrow b$

72. Which one of the following is **TRUE** for a finite-state machine L_1 and regular expressions L_2 both representing the same class of language?

(1) $L_1 < L_2$
(2) $L_1 > = L_2$
(3) $L_1 \cup L_2 = .*$
(4) $L_1 = L_2$

73. Which one of the following grammars is in Chomsky normal form?

(1) $S \rightarrow AB \mid BC \mid CD, A \rightarrow 0, B \rightarrow 1, C \rightarrow 2, D \rightarrow 3$
(2) $S \rightarrow AB, S \rightarrow BCA \mid 0 \mid, \mid 2 \mid 3$
(3) $S \rightarrow ABa, A \rightarrow aab, B \rightarrow Ac$
(4) $S \rightarrow aSb, S \rightarrow ab$

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74. The Halting Problem for a Turing Machine is

(1) Solvable for all Turing Machines

(2) Solvable for deterministic Turing Machines only

(3) Solvable if the machine has a finite tape

(4) Undecidable

75. Which one of the following instances of the Post Correspondence Problem has a viable sequence?

(1) {(b, bb), (bb, bab), (bab, abb), (abb, babb)}

(2) {(ab, aba), (baa, aa), (aba, baa)}

(3) {(ab, abb), (ba, aaa), (aa, a)}

(4) {(ab, b), (b, a)}

76. The grammar $S \rightarrow SS \mid (S) \mid \in$ is not suitable for predictive passing because it is

(1) left recursive

(2) ambiguous

(3) not an operator grammar

(4) right recursive

77. Flow of information among the attributes in a parse tree is denoted by

(1) Flow graph

(2) Directed graph

(3) Dependency graph

(4) Semantic graph

78. The optional access link in the activation record is used for

(1) pointing to the activation record of the cache

(2) referring non-local data held in other activation records

(3) holding temporary values

(4) holding all global variables

79. The primary data structure used by an LR parser to keep track of the parsing process is _____

(1) Stack

(2) Queue

(3) Linked List

(4) Binary Tree

80. Which one of the following types of parsing techniques is commonly associated with attributed grammars?

(1) Bottom-up parsing

(2) Top-down parsing

(3) LL parsing

(4) LR parsing

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81. If a carrier modulated by a digital bit stream has one of the possible phase of 0, 90, 180 and 270 degrees, such modulation is called as

(1) BPSK
(2) QAM
(3) MSK
(4) QPSK

82. Match the following for IPV4 addressing and select the correct key

a) class A	(i) 2 bytes for network portion, 2 bytes for host portion
b) class B	(ii) multicasting
c) class C	(iii) 1 byte for network portion, 3 bytes for host portion
d) class D	(iv) 3 portions for network portion, 1 byte for host portion

(1) a – iv, b – i, c – iii, d – ii
(2) a – iii, b – i, c – iv, d – ii
(3) a – ii, b – iii, c – i, d – iv
(4) a – iv, b – ii, c – iii, d – i

83. A bridge operates at the data link layer giving it access to the _____ address of all the stations connected to it.

(1) physical
(2) logical
(3) relative
(4) absolute

84. For a network with n devices, the number of duplex-mode links required for mesh topology is:

(1) n(n + 1)
(2) n(n – 1)
(3) n(n + 1) / 2
(4) n(n – 1) / 2

85. The process of dividing an analog signal into a string of discrete outputs, each denoting a constant amplitude is called as

(1) Strobing
(2) Amplification
(3) Quantization
(4) Conditioning

86. When data and acknowledgement are sent in a same frame, it is known as

(1) Routing
(2) Synchronization
(3) Piggy-bagging
(4) Discretization

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87. The role of Address Resolution Protocol (ARP) is to find the

(1) IP address from the DNS

(2) IP address of the client

(3) IP address that corresponds to a MAC address

(4) MAC address that corresponds to an IP address

88. Which of these are **TRUE** for public-private key encryption algorithm?

(i) Private key of the receiver is used by the sender to encrypt the message

(ii) Public key is used by the receiver to decrypt the message

(1) Only (i) is true

(2) Only (ii) is true

(3) Both (i) and (ii) are true

(4) Both (i) and (ii) are false

89. Which of these statements are CORRECT?

(i) When a router receives the packet, TTL is reduced by one

(ii) When a router receives the packet, TTL is increased by one

(iii) If the TTL count is zero and the packet has not reached the destination, the packet is discarded

(iv) If the TTL count is 255 and the packet has not reached the destination, the packet is discarded

(1) Only (i) is correct

(2) Only (ii) is correct

(3) Only (i) and (iii) are correct

(4) Only (ii) and (iv) are correct

90. The Mobile Application Part (MAP) is a/an _____ protocol that provides an application layer for the various nodes in GSM and UMTS mobile core networks and GPRS core networks.

(1) SS7

(2) SNMP

(3) SMTP

(4) HTTP

91. What for is the Turing Test designed to assess?

(1) Computing Power

(2) Machine's behaviour similar to human's

(3) Accuracy of results

(4) None of the above

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92. Suppose you are constructing AI for an intergalactic travel planner. What representation handles multiple planets?

(1) Stacking planets in a priority queue based on their beauty

(2) A graph connecting planets with worm hole edges for quick travel

(3) A hash table mapping planets to their languages

(4) An array of codes to encode planet coordinates

93. What is the purpose of Tokenization in NLP?

(1) To divide text into punctuation marks

(2) To convert the sentence into lower case

(3) To remove stopwords and breakdown into small units

(4) None of the above

94. Which one of the following is used to query RDF in semantic web?

(1) SQL (2) XML

(3) Relation Data Query (4) SPARQL

95. Which technique considers the problem of extracting a reward function from observed optimal behaviour of an expert acting in an environment?

(1) Inverse reinforcement learning (2) Reinforcement learning

(3) Supervised learning (4) Unsupervised learning

96. Fuzzy arithmetic obeys the extension principle, which allows arithmetic operations on fuzzy sets. Which property does this principle reflect?

(1) Closure property (2) Equivalence property

(3) Monotonicity property (4) Modus Ponens property

97. Fuzzy equivalence relation is a type of fuzzy relation that satisfies

(1) Equivalence, linearity and transitivity

(2) Asymmetry, commutativity and transitivity

(3) Irreflexivity, asymmetry and associativity

(4) Reflexivity, symmetry and transitivity

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98. In a multilayer perception, the back propagation algorithm is used
(1) As it initializes the weights of networks
(2) To optimize search algorithms
(3) To speed up learning
(4) To propagate errors back through network to update the weights

99. Which one of the following is not a specified method that is used for the selection of parents?
(1) Steady state selection
(2) Tournament selection
(3) Boltzmann selection
(4) Elitism

100. Which one of the following algorithm is commonly used for classification tasks in AI?
(1) K - means clustering
(2) Decision Trees
(3) Prim's Algorithm
(4) Depth-first Search

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