

Signature of Invigilators

Roll No.

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1.

**COMPUTER SCIENCE AND
APPLICATIONS**

(In figures as in Admit Card)

2.

Paper II

Roll No.

(In words)

D/03/19

Name of the Areas/Section (if any)

Time Allowed : 75 Minutes]

[Maximum Marks : 100

Instructions for the Candidates

1. Write your Roll Number in the space provided on the top of this page.
2. This paper consists of *fifty (50)* multiple choice type questions. *All* questions are compulsory.
3. Each item has upto four alternative responses marked (A), (B), (C) and (D). The answer should be a capital letter for the selected option. The answer letter should entirely be contained within the corresponding square.

Correct method Wrong Method or

4. Your responses to the items for this paper are to be indicated on the ICR Answer Sheet under paper II only
5. Read instructions given inside carefully.
6. One sheet is attached at the end of the booklet for rough work.
7. You should return the test booklet to the invigilator at the end of paper and should not carry any paper with you outside the examination hall.

પરીક્ષાર્થીઓ માટેની સૂચનાઓ :

૧. આ પાનાની ટોચમાં દર્શાવેલી જગ્યામાં તમારો રોલ નંબર લખો.
૨. આ પ્રશ્નપત્રમાં કુલ **પચાસ (50)** બહુવૈકલ્પિક ઉત્તરો ધરાવતા પ્રશ્નો આપેલા છે. બધા જ પ્રશ્નો ફરજિયાત છે.
૩. પ્રત્યેક પ્રશ્ન વધુમાં વધુ ચાર બહુવૈકલ્પિક ઉત્તરો ધરાવે છે. જે (A), (B), (C) અને (D) વડે દર્શાવવામાં આવ્યા છે. પ્રશ્નનો ઉત્તર કેપીટલ સંજ્ઞા વડે આપવાનો રહેશે. ઉત્તરની સંજ્ઞા આપેલ પાનામાં બરાબર સમાઈ જાય તે રીતે લખવાની રહેશે.

ખરી રીત : ખોટી રીત : ,

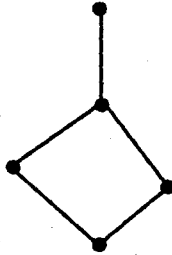
૪. આ પ્રશ્નપત્રના જવાબ આપેલ ICR Answer Sheetના Paper II વિભાગની નીચે આપેલ ખાનાંઓમાં આપવાના રહેશે.
૫. અંદર આપેલ સૂચનાઓ કાળજીપૂર્વક વાંચો.
૬. આ બુકલેટની પાછળ આપેલું પાનું રફ કામ માટે છે.
૭. પરીક્ષાસમય પૂરો થઈ ગયા પછી આ બુકલેટ જે તે નિરીક્ષકને સોંપી દેવી. કોઈ પણ કાળ પરીક્ષાખંડની બહાર લઈ જવો નહીં.



COMPUTER SCIENCE AND APPLICATIONS
PAPER II

Note :— This paper contains *fifty (50)* multiple-choice questions, each carrying two (2) marks. Attempt *all* the questions.

1. The proof of the proposition
“Every simple graph with at least two vertices has two vertices of equal degree”
is based on :
- (A) Inclusion-Exclusion principle
 - (B) Pigeonhole principle
 - (C) Elementary counting technique
 - (D) None of the above
2. The graph



has :

- (A) Only Eulerian path
 - (B) Only Hamiltonian path
 - (C) Both Eulerian and Hamiltonian path
 - (D) None of the above
3. The distance from a vertex v of graph G to vertex farthest from v in G is called :
- (A) Metric of v
 - (B) Eccentricity of v
 - (C) Radius of v
 - (D) None of these
4. Which statement is *true* ?
- (A) The model of deterministic finite state machine includes the model of nondeterministic finite state machine as special case.
 - (B) The model of non-deterministic finite state machine includes the model of deterministic finite state as special case.
 - (C) Non-deterministic finite state machines are not more powerful than deterministic.
 - (D) None of the above

5. Algorithm to find optimal spanning tree is :
- (A) Kruskal's algorithm (B) DEPTH-FIRST Search
(C) BREADTH-FIRST Search (D) None of these
6. Ashok made the following statements :
- (i) I love tree.
(ii) If I love tree then I also love greenery.
- Given that Ashok either told the truth or lied in both the cases.
Does Ashok love tree ?
- (A) No (B) Yes
(C) Information is not sufficient (D) None of these
7. Which one is tautology ?
- (A) $(\sim q \wedge p) \wedge q$ (B) $(p \rightarrow \sim p) \sim p$
(C) $(p \vee q) \wedge (\sim p \wedge \sim q)$ (D) None of these
8. CMOS requires :
- (A) More power than TTL
(B) More space than ECL
(C) Almost no power and no space
(D) None of the above
9. Representation of infinity in IEEE representation of floating point is :
- (A) not provided.
(B) provided by putting 0's in both exponent and in fraction.
(C) provided by putting 1's in exponent and 0's in fraction.
(D) None of the above
10. The lowest signed binary number in 8 bits is :
- (A) 11111111 (B) 10000000
(C) 00000000 (D) None of these
11. Building Data and Function together is called :
- (A) Encapsulation (B) Polymorphism
(C) Inheritance (D) Data hiding

12. The `getche()` library function returns :
- (A) a character when any key is pressed.
 (B) a character when <Enter> key is pressed.
 (C) a character and displays it on the screen when any key is pressed.
 (D) a character and does not display it on the screen when any key is pressed.
13. Any "C" statement that begins with # character is processed by :
- (A) Compiler (B) Linker
 (C) Preprocessor (D) Assembler
14. What is the value of the expression
 $(1 \& 2) + (3 | 4)$
- (A) 1 (B) 4
 (C) 8 (D) 7
15. The dot operator connects :
- (A) a class member and a class object.
 (B) a class object and a class.
 (C) a class and a member of that class.
 (D) a class object and a member of that class.
16. Pick up the *correct* statement from the following :
- (A) The order by clause lists items in descending order.
 (B) DECLARE is an executable statement.
 (C) ODBC means object-oriented database connectivity.
 (D) None of the above
17. Study the following :
- | Group A | Group B |
|-------------------------|---------------------------|
| (i) $P1 \Rightarrow P2$ | (a) $(\neg (P1) \vee P2)$ |
| (ii) Encryption | (b) $\neg (P1 \vee P2)$ |
| | (c) Encoding data |
| | (d) Decoding data |
- Find the most proper match :
- (A) (i)—(a); (ii)—(c) (B) (i)—(b); (ii)—(c)
 (C) (i)—(b); (ii)—(d) (D) (i)—(a); (ii)—(d)

18. The.....SQL component of SQL allows programs to construct and submit SQL queries at run time.
- (A) static (B) dynamic
(C) any of (A) or (B) (D) None of these
19. Which one of the following is binary operation ?
- (A) Project (B) Select
(C) Rename (D) None of these
20. Which one of the following corresponds to the projection operation of the relational algebra ?
- (A) Where (B) From
(C) Select (D) None of these
21. Which one of the following data structures is an essential part of evaluation scheme for postfix expressions ?
- (A) list (B) stack
(C) array (D) queue
22. Which one of the following data structures is suitable for implementing breadth first traversal of graphs ?
- (A) Adjacency matrix
(B) Adjacency lists
(C) Node-edge incidence matrix
(D) None of the above
23. The bounds on the number of children of a B-tree node depends, in practice, on :
- (A) Size of page frame (B) Size of disk block
(C) The number of items (D) None of these
24. Breadth first search of a graph is typically implemented using :
- (A) queues (B) stacks
(C) arrays (D) trees

25. The number of nodes in a perfectly balanced tree with n leaves is :
- (A) $2n$ (B) n
 (C) $2n - 1$ (D) $2n + 1$
26. Propagation delay between stations for broadband and baseband is in ratio :
- (A) 1 : 1 (B) 2 : 1
 (C) 1 : 2 (D) None of these
27. Which layer of OSI model provides access to OSI environment for users and also provides distributed information service ?
- (A) Session layer (B) Presentation layer
 (C) Application layer (D) None of these
28. The optimal frequency range for satellite transmission is :
- (A) 500 MHz to 1 GHz (B) 1 GHz to 10 GHz
 (C) 10 GHz to 20 GHz (D) None of these
29. The network handles each packet separately. Thus different packets for same virtual circuits may take different routes but the network will deliver the packets to destination in sequence using :
- (A) External virtual circuit, internal datagram
 (B) External datagram, internal virtual circuit
 (C) External virtual circuit, internal virtual circuit
 (D) None of the above
30. To verify the originator of file and whether the file is tampered during transmission on network, we may use :
- (A) Public key (B) Digital signature
 (C) Private key (D) None of these
31. YACC is based on :
- (A) SLR (B) Canonical LR
 (C) LALR (D) LL(1)

32. Elimination of left recursion and left factoring are employed in construction of :
- (A) Recursive descent parser (B) Bottom-up parser
(C) Shift-reduce parser (D) Operator-precedence parser
33. An LR parsing scheme generates :
- (A) Right most deviation (B) Left most deviation
(C) An arbitrary deviation (D) None of these
34. A program that sets up an executable file for execution is called :
- (A) Compiler (B) Linker
(C) Interpreter (D) Loader
35. Lex tool is based on :
- (A) DFA, NFA (B) CFGS
(C) Pushdown Automata (D) None of these
36. System call `exec()` is used to :
- (A) Create a new process
(B) Create a new thread
(C) Overlay the current process by the executable specified in the argument of `exec()` call
(D) None of the above
37. System call `wait()` is used :
- (A) to synchronize with the termination of the process specified in the parameter to `wait()`.
(B) to wait for an input from the keyboard.
(C) to create a new process.
(D) None of the above
38. A semaphore allows :
- (A) `wait()` and `notify()` calls.
(B) `up()` and `down()` calls.
(C) `suspend()` and `resume()` calls.
(D) None of the above

39. Dekker's algorithm achieves :
- (A) n -processes mutual exclusion (B) Deadlock detection
(C) 2-process mutual exclusion (D) None of these
40. Preemption of a process in UNIX is achieved using :
- (A) Keyboard interrupt (B) Mouse interrupt
(C) Ctrl-Alt-Del signal (D) Timer interrupt
41. RAD is an incremental software development process model that emphasizes :
- (A) on six sigma quality.
(B) an extremely short development cycle.
(C) on IEEE coding style.
(D) None of the above
42. The customer wins by getting the system or product that satisfies the majority of the needs and the developer wins by working to realistic and achievable budgets and deadlines—is an outcome of :
- (A) the enhance prototype model
(B) the WINWIN spiral model
(C) the object-oriented SDLC model
(D) None of the above
43. Regression testing is carried out during :
- (A) Maintenance phase (B) Testing phase
(C) Coding phase (D) Design phase
44. The specification of the major components, their properties, interfaces and relationships is given during :
- (A) Detailed Design (B) Architectural Design
(C) Interface Design (D) Data Design

45. Jackson system design is a design method belongs to :
- (A) Function-oriented Method
 - (B) Data structure Based Method
 - (C) Object-oriented Method
 - (D) Reuse Based Methods
46. EDI over the Internet, using secure.....is growing B2B E-commerce applications.
- (A) hardware
 - (B) software
 - (C) VPN
 - (D) None of these
47.software may perform regression, decision tree, neural network, cluster detection, or market basket analysis for a business.
- (A) Data warehousing
 - (B) Data mining
 - (C) RDBMS
 - (D) None of these
48. The electronic movement of information from one location to another is referred as :
- (A) Networking
 - (B) Telecommunications
 - (C) Telecomputing
 - (D) None of these
49. The original Von Neumann architecture is classified as :
- (A) SISD
 - (B) SIMD
 - (C) MIMD
 - (D) None of these
50. W-CDMA stands for :
- (A) Wi-fi CDMA
 - (B) Wideband CDMA
 - (C) Wireless CDMA
 - (D) None of these

ROUGH WORK

ROUGH WORK

SEAL