

Test Paper : II

Test Subject : **COMPUTER SCIENCE AND APPLICATIONS**

Test Subject Code : **K-2416**

Test Booklet Serial No. : _____

OMR Sheet No. : _____

Roll No.

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(Figures as per admission card)

Name & Signature of Invigilator/s

Signature : _____

Name : _____

Paper : II

Subject : COMPUTER SCIENCE AND APPLICATIONS

Time : 1 Hour 15 Minutes

Maximum Marks : 100

Number of Pages in this Booklet : 8

Number of Questions in this Booklet : 50

ಅಭ್ಯರ್ಥಿಗಳಿಗೆ ಸೂಚನೆಗಳು

1. ಈ ಪುಟದ ಮೇಲ್ಭಾಗದಲ್ಲಿ ಒದಗಿಸಿದ ಸ್ಥಳದಲ್ಲಿ ನಿಮ್ಮ ರೋಲ್ ನಂಬರನ್ನು ಬರೆಯಿರಿ.
2. ಈ ಪತ್ರಿಕೆಯು ಬಹು ಆಯ್ಕೆ ವಿಧದ ಐವತ್ತು ಪ್ರಶ್ನೆಗಳನ್ನು ಒಳಗೊಂಡಿದೆ.
3. ಪರೀಕ್ಷೆಯ ಪ್ರಾರಂಭದಲ್ಲಿ ಪ್ರಶ್ನೆಪುಸ್ತಕವನ್ನು ನಿಮಗೇ ನೀಡಲಾಗುವುದು. ಮೊದಲ 5 ನಿಮಿಷಗಳಲ್ಲಿ ನೀವು ಪುಸ್ತಕವನ್ನು ತೆರೆಯಲು ಮತ್ತು ಕೆಳಗಿನಂತೆ ಕಡ್ಡಾಯವಾಗಿ ಪರಿಶೀಲಿಸಲು ಕೋರಲಾಗಿದೆ.
(i) ಪ್ರಶ್ನೆ ಪುಸ್ತಕಕ್ಕೆ ಪ್ರವೇಶಾಪಕಾರ ಪಡೆಯಲು, ಈ ಹೊದಿಕೆ ಪುಟದ ಅಂಚಿನ ಮೇಲಿರುವ ಪೇಪರ್ ಸೀಲನ್ನು ಹರಿಯಿರಿ. ಸ್ವಿಚ್ ಸೀಲ್ ಇಲ್ಲದ ಅಥವಾ ತೆರದ ಪುಸ್ತಕವನ್ನು ಸ್ವೀಕರಿಸಬೇಡಿ.
(ii) ಪುಸ್ತಕಿಯಲ್ಲಿನ ಪ್ರಶ್ನೆಗಳ ಸಂಖ್ಯೆ ಮತ್ತು ಪುಟಗಳ ಸಂಖ್ಯೆಯನ್ನು ಮುಖಪುಟದ ಮೇಲೆ ಮುದ್ರಿಸಿದ ಮಾಹಿತಿಯೊಂದಿಗೆ ತಾಳಿ ನೋಡಿರಿ. ಪುಟಗಳು/ಪ್ರಶ್ನೆಗಳು ಕಾಣೆಯಾದ, ಅಥವಾ ದ್ವಿಪ್ರತಿ ಅಥವಾ ಅನುಕ್ರಮವಾಗಿಲ್ಲದ ಅಥವಾ ಇತರ ಯಾವುದೇ ವ್ಯತ್ಯಾಸದ ದೋಷಪೂರಿತ ಪುಸ್ತಕವನ್ನು ಕೂಡಲೇ 5 ನಿಮಿಷದ ಅವಧಿ ಒಳಗೆ, ಸಂವಿಧಾನದ ಸರಿ ಇರುವ ಪುಸ್ತಕಕ್ಕೆ ಬದಲಾಯಿಸಿಕೊಳ್ಳಬೇಕು. ಆ ಬಳಿಕ ಪ್ರಶ್ನೆ ಪತ್ರಿಕೆಯನ್ನು ಬದಲಾಯಿಸಲಾಗುವುದಿಲ್ಲ. ಯಾವುದೇ ಹೆಚ್ಚು ಸಮಯವನ್ನೂ ಕೊಡಲಾಗುವುದಿಲ್ಲ.
4. ಪ್ರತಿಯೊಂದು ಪ್ರಶ್ನೆಗೆ (A), (B), (C) ಮತ್ತು (D) ಎಂದು ಗುರುತಿಸಿದ ನಾಲ್ಕು ಪರ್ಯಾಯ ಉತ್ತರಗಳಿವೆ. ನೀವು ಪ್ರಶ್ನೆಯ ಎದುರು ಸರಿಯಾದ ಉತ್ತರದ ಮೇಲೆ, ಕೆಳಗೆ ಕಾಣಿಸಿದಂತೆ ಅಂಡಾಕೃತಿಯನ್ನು ಕವಚಿಸಬೇಕು.
ಉದಾಹರಣೆ : (A) (B) (C) (D)
(C) ಸರಿಯಾದ ಉತ್ತರವಾಗಿದ್ದಾಗ.
5. ಪ್ರಶ್ನೆ ಪತ್ರಿಕೆ I ರಲ್ಲಿ ಕೊಟ್ಟಿರುವ OMR ಉತ್ತರ ಹಾಳೆಯಲ್ಲಿ, ಪ್ರಶ್ನೆ ಪತ್ರಿಕೆ I ಮತ್ತು ಪ್ರಶ್ನೆ ಪತ್ರಿಕೆ II ರಲ್ಲಿ ಇರುವ ಪ್ರಶ್ನೆಗಳಿಗೆ ನಿಮ್ಮ ಉತ್ತರಗಳನ್ನು ಸೂಚಿಸತಕ್ಕದ್ದು OMR ಹಾಳೆಯಲ್ಲಿ ಅಂಡಾಕೃತಿಯಲ್ಲದೆ ಬೇರೆ ಯಾವುದೇ ಸ್ಥಳದಲ್ಲಿ ಉತ್ತರವನ್ನು ಗುರುತಿಸಿದರೆ, ಅದರ ಮೌಲ್ಯಮಾಪನ ಮಾಡಲಾಗುವುದಿಲ್ಲ.
6. OMR ಉತ್ತರ ಹಾಳೆಯಲ್ಲಿ ಕೊಟ್ಟ ಸೂಚನೆಗಳನ್ನು ಜಾಗರೂಕತೆಯಿಂದ ಓದಿರಿ.
7. ಎಲ್ಲಾ ಕರಡು ಕೆಲಸವನ್ನು ಪುಸ್ತಕಿಯ ಕೊನೆಯಲ್ಲಿ ಮಾಡತಕ್ಕದ್ದು.
8. ನಿಮ್ಮ ಗುರುತನ್ನು ಬಹಿರಂಗಪಡಿಸಬಹುದಾದ ನಿಮ್ಮ ಹೆಸರು ಅಥವಾ ಯಾವುದೇ ಚಿಹ್ನೆಯನ್ನು ಸಂಗತವಾದ ಸ್ಥಳ ಹೊರತು ಪಡಿಸಿ, OMR ಉತ್ತರ ಹಾಳೆಯ ಯಾವುದೇ ಭಾಗದಲ್ಲಿ ಬರೆದರೆ, ನೀವು ಅನರ್ಹತೆಗೆ ಬಾಧ್ಯರಾಗಿರುತ್ತೀರಿ.
9. ಪರೀಕ್ಷೆಯು ಮುಗಿದನಂತರ, ಕಡ್ಡಾಯವಾಗಿ OMR ಉತ್ತರ ಹಾಳೆಯನ್ನು ಸಂವಿಧಾನದಂತೆ ನೀವು ಹಿಂತಿರುಗಿಸಬೇಕು ಮತ್ತು ಪರೀಕ್ಷಾ ಕೋಡಿಯ ಹೊರಗೆ OMR ನ್ನು ನಿಮ್ಮೊಂದಿಗೆ ಕೊಂಡೊಯ್ಯಕೂಡದು.
10. ಪರೀಕ್ಷೆಯ ನಂತರ, ಪರೀಕ್ಷಾ ಪ್ರಶ್ನೆ ಪತ್ರಿಕೆಯನ್ನು ಮತ್ತು ನಕಲು OMR ಉತ್ತರ ಹಾಳೆಯನ್ನು ನಿಮ್ಮೊಂದಿಗೆ ತೆಗೆದುಕೊಂಡು ಹೋಗಬಹುದು.
11. ನೀಲಿ/ಕಪ್ಪು ಬಾಲ್‌ಪಾಯಿಂಟ್ ಪೆನ್ ಮಾತ್ರವೇ ಉಪಯೋಗಿಸಿರಿ.
12. ಕ್ಯಾಲ್ಕುಲೇಟರ್, ವಿಧ್ಯುಕ್ತ ಉಪಕರಣ ಅಥವಾ ಲಾಗ್ ಟೇಬಲ್ ಇತ್ಯಾದಿಯ ಉಪಯೋಗವನ್ನು ನಿಷೇಧಿಸಲಾಗಿದೆ.
13. ಸರಿ ಅಲ್ಲದ ಉತ್ತರಗಳಿಗೆ ಋಣ ಅಂಕ ಇರುವುದಿಲ್ಲ.
14. ಕನ್ನಡ ಮತ್ತು ಇಂಗ್ಲೀಷ್ ಆವೃತ್ತಿಗಳ ಪ್ರಶ್ನೆ ಪತ್ರಿಕೆಗಳಲ್ಲಿ ಯಾವುದೇ ರೀತಿಯ ವ್ಯತ್ಯಾಸಗಳು ಕಂಡುಬಂದಲ್ಲಿ, ಇಂಗ್ಲೀಷ್ ಆವೃತ್ತಿಗಳಲ್ಲಿರುವುದೇ ಅಂತಿಮವೆಂದು ಪರಿಗಣಿಸಬೇಕು.

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 multiple-choice type of questions.
3. At the commencement of examination, the question booklet will be given to you. In the first 5 minutes, you are requested to open the booklet and compulsorily examine it as below :
(i) To have access to the Question Booklet, tear off the paper seal on the edge of the cover page. Do not accept a booklet without sticker seal or open booklet.
(ii) **Tally the number of pages and number of questions in the booklet with the information printed on the cover page. Faulty booklets due to pages/questions missing or duplicate or not in serial order or any other discrepancy should be got replaced immediately by a correct booklet from the invigilator within the period of 5 minutes. Afterwards, neither the Question Booklet will be replaced nor any extra time will be given.**
4. Each item has four alternative responses marked (A), (B), (C) and (D). You have to darken the circle as indicated below on the correct response against each item.
Example : (A) (B) (C) (D)
where (C) is the correct response.
5. Your responses to the questions are to be indicated in the **OMR Sheet kept inside the Paper I Booklet only**. If you mark at any place other than in the circles in the OMR Sheet, it will not be evaluated.
6. Read the instructions given in OMR carefully.
7. Rough Work is to be done in the end of this booklet.
8. If you write your name or put any mark on any part of the OMR Answer Sheet, except for the space allotted for the relevant entries, which may disclose your identity, you will render yourself liable to disqualification.
9. You have to return the test OMR Answer Sheet to the invigilators at the end of the examination compulsorily and must NOT carry it with you outside the Examination Hall.
10. You can take away question booklet and carbon copy of OMR Answer Sheet after the examination.
11. **Use only Blue/Black Ball point pen.**
12. **Use of any calculator, Electronic gadgets or log table etc., is prohibited.**
13. **There is no negative marks for incorrect answers.**
14. **In case of any discrepancy found in the Kannada translation of a question booklet the question in English version shall be taken as final.**



COMPUTER SCIENCE AND APPLICATIONS
Paper – II

Note : This paper contains **fifty (50)** objective type questions. **Each** question carries **two (2)** marks. **All** questions are **compulsory**.

1. The probability that a randomly selected number that is between 100 and 999 (both inclusive) will not contain the digit 7 is
(A) 16/25 (B) 20/25
(C) 18/25 (D) 22/25
2. Out of 100 students, 10 students used to eat Bread(B), Jam(J) and Butter (BT), 20 eats Bread and Jam, 30 eats Jam and Butter, 25 Bread and Butter, 12 Bread only, 5 Jam only and 8 Butter only. The number of students who did not eat any of these is
(A) 15 (B) 20
(C) 25 (D) 30
3. In the interval $[0, \pi]$, the equation $x = \cos(x)$ has
(A) No solution
(B) One solution
(C) Two solution
(D) Infinite number of solution
4. What is the maximum number of different Boolean functions involving n Boolean variables ?
(A) $2n$ (B) 2^n
(C) n^n (D) n^2
5. Let L be a language and \bar{L} be its complement. Which of the following is NOT a viable possibility ?
(A) Neither L and \bar{L} is recursively enumerable
(B) One of L and \bar{L} is recursively enumerable, but not recursive, the other is not recursive enumerable
(C) Both L and \bar{L} are recursively enumerable, but not recursive
(D) Both L and \bar{L} are recursive
6. The minimum number of JK flip-flops required to construct a synchronous counter with the count sequence (0, 0, 1, 1, 2, 2, 3, 3, 0, 0...) is
(A) 1 (B) 2
(C) 3 (D) 10
7. Consider the following Boolean expression for F
 $F(P, Q, R, S) = PQ + \bar{P}QR + \bar{P}Q\bar{R}S$
The minimal sum-of-products form of F is
(A) $PQ + QR + QS$
(B) $\bar{P} + \bar{Q} + \bar{R} + \bar{S}$
(C) $P + Q + R + S$
(D) $\bar{P}R + \bar{P}RS + P$



8. Consider the equation $(123)_5 = (x8)_y$ with x and y as unknown. The number of possible solutions is
(A) 2 (B) 3
(C) 4 (D) 6
9. The minimum number of D flip-flops needed design and a mod-258 counter is
(A) 8 (B) 9
(C) 258 (D) 512
10. $(1217)_8$ is equivalent to
(A) $(1217)_{16}$ (B) $(3317)_{10}$
(C) $(0ABC)_{16}$ (D) $(028F)_{16}$
11. What is the output of the following 'C' snippet ?
`int a = 10, b = 20, c = 30;
if (c > b > a)
printf ("TRUE");
else
printf ("FALSE");`
(A) TRUE (B) FALSE
(C) Compile error (D) Runtime error
12. Assume $a = 10$, $b = 20$ and $c = 0$ of integer type variables. To find the addition of a and b without using arithmetic operators. Which of the following 'C' code is correct ?
(A) `while (b++) a++;`
(B) `while (b--) a++;`
(C) `b--; while (a++)`
(D) `a++; while (b--)`
13. Function overloading is done at
(A) Run time
(B) Compile time
(C) Linking time
(D) Switching from function to function
14. Which of the following vector class functions adds an element at the end of the vector ?
(A) `push()` (B) `insert()`
(C) `push_back()` (D) `insert_end()`
15. Which of the following header file in C++ contains macros and information for adding diagnostics that aid program debugging ?
(A) `stdio.h` (B) `iostream.h`
(C) `ctype.h` (D) `assert.h`
16. Consider the join of a relation R with relation S . If R has m tuples and S has n tuples, then the maximum size of join is
(A) mn (B) $m + n$
(C) $\frac{(m+n)}{2}$ (D) $2(m+n)$
17. A logical schema
(A) is the entire database
(B) is a standard way of organizing information into a accessible part
(C) describe how data is actually stored on disk
(D) is a design-centric database structure built to meet business requirements



18. 'AS' clause is used in SQL for
(A) Selection operation
(B) Rename operation
(C) Join operation
(D) Projection operation
19. A primary key is combined with foreign key creates
(A) Parent-child relationship between the tables that connect them
(B) Many to many relationship between the tables that connect them
(C) Network model between the tables that connect them
(D) One to many relationship between the tables that connect them
20. A relation is _____ if every field contains only atomic values that is, no lists or sets.
(A) 1NF (B) 2NF
(C) 3NF (D) BCNF
21. The process of accessing data stored in a tape is similar to manipulating data on a
(A) Stack (B) Queue
(C) Tree (D) Heap
22. If each node in a tree has value greater than every value in its left subtree and has value less than every value in its right subtree, the tree is called
(A) Complete tree
(B) Full binary tree
(C) Threaded tree
(D) Binary search tree
23. The number of nodes in a complete binary tree of level 5 is
(A) 10 (B) 20
(C) 63 (D) 71
24. Let G be a simple undirected planar graph on 10 vertices with 15 edges. If G is a connected graph, then the number of bounded faces in any embedding of G on the plane is equal to
(A) 3 (B) 4
(C) 5 (D) 6
25. The maximum number of binary trees that can be formed with three unlabeled node is
(A) 2 (B) 3
(C) 4 (D) 5
26. In a packet switching network, packets are routed from source to destination along a single path having two intermediate nodes. If the message size is 24 bytes and each packet contains a header of 3 bytes, then the optimum packet size is
(A) 4 (B) 6
(C) 7 (D) 9
27. Computer A uses 32 byte packets to transmit messages to computer B using a sliding window protocol. The round trip delay between A and B is 80 milliseconds and the bottleneck bandwidth on the path between A and B is 128 kbps. What is the optimal window size that A should use ?
(A) 30 (B) 40
(C) 64 (D) 48



28. The address of a class B host is to be split into subnets with a 6 bit subnet number. What is the maximum number of subnets and the maximum number of hosts in each subnet ?
- (A) 62 subnets and 2048 hosts
(B) 64 subnets and 1024 hosts
(C) 62 subnets and 1022 hosts
(D) 64 subnets and 2048 hosts
29. In Ethernet when Manchester encoding is used, the bit rate is
- (A) Half the baud rate
(B) Twice the baud rate
(C) Same as the baud rate
(D) Eight times the baud rate
30. The minimum frame size required for a CSMA/CD based computer network running at 1 Gbps on a 200 m cable with a link speed of 2×10^8 m/s is
- (A) 125 bytes
(B) 250 bytes
(C) 500 bytes
(D) 512 bytes
31. Which data structure in a compiler is used for managing information about variables and their attributes ?
- (A) Semantic stack
(B) Parse table
(C) Symbol table
(D) Abstract syntax tree
32. Consider the grammar
 $S \rightarrow (S)a$
Let the number of states in SLR(1), LR(1) and LALR(1) parsers for the grammar be n_1 , n_2 and n_3 respectively. The following relationship holds good
- (A) $n_1 < n_2 < n_3$
(B) $n_1 = n_3 < n_2$
(C) $n_1 = n_2 = n_3$
(D) $n_1 \geq n_3 \geq n_2$
33. Consider the grammar
 $E \rightarrow E + n \mid E \times n \mid n$
For a sentence $n + n \times n$, the handler in the right-sentential form of the reduction are
- (A) n , $E + n$ and $E + n \times n$
(B) n , $E + n$ and $E + E \times n$
(C) n , $n + n$ and $n + n \times n$
(D) n , $E + n$ and $E \times n$
34. A top-down parser generates
- (A) Right-most derivation
(B) Left-most derivation
(C) Right-most derivation in reverse
(D) Left-most derivation in reverse
35. Assume register C holds 93H and accumulator holds 15H. After executing CMA instruction in 8085 yields in accumulator and status of sign and carry flags are
- (A) EA, No flags are modified
(B) EA, 0, 1
(C) EA, 1, 0
(D) EA, 1, 1



36. Consider a computer with 8 M bytes of main memory and a 128 K cache. The cache block size is 4 K. It uses a direct mapping scheme for Cache Management. How many different main memory blocks can map onto a given physical cache block ?
- (A) 2048 (B) 256
(C) 64 (D) 98
37. Kernel is
- (A) Considered as the critical part of the operating systems
(B) The software which monitors the operating system
(C) The set of primitive functions upon which the rest of operating system functions are built up
(D) A set of instructions that access common shared resources
38. Which of the following statements are true ?
- a) Shortest remaining time first scheduling may cause starvation
b) Preemptive scheduling may cause starvation
c) Round robin is better than FCFS in terms of response time
- (A) a) only
(B) a) and c) only
(C) b) and c) only
(D) a), b) and c)
39. The default permission bits of a file when it is created for the first time, is controlled by
- (A) chmod value
(B) fmask value
(C) Umask value
(D) f value
40. A process executes the following code for (i = 0; i < n; i++)
for K ();
The total number of child process created is
- (A) n (B) $2^n - 1$
(C) 2^n (D) $2^{n+1} - 1$
41. In the maintenance phase the product must be tested against previous test cases. This is known as _____ testing.
- (A) Unit (B) Integration
(C) Regression (D) Module
42. The degree of interaction between two modules is known as
- (A) Cohesion (B) Strength
(C) Inheritance (D) Coupling
43. RAD model was proposed by
- (A) IBM
(B) Motorola
(C) Microsoft
(D) Lucent Technologies



44. Given a source code with 10 operators includes 6 unique operators and 6 operand including 2 unique operands. The program volume is
(A) 48 (B) 120
(C) 720 (D) 24
45. Changes are made to the system to reduce the future system failure chance is called
(A) Preventive maintenance
(B) Adaptive maintenance
(C) Corrective maintenance
(D) Perfective maintenance
46. The practice of forging a return address on an e-mail so that the recipient is fooled into revealing private information is termed
(A) Hacking (B) Cracking
(C) Dumpster diving (D) Spoofing
47. The output of Knowledge Discovery Database (KDD) is
(A) Data
(B) Information
(C) Query
(D) Useful information
48. Which of the following versions of Windows O.S. contain built-in partition manager which allows us to shrink and expand pre-defined drives ?
(A) Windows Vista
(B) Windows 2000
(C) Windows NT
(D) Windows 98
49. The following are the eight different technologies under
a) Analog cellular
b) Analog cordless
c) Digital cellular and
d) Digital cordless categories
i) CTO ii) NMT
iii) DCS 1800 iv) GSM
v) JCT vi) AMPS
vii) PHS viii) DECT
Group these technologies respectively to the four categories a, b, c and d.
Pick the correct one.
A) a) vi, viii b) v, vii
c) i, iii d) ii, iv
(B) a) iii, iv b) v, vii
c) i, viii d) ii, vi
(C) a) ii, vi b) i, v
c) iii, iv d) vii, viii
(D) a) iii, vi b) v, viii
c) iv, vii d) i, ii
50. The advantage of hoarding or caching in mobile databases is that it provides
(A) Protection from frequent disconnections of mobile devices in a wireless network
(B) The facility to distribute new data records at periodic intervals
(C) No access latency and delay in retrieving the queried record from the server
(D) Synchronization of server database with the mobile device database.



Total Number of Pages : 8

ಚಿತ್ತು ಬರಹಕ್ಕಾಗಿ ಸ್ಥಳ
Space for Rough Work