

Test Paper : III
Test Subject : COMPUTER SCIENCE
AND APPLICATIONS
Test Subject Code : K-2415

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 : III
Subject : COMPUTER SCIENCE AND APPLICATIONS

Time : 2 Hours 30 Minutes

Maximum Marks : 150

Number of Pages in this Booklet : 16

Number of Questions in this Booklet : 75

ಅಭ್ಯರ್ಥಿಗಳಿಗೆ ಸೂಚನೆಗಳು

- ಈ ಪುಟದ ಮೇಲ್ಭಾಗದಲ್ಲಿ ಒದಗಿಸಿದ ಸ್ಥಳದಲ್ಲಿ ನಿಮ್ಮ ರೋಲ್ ನಂಬರನ್ನು ಬರೆಯಿರಿ.
- ಈ ಪತ್ರಿಕೆಯು ಬಹು ಆಯ್ಕೆ ವಿಧದ ಎಪ್ಪತ್ತೈದು ಪ್ರಶ್ನೆಗಳನ್ನು ಒಳಗೊಂಡಿದೆ.
- ಪರೀಕ್ಷೆಯ ಪ್ರಾರಂಭದಲ್ಲಿ ಪ್ರಶ್ನೆಪತ್ರಿಕೆಯನ್ನು ನಿಮಗೆ ನೀಡಲಾಗುವುದು. ಮೊದಲ 5 ನಿಮಿಷಗಳಲ್ಲಿ ನೀವು ಪ್ರಶ್ನೆಪತ್ರಿಕೆಯನ್ನು ತೆರೆಯಲು ಮತ್ತು ಕೆಳಗಿನಂತೆ ಕಡ್ಡಾಯವಾಗಿ ಪರೀಕ್ಷಿಸಲು ಕೋರಲಾಗಿದೆ.
(i) ಪ್ರಶ್ನೆ ಪತ್ರಿಕೆಗೆ ಪ್ರವೇಶಾವಕಾಶ ಪಡೆಯಲು, ಈ ಹೊದಿಕೆ ಪುಟದ ಅಂಚಿನ ಮೇಲಿರುವ ಪೇಪರ್ ಸೀಲನ್ನು ಹರಿಯಿರಿ. ಸ್ವಿಚ್ಚರ್ ಸೀಲ್ ಇಲ್ಲದ ಅಥವಾ ತೆರೆದ ಪ್ರಶ್ನೆಪತ್ರಿಕೆಯನ್ನು ಸ್ವೀಕರಿಸಬೇಡಿ.
(ii) ಪ್ರಶ್ನೆಪತ್ರಿಕೆಯಲ್ಲಿನ ಪ್ರಶ್ನೆಗಳ ಸಂಖ್ಯೆ ಮತ್ತು ಪುಟಗಳ ಸಂಖ್ಯೆಯನ್ನು ಮುಖಪುಟದ ಮೇಲೆ ಮುದ್ರಿಸಿದ ಮಾಹಿತಿಯೊಂದಿಗೆ ತಾಳೆ ನೋಡಿರಿ. ಪುಟಗಳು/ಪ್ರಶ್ನೆಗಳು ಕಾಣೆಯಾದ, ಅಥವಾ ದ್ವಿಪ್ರತಿ ಅಥವಾ ಅನುಕ್ರಮವಾಗಿಲ್ಲದ ಅಥವಾ ಇತರ ಯಾವುದೇ ವ್ಯತ್ಯಾಸದ ದೋಷಪೂರಿತ ಪ್ರಶ್ನೆಪತ್ರಿಕೆಯನ್ನು ಕೊಡಲಾದ 5 ನಿಮಿಷದ ಅವಧಿ ಒಳಗೆ, ಸಂವಿವೇಕದಿಂದ ಸರಿ ಇರುವ ಪ್ರಶ್ನೆಗಳಿಗೆ ಬದಲಾಯಿಸಿಕೊಳ್ಳಬೇಕು. ಆ ಬಳಿಕ ಪ್ರಶ್ನೆ ಪತ್ರಿಕೆಯನ್ನು ಬದಲಾಯಿಸಲಾಗುವುದಿಲ್ಲ, ಯಾವುದೇ ಹೆಚ್ಚು ಸಮಯವನ್ನೂ ಕೊಡಲಾಗುವುದಿಲ್ಲ.
- ಪ್ರತಿಯೊಂದು ಪ್ರಶ್ನೆಗೂ (A), (B), (C) ಮತ್ತು (D) ಎಂದು ಗುರುತಿಸಿದ ನಾಲ್ಕು ಪರ್ಯಾಯ ಉತ್ತರಗಳಿವೆ. ನೀವು ಪ್ರಶ್ನೆಯ ಎದುರು ಸರಿಯಾದ ಉತ್ತರದ ಮೇಲೆ, ಕೆಳಗೆ ಕಾಣಿಸಿದಂತೆ ಅಂಡಾಕೃತಿಯನ್ನು ಕಪ್ಪಾಗಿಸಬೇಕು.
ಉದಾಹರಣೆ :

A	B	C	D
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(C) ಸರಿಯಾದ ಉತ್ತರವಾಗಿದ್ದಾಗ.
- ಪ್ರಶ್ನೆಗಳಿಗೆ ಉತ್ತರಗಳನ್ನು ಪತ್ರಿಕೆ III ಪ್ರಶ್ನೆಪತ್ರಿಕೆಯೊಳಗೆ ಕೊಟ್ಟಿರುವ OMR ಉತ್ತರ ಹಾಳೆಯಲ್ಲಿ ಮಾತ್ರವೇ ಸೂಚಿಸತಕ್ಕದ್ದು. OMR ಉತ್ತರ ಹಾಳೆಯಲ್ಲಿನ ಅಂಡಾಕೃತಿ ಹೊರತುಪಡಿಸಿ ಬೇರೆ ಯಾವುದೇ ಸ್ಥಳದಲ್ಲಿ ಗುರುತಿಸಿದರೆ, ಅದರ ಮೌಲ್ಯಮಾಪನ ಮಾಡಲಾಗುವುದಿಲ್ಲ.
- OMR ಉತ್ತರ ಹಾಳೆಯಲ್ಲಿ ಕೊಟ್ಟ ಸೂಚನೆಗಳನ್ನು ಜಾಗರೂಕತೆಯಿಂದ ಓದಿರಿ.
- ಎಲ್ಲಾ ಕರಡು ಕೆಲಸವನ್ನು ಪ್ರಶ್ನೆಪತ್ರಿಕೆಯ ಕೊನೆಯಲ್ಲಿ ಮಾಡತಕ್ಕದ್ದು.
- ನಿಮ್ಮ ಗುರುತನ್ನು ಬಹಿರಂಗಪಡಿಸಬಹುದಾದ ನಿಮ್ಮ ಹೆಸರು ಅಥವಾ ಯಾವುದೇ ಚಿಹ್ನೆಯನ್ನು, ಸಂಗತವಾದ ಸ್ಥಳ ಹೊರತು ಪಡಿಸಿ, OMR ಉತ್ತರ ಹಾಳೆಯ ಯಾವುದೇ ಭಾಗದಲ್ಲಿ ಬರೆಯಬಾರದು, ನೀವು ಅನರ್ಹತೆಗೆ ಬಾಧ್ಯರಾಗುತ್ತೀರಿ.
- ಪರೀಕ್ಷೆಯ ಮುಗಿದನಂತರ, ಕಡ್ಡಾಯವಾಗಿ OMR ಉತ್ತರ ಹಾಳೆಯನ್ನು ಸಂವಿವೇಕದಿಂದ ನೀವು ಹಿಂತಿರುಗಿಸಬೇಕು ಮತ್ತು ಪರೀಕ್ಷಾ ಕೊಠಡಿಯ ಹೊರಗೆ OMR ನ್ನು ನಿಮ್ಮೊಂದಿಗೆ ಕೊಂಡೊಯ್ಯಕೂಡದು.
- ಪರೀಕ್ಷೆಯ ನಂತರ, ಪರೀಕ್ಷಾ ಪ್ರಶ್ನೆ ಪತ್ರಿಕೆಯನ್ನು ಮತ್ತು ನಕಲು OMR ಉತ್ತರ ಹಾಳೆಯನ್ನು ನಿಮ್ಮೊಂದಿಗೆ ತೆಗೆದುಕೊಂಡು ಹೋಗಬಹುದು.
- ನೀಲಿ/ಕಪ್ಪು ಬಾಲ್ ಪಾಯಿಂಟ್ ಪೆನ್ ಮಾತ್ರವೇ ಉಪಯೋಗಿಸಿರಿ.
- ಕ್ಯಾಲ್ಕುಲೇಟರ್ ಅಥವಾ ಲಾಗ್ ಟೇಬಲ್ ಇತ್ಯಾದಿಯ ಉಪಯೋಗವನ್ನು ನಿಷೇಧಿಸಲಾಗಿದೆ.
- ಸರಿ ಅಲ್ಲದ ಉತ್ತರಗಳಿಗೆ ಋಣ ಅಂಕ ಇರುವುದಿಲ್ಲ.
- ಕನ್ನಡ ಮತ್ತು ಇಂಗ್ಲಿಷ್ ಆವೃತ್ತಿಗಳ ಪ್ರಶ್ನೆ ಪತ್ರಿಕೆಗಳಲ್ಲಿ ಯಾವುದೇ ರೀತಿಯ ವ್ಯತ್ಯಾಸಗಳು ಕಂಡುಬಂದಲ್ಲಿ, ಇಂಗ್ಲಿಷ್ ಆವೃತ್ತಿಗಳಲ್ಲಿರುವುದೇ ಅಂತಿಮವೆಂದು ಪರಿಗಣಿಸಬೇಕು.

Instructions for the Candidates

- Write your roll number in the space provided on the top of this page.
- This paper consists of seventy five multiple-choice type of questions.
- 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.
- Each item has four alternative responses marked (A), (B), (C) and (D). You have to darken the oval as indicated below on the correct response against each item.
Example :

A	B	C	D
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where (C) is the correct response.
- Your responses to the question of Paper III are to be indicated in the **OMR Sheet kept inside the Booklet**. If you mark at any place other than in the ovals in OMR Answer Sheet, it will not be evaluated.
- Read the instructions given in OMR carefully.
- Rough Work is to be done in the end of this booklet.
- 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.
- 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.
- You can take away question booklet and carbon copy of OMR Answer Sheet soon after the examination.
- Use only Blue/Black Ball point pen.**
- Use of any calculator or log table etc., is prohibited.**
- There is no negative marks for incorrect answers.**
- 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 – III**

Note : This paper contains **seventy-five (75)** objective type questions. **Each** question carries **two (2)** marks. **All** questions are **compulsory**.

1. A computer uses 8 digit mantissa and 2 digit exponent. If $a = 0.052$ and $b = 28E + 11$, then $b + a - b$ will
 - (A) Result in an overflow error
 - (B) Result in an underflow error
 - (C) Be 0
 - (D) Be $5.28E + 11$
2. A multiplexer with a 4 bit data select input is a
 - (A) 4 : 1 multiplexer
 - (B) 2 : 1 multiplexer
 - (C) 16 : 1 multiplexer
 - (D) 8 : 1 multiplexer
3. After Executing the following code the status be

```
MVI A, 39H
ADI 97 H
DAA
```

 - (A) $A = 0011\ 1001$, $CY = 0$
 - (B) $A = 0011\ 0110$, $CY = 1$
 - (C) $A = 0101\ 1011$, $CY = 0$
 - (D) $A = 0001\ 0110$, $CY = 1$
4. What degree of resolution can be obtained using an eight bit optical encoder ?
 - (A) 1.4 degree
 - (B) 2.8 degree
 - (C) 4.2 degree
 - (D) 6.4 degree
5. If a clock with time period "T" is used with n stages shift register, then output of final stage will be delayed by T
 - (A) nT sec
 - (B) $(n - 1)T$ sec
 - (C) $n|T$ sec
 - (D) $(2n - 1)T$ sec
6. Which one of the following is correct ?
 - (A) All relationships may be converted to binary relationship
 - (B) All relationships may be converted to 1:1 relationship
 - (C) All relationship's attributes may be attached to one of the participating entities
 - (D) All relationships may be represented by a table in a database



7. Which one of the following is not correct ?
- (A) A restriction selects one or more rows of a relation
 - (B) A projection selects one or more columns of a relation
 - (C) A join glues each row of one relation with all the rows of the other
 - (D) A difference gives all the rows in the first relation that are not in the second
8. Which one of the following data definition command is not an SQL command ?
- (A) CREATE TABLE
 - (B) DROP TABLE
 - (C) MODIFY TABLE
 - (D) DROP DOMAIN
9. Consider the query. 'Find the names of all players from India who have made a century In cricket'. The query involves a selection, a join and a projection. The relation Player and Batting have both been fragmented into six fragments and have been replace twice. Which of the operations require the most data communication ?
- (A) Selection
 - (B) Projection
 - (C) Join
 - (D) Each is about same
10. Which one of the following privileges may not be granted using SQL ?
- (A) GRANT SELECT
 - (B) GRANT DELETE
 - (C) REVOKE SELECT
 - (D) REVOKE VIEW
11. Let the maximum number of pixels in a line be M. The number of subdivision at most necessary using the mid-point subdivision method of clipping is
- (A) $N = \log_2 M$
 - (B) $N = 2^M$
 - (C) $N = 2 M$
 - (D) None of the above
12. Oblique projection with an angle of 45 degree to the horizontal plane is called as
- (A) Cabinet projection
 - (B) Isometric projection
 - (C) Cavalier projection
 - (D) None of the above



13. The clarity of displayed image depends on
- (A) Resolution
 - (B) Floating point precision of the system
 - (C) Associated software
 - (D) All the above
14. The best hidden surface removal method(s) used for complex scenes with more than a few thousand surfaces is / are
- (A) Depth sorting method
 - (B) Scan line algorithm
 - (C) Depth buffer algorithm
 - (D) None of the above
15. The entire graph of the function $f(x) = x^2 + kx - x + 9$ is strictly above the x-axis if and only if
- (A) $-3 < k < 5$
 - (B) $-3 < k < 2$
 - (C) $-3 < k < 7$
 - (D) $-5 < k < 7$
16. Which of the following are procedural languages ?
- (A) Pascal
 - (B) C
 - (C) C++
 - (D) Both (A) and (B)
17. Which of the following operators cannot be overloaded ?
- (A) =
 - (B) ::
 - (C) \rightarrow
 - (D) ==
18. Choose the correct statement.
- (A) A destructor is not inherited
 - (B) A constructor cannot be called explicitly
 - (C) A constructor is not inherited
 - (D) All the above
19. A terminal string $W \in L(G)$ is ambiguous if there exists minimum _____ derivation tree.
- (A) -1
 - (B) 0
 - (C) 1
 - (D) 2
20. C++ encourages structuring software as a collection of components that are
- (A) Highly cohesive and loosely coupled
 - (B) Not highly cohesive but loosely coupled
 - (C) Highly cohesive and tightly coupled
 - (D) Not highly cohesive but tightly coupled



21. You have 8 work stations that are connected to a switch, each is connected to an 10 Mbps port. What will be the individual bandwidth available to each ?
- (A) 80
 - (B) 10
 - (C) 16
 - (D) 5
22. What does RARP do ?
- (A) Get IP from MAC addresses
 - (B) Get MAC address from IP addresses
 - (C) Get IP from IPX addresses
 - (D) It resolves an network address to DLCI
23. What port is the port number of TFTP ?
- (A) 23
 - (B) 25
 - (C) 69
 - (D) 161
24. In order to have 5 subnets and 17 hosts on each subnet how many bits subnetting will you do on the class B address 162.13.0.0/16 ?
- (A) 255.255.128.0
 - (B) 255.255.224.0
 - (C) 255.255.240.0
 - (D) 255.255.248.0
25. Which of the following is an IP link state protocol ?
- (A) RIP
 - (B) IGRP
 - (C) EIGRP
 - (D) OSPF
26. What is the time complexity of the following recursive function ?
- ```
int DoSomething (int n)
{
 if (n<=2)
 return 1;
 else
 return (DoSomething (floor (sqrt(n))) + n);
}
```
- (A)  $O(n^2)$
  - (B)  $O(n \log_2 n)$
  - (C)  $O(\log_2 n)$
  - (D)  $O(n \log_2 n)$
27. Given an empty stack, after performing push (1), push (2), Pop, push (3), push (4), Pop, Pop, push (5), Pop, what is the value of the top of the stack ?
- (A) 4
  - (B) 3
  - (C) 2
  - (D) 1



28. Consider a linked list implementation of a queue with two pointers: front and rear. The time needed to insert element in a queue of length  $n$  is
- (A)  $O(1)$
  - (B)  $O(\log_2 n)$
  - (C)  $O(n)$
  - (D)  $O(n \log_2 n)$
29. The worst case time required to search a given element in sorted linked list of length  $n$  is
- (A)  $O(1)$
  - (B)  $O(\log_2 n)$
  - (C)  $O(n)$
  - (D)  $O(n \log_2 n)$
30. The recurrence relation  $T(n) = mT(n/2) + an^2$  is satisfied by
- (A)  $T(n) = O(n^m)$
  - (B)  $T(n) = O(\log m)$
  - (C)  $T(n) = O(n \log m)$
  - (D)  $T(n) = O(nm)$
31. An object's non static member functions have access to a "self pointer" to the object called the \_\_\_\_\_ Pointer.
- (A) Private
  - (B) This
  - (C) Double
  - (D) Actual
32. The \_\_\_\_\_ operator dynamically allocates memory for an object of a specified type and returns a \_\_\_\_\_ to that type.
- (A) new, pointer
  - (B) mem, mem
  - (C) volatile, data
  - (D) pointer, mem
33. When deriving a class from a base class with public inheritance, public members of the base class become \_\_\_\_\_ members of the derived class, and protected members of the base class become \_\_\_\_\_ members of the derived class.
- (A) public, protected
  - (B) protected, public
  - (C) private, private
  - (D) protected, private
34. Overridable functions are declared using keyword
- (A) void
  - (B) virtual
  - (C) public
  - (D) typeid



35. An overloaded unary operator defined as a member function requires how many values to be passed as function arguments ?
- (A) 0
  - (B) 1
  - (C) 2
  - (D) A unary operator cannot be overloaded
36. Which one of the following is not desired in a good Software Requirement Specification (SRS) document ?
- (A) Functional Requirements
  - (B) Non-functional Requirements
  - (C) Goals of Implementation
  - (D) Algorithms for Software Implementations
37. Software genetic development process contains three genetic phrases namely
- (A) Definition, Development, Maintenance
  - (B) Coding, Design, Software engineering
  - (C) Design, Coding, Development
  - (D) Development, Definition, Testing
38. Which of the following Construct in formal model in software engineering execute each statement in succession ?
- (A) Selection Construct
  - (B) Sequence Construct
  - (C) Iteration Construct
  - (D) Statement Construct
39. The most important feature of spiral model is
- (A) Requirement analysis
  - (B) Risk management
  - (C) Quality management
  - (D) Configuration management
40. The cost of software engineering includes approximately \_\_\_\_\_ of development costs and \_\_\_\_\_ of testing costs.
- (A) 50%, 50%
  - (B) 40%, 60%
  - (C) 80%, 20%
  - (D) 60%, 40%



41. At a particular time, the value of a counting semaphore is 10. It will become 7 after
- (A) 3 V operations
  - (B) 3 P operations
  - (C) 5 V operations and 2 P operations
  - (D) None of the above
42. Fence register is used for
- (A) CPU protection
  - (B) Memory protection
  - (C) File protection
  - (D) All of these
43. In a paged memory, the page hit ratio is 0.35. The time required to access a page in secondary memory is equal to 100 ns. The time required to access a page in primary memory is 10 ns. The average time required to access a page is
- (A) 3.0 ns
  - (B) 68.0 ns
  - (C) 68.5 ns
  - (D) 78.5 ns
44. Consider a system having 'm' resources of the same type. These resources are shared by 3 processes A, B, C which have peak time demands of 3, 4, 6 respectively. The minimum value of 'm' that ensures that deadlock will never occur is
- (A) 11
  - (B) 12
  - (C) 13
  - (D) 14
45. The most efficient data set organization is
- (A) A sequential file
  - (B) An ISAM file
  - (C) Variable depending upon the usage of the data set
  - (D) A portioned data set
46. Which is not a property of representation of knowledge ?
- (A) Representational Verification
  - (B) Representational Adequacy
  - (C) Inferential Adequacy
  - (D) Inferential Efficiency





47. Hill-Climbing algorithm terminates when,
- (A) Stopping criterion met
  - (B) Global Min/Max is achieved
  - (C) Neighbor has higher value
  - (D) Local Min/Max is achieved
48. Following are the elements, which constitutes to the frame structure ?
- (A) Facts or Data
  - (B) Procedures and default values
  - (C) Frame names
  - (D) Both (A) and (B)
49. What is a manager's primary use of a MIS ?
- (A) To facilitate problem solving and decision making
  - (B) To facilitate quality control
  - (C) To monitor inventory
  - (D) To evaluate productivity
50. Which part of an expert system applies the facts of a particular case to the domain specific knowledge-base ?
- (A) User interface
  - (B) Knowledge-acquisition subsystem
  - (C) Inference engine
  - (D) Explanation subsystem
51. Any polynomial with positive integer coefficients and a nonzero constant term is a
- (A) Step-counting function
  - (B) Positive function
  - (C) Any function
  - (D) None of these
52. If there is an NP-complete language L whose complement is in NP, then the complement of any language in NP is in
- (A) P
  - (B) NP
  - (C) Both (A) and (B) above
  - (D) None of these



53. If  $L \in P$ , then
- (A)  $L' \in P$
  - (B)  $L' \in NP$
  - (C)  $L' \in PSpace$
  - (D) None of these
54. Recursively enumerable language are not closed under
- (A) Union
  - (B) Intersection
  - (C) A complementation
  - (D) Concatenation
55. Which of the following instances of the post correspondence problem have a viable sequence ?
- (A)  $\{(b,bb)(bb,bab)(bab,abb)(abb,babba)\}$
  - (B)  $\{(ab,abb),(baa,aa)(aba,baa)\}$
  - (C)  $\{(ab,abb),(ba,aaa(aa,a))\}$
  - (D) None of these
56. Error detection at the data link level is achieved by
- (A) Bit stuffing
  - (B) Cyclic redundancy codes
  - (C) Byte stuffing
  - (D) Equalization
57. The topology with highest reliability is
- (A) Bus topology
  - (B) Star topology
  - (C) Ring topology
  - (D) Mesh topology
58. Find the minimum bandwidth required for the path which uses FDM Multiplexing, Five devices, each requiring 4000 Hz, 200 Hz guard band for each device
- (A) 20.8 KHz
  - (B) 25.1 KHz
  - (C) 28.1 KHz
  - (D) 30.8 KHz
59. The maximum data rate of a channel of 3000 Hz bandwidth and SNR of 30 DB is
- (A) 15,000 bps
  - (B) 60,000 bps
  - (C) 30,000 bps
  - (D) 3,000 bps
60. The frequency range at which the land coaxial cables will be used is
- (A)  $10^6$  to  $10^8$  Hz
  - (B)  $10^{10}$  to  $10^{11}$  Hz
  - (C)  $10^3$  to  $10^4$  Hz
  - (D)  $10^{14}$  to  $10^{15}$  Hz



61. In linear programming we need to ensure that both the objective function and the constraints can be expressed as linear expressions of
- (A) Constraints
  - (B) Basic variables
  - (C) Decision variables
  - (D) Objective function
62. When a linear programming problem is represented in the canonical form, the minimization of a function is mathematically equivalent to the \_\_\_\_\_ function.
- (A) Minimization of the negative expression
  - (B) Maximization of the negative expression
  - (C) Maximization of the positive expression
  - (D) Minimization of the positive expression
63. When the primal problem has a degenerate optimal solution the dual has \_\_\_\_\_ solutions.
- (A) Degenerate
  - (B) Infeasible
  - (C) Unbounded
  - (D) Multiple optimal
64. Identify in which among the following methods does a row or column difference indicate the minimum unit penalty incurred by failing to make an allocation to the least cost cell in that row or column.
- (A) North West corner rule
  - (B) Matrix minima method
  - (C) Vogel's approximation method
  - (D) Modi method
65. The technique of Monte Carlo involves the selection of \_\_\_\_\_ observations with in the simulation model.
- (A) Discrete
  - (B) Sequential
  - (C) Random
  - (D) Indiscrete
66. Synapses can be either
- (A) Excitatory
  - (B) Inhibitory
  - (C) Both (A) and (B)
  - (D) None of the above



67. XOR problem can be solved using

- (A) Single layer perceptron
- (B) Multi layer perceptron
- (C) Both (A) and (B)
- (D) None of the above

68. Which of the following is true ?

- (i) On average, neural networks have higher computational rates than conventional computers.
  - (ii) Neural networks learn by example.
  - (iii) Neural networks mimic the way the human brain works.
- (A) All of them are true
  - (B) (ii) and (iii) are true
  - (C) (i) and (ii) are true
  - (D) None of them are true

69. An auto associative network is

- (A) a neural network that contains no loops
- (B) a neural network that contains feedback
- (C) a neural network that has only one loop
- (D) a neural network that has multiple loop

70. A perceptron is

- (A) A single layer feed-forward neural network with preprocessing
- (B) An auto associative neural network
- (C) A double layer auto associative neural network
- (D) None of the above

71. Which statement is not true about process 0 in the UNIX operating system ?

- (A) Process 0 is called init process
- (B) Process 0 is not created by fork system call
- (C) After forking process 1, process 0 becomes swapper process
- (D) Process 0 is a special process created when system boots



72. Match the following for Windows Operating System :

- | <b>List – I</b>               | <b>List – II</b>                                                                                                                                                |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| a) Hardware abstraction layer | (i) Starting all processes, emulation of different operating systems, security functions, transform character based applications to graphical representation    |
| b) Kernel                     | (ii) Export a virtual memory interface, support for symmetric multiprocessing, administration, details of mapping memory, configuring I/O buses, setting up DMA |
| c) Executive                  | (iii) Thread scheduling, interrupt and exception handling, recovery after power failure                                                                         |
| d) Win32 subsystem            | (iv) Object manager, virtual memory manager, process manager, plug and-play and power manager                                                                   |

**Codes :**

- |     | <b>(a)</b> | <b>(b)</b> | <b>(c)</b> | <b>(d)</b> |
|-----|------------|------------|------------|------------|
| (A) | (i)        | (iii)      | (ii)       | (iv)       |
| (B) | (iv)       | (iii)      | (ii)       | (i)        |
| (C) | (ii)       | (iii)      | (iv)       | (i)        |
| (D) | (iii)      | (ii)       | (i)        | (iv)       |

73. Which command is used to remove the read permission of the file 'note' from both the group and others ?

- (A) `chmod go+r note`
- (B) `chmod go+rw note`
- (C) `chmod go-x note`
- (D) `chmod go-r`

74. A command \_\_\_\_\_ is a word linked to a block of text that is substituted by the shell whenever that word is used as a command.

- (A) group
- (B) alias
- (C) rename
- (D) proxy

75. Which of the following tools can be used to keep track of evolving versions of a file ?

- (A) make
- (B) yacc
- (C) sccs
- (D) dv



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