OCET 2011

Sr. No. :

Question Booklet Series : A

Important : Please consult your Admit Card / Roll No. Slip before filling your Roll Number on the Test Booklet and Answer Sheet.

Roll No.   *In Figures*   *In Words*

O.M.R. Answer Sheet Serial No.

Signature of the Candidate :

Subject : M. E. (Information Technology)

Time : 90 minutes   **Number of Questions : 75**   **Maximum Marks : 75**

DO NOT OPEN THE SEAL ON THE BOOKLET UNTIL ASKED TO DO SO

INSTRUCTIONS

1. Write your Roll No. on the Question Booklet and also on the OMR Answer Sheet in the space provided and nowhere else.
2. Enter the Subject and Series Code of Question Booklet on the OMR Answer Sheet. Darken the corresponding bubbles with **Black Ball Point / Black Gel pen.**
3. Do not make any identification mark on the Answer Sheet or Question Booklet.
4. To open the Question Booklet remove the paper seal (s) gently when asked to do so.
5. Please check that this Question Booklet contains **75** questions. In case of any discrepancy, inform the Assistant Superintendent within 10 minutes of the start of test.
6. Each question has four alternative answers (A, B, C, D) of which only one is correct. For each question, darken only one bubble (A or B or C or D), whichever you think is the correct answer, on the Answer Sheet with **Black Ball Point / Black Gel pen.**
7. If you do not want to answer a question, leave all the bubbles corresponding to that question blank in the Answer Sheet. No marks will be deducted in such cases.
8. Darken the bubbles in the OMR Answer Sheet according to the Serial No. of the questions given in the Question Booklet.
9. Negative marking will be adopted for evaluation i.e., 1/4th of the marks of the question will be deducted for each wrong answer. A wrong answer means incorrect answer or wrong filling of bubble.
10. For calculations, use of simple log tables is permitted. Borrowing of log tables and any other material is not allowed.
11. For rough work only the sheets marked "Rough Work" at the end of the Question Booklet be used.
12. The Answer Sheet is designed for **computer evaluation**. Therefore, if you do not follow the instructions given on the Answer Sheet, it may make evaluation by the computer difficult. **Any resultant loss to the candidate on the above account, i.e., not following the instructions completely, shall be of the candidate only.**
13. After the test, hand over the Question Booklet and the Answer Sheet to the Assistant Superintendent on duty.
14. In no case the Answer Sheet, the Question Booklet, or its part or any material copied/ noted from this Booklet is to be taken out of the examination hall. Any candidate found doing so would be expelled from the examination.
15. A candidate who creates disturbance of any kind or changes his/her seat or is found in possession of any paper possibly of any assistance or found giving or receiving assistance or found using any other unfair means during the examination will be expelled from the examination by the Centre Superintendent / Observer whose decision shall be final.
16. **Telecommunication equipment such as pager, cellular phone, wireless, scanner, etc., is not permitted inside the examination hall. Use of calculators is not allowed.**

1. **A compiler which allows only the modified section of the source code to be recompiled is called :**

    (A) Incremental Compiler
    (B) Reconfigurable Compiler
    (C) Dynamic Compiler
    (D) Selective Compiler

2. **Storage mapping is done by :**

    (A) Loader
    (B) Linker
    (C) Operating System
    (D) Compiler

3. **Which of the following is loop optimizing technique ?**

    (A) Jamming
    (B) Unrolling
    (C) Induction Variable Elimination
    (D) All of above

4. **Which of the following is the most powerful parsing method ?**

    (A) LL(1)
    (B) Canonical LR
    (C) SLR
    (D) LALR

5. **A grammar that is both left and right recursive for a non-terminal is :**

    (A) Ambiguous

    (B) Unambiguous

    (C) Information is not sufficient to decide whether it is ambiguous or unambiguous

    (D) Such a grammar does not exist

6. **The disadvantage of dynamic RAM over static RAM is :**

    (A) Need to refresh the capacitor charge every once in two milliseconds

    (B) Variable speed

    (C) Higher power consumption

    (D) Higher bit density

7. **The number of instructions needed to add n numbers and store the result in memory using only one address instructions is :**

    (A) n
    (B) n+1
    (C) n–1
    (D) independent of n

8. **Property of locality of reference may fail if a program has :**

    (A) Many conditional jumps
    (B) Many unconditional jumps
    (C) Too many operands
    (D) All of the above

9. **The XOR operator is not :**

(A) Commutative   (B) Associative

(C) Distributive over AND operator   (D) None of the above

10. **Any given truth table can be represented by a :**

(A) Karnaugh Map   (B) Sum of product of Boolean expressions

(C) Product of sum of Boolean expressions   (D) All of the above

11. **Dirty bit is used to show the :**

(A) Page with corrupted data

(B) Wrong page in the memory

(C) Page that is modified after being loaded into cache memory

(D) Page that is less frequently accessed

12. **The page replacement policy that leads to more page faults when the size of the memory is increased is :**

(A) Optimal algorithm   (B) LRU algorithm

(C) LRU approximation algorithm   (D) FIFO

13. **Size of virtual memory depends upon :**

(A) Data bus   (B) Address bus

(C) Size of secondary memory   (D) Memory buffer register

14. **Aging is technique used to :**

(A) Increase the priority of processes that are waiting for long time

(B) Decrease the priority of processes that are waiting for long time

(C) Increase the priority of processes that are currently running

(D) Decrease the priority of processes that are currently running

15. **Fence register is used for :**

(A) CPU protection   (B) File protection

(C) Memory protection   (D) Deadlock avoidance

16. **Set of regular languages over a given alphabet set is not closed under :**

(A) Union   (B) Complementation

(C) Intersection   (D) None of the above

17. **The basic limitation of an FSM is that :**

(A) It can't remember arbitrary large amount of information

(B) It sometimes recognizes grammars that are not regular

(C) It sometimes fails to recognize grammars that are regular

(D) All of the above

18. **The recognizing capability of Non Deterministic Finite State Machine and Deterministic Finite State Machine :**

   (A)   May be different   (B)   Must be different

   (C)   Must be the same   (D)   None of the above

19. **Context Sensitive Grammars can be recognized by :**

   (A)   FSM   (B)   DPDM

   (C)   NDPDM   (D)   Linearly bounded memory machine

20. **The statement – "A Turing Machine can't solve halting problem" is :**

   (A)   True   (B)   False

   (C)   Still an open question   (D)   None of these

21. **Context Free Grammar is not closed under :**

   (A)   Union   (B)   Kleene star

   (C)   Complement   (D)   Concatenation

22. **Linked lists are not suitable data structures for which one of the following problems ?**

   (A)   Insertion Sort   (B)   Binary Search

   (C)   Radix Sort   (D)   Polynomial Manipulation

23. **The order of an algorithm that finds whether a given Boolean function of n variables produces a 1 is :**

   (A)   Exponential   (B)   Logarithmic

   (C)   Linear   (D)   Constant

24. **A binary search tree is generated by inserting in order the following integers**

   50, 15, 62, 5, 20, 58, 91, 3, 8, 37, 60, 24

   The numbers of nodes in the left subtree and right subtree of the root respectively are :

   (A)   (3, 8)   (B)   (4, 7)

   (C)   (8, 3)   (D)   (7, 4)

25. **Which of the following sorting algorithm has the worst time complexity of n log(n) ?**

   (A)   Heap Sort   (B)   Quick Sort

   (C)   Insertion Sort   (D)   Selection Sort

26. **The average search time of hashing, with linear probing will be less if the load factor :**

   (A)   Equals one   (B)   Is far less than one

   (C)   Is far greater than one   (D)   None of the above

27. Mandatory access control is based on the concept of :

(A) Access rights

(B) System wide policies

(C) Authentication

(D) both (A) and (C)

28. Which of the following is an example of a UNDO/REDO algorithm ?

(A) Shadow paging

(B) Deferred Update

(C) Immediate Update

(D) 2PL

29. Which of the following will produce an efficient execution strategy ?

(A) Performing projection operations as early as possible

(B) Performing selection operations as early as possible

(C) Computing common expressions only once

(D) All of these

30. Normalization is the process of :

(A) Decomposing a set of relations

(B) Successive reduction of relation schema

(C) Deciding which attributes in a relation to be grouped together

(D) All of these

31. The number of substrings (all lengths) that can be formed from a character string of length n is :

(A) n

(B) n^2

(C) n*(n+1)/2

(D) n*(n–1)/2

32. The minimum number of edges in a connected cyclic graph on n vertices is :

(A) n–1

(B) n

(C) n+1

(D) None of above

33. The correct matching for the following pairs is :

(a)	**All pair shortest path**	**(1)**	**Greedy**
(b)	**Quick sort**	**(2)**	**Depth First Search**
(c)	**Minimum weight spanning tree**	**(3)**	**Dynamic Programming**
(d)	**Connected components**	**(4)**	**Divide and Conquer**

(A) a-2, b-4, c-1, d-3

(B) a-3, b-4, c-1, d-2

(C) a-3, b-4, c-2, d-1

(D) a-4, b-1, c-2, d-3

34. Give the correct matching for the following pairs :

(a)	**O (log n)**	**(1)**	**Linear Search**
(b)	**O (n)**	**(2)**	**Insertion Sort**
(c)	**O (n log n)**	**(3)**	**Binary Search**
(d)	**O (n^2)**	**(4)**	**Merge Sort**

(A) a-3, b-1, c-2, d-4

(B) a-1, b-3, c-4, d-2

(C) a-3, b-1, c-4, d-2

(D) a-1, b-4, c-3, d-2

35. **The postfix equivalent of the prefix * + a b – c d is :**

   (A)   ab + cd – *   (B)   ab cd + – *

   (C)   ab + cd * –   (D)   ab + – cd*

36. **Which statement about beam penetration method for producing colour displays is true ?**

   (A)   It is used with raster scan monitors

   (B)   It is used with random scan monitors

   (C)   By using beam penetration method, a wide range of colours can be produced

   (D)   It uses three electron guns, one each for green, blue and red colours

37. **The perspective anomaly in which the object behind the centre of projection is projected upside down and backward onto the view plane is called :**

   (A)   Perspective foreshortening   (B)   Vanishing View

   (C)   View Confusion   (D)   Topological distortion

38. **A surface appearing black :**

   (A)   Reflects all the incident colours

   (B)   Reflects all the incident colours except black

   (C)   Reflects only black and absorbs the rest

   (D)   Reflects none

39. **Hue of a colour is related to its :**

   (A)   Luminance   (B)   Saturation

   (C)   Wavelength   (D)   Incandescence

40. **Engineering drawing commonly applies :**

   (A)   Oblique projection   (B)   Orthographic projection

   (C)   Perspective projection   (D)   None of the above

41. **The network topology that supports bi-directional links between each possible node is :**

   (A)   Ring   (B)   Star

   (C)   Mesh   (D)   Tree

42. **Communication between a computer and a keyboard involves transmission :**

   (A)   Simplex   (B)   Half-Duplex

   (C)   Full-Duplex   (D)   None of these

43. **In which of the following layer, the data unit is called a frame ?**

   (A)   Physical   (B)   Data Link

   (C)   Network   (D)   Transport

44. The hamming distance between 001111 and 010011 is :

(A) 4 (B) 3

(C) 2 (D) 1

45. The parameter which gives the probability of the transport layer itself spontaneously terminating a connection due to internal problems is called :

(A) Protection (B) Transfer failure

(C) Option negotiation (D) Resilience

46. The less than relation <, on real numbers is :

(A) Not a partial ordering because it is not anti symmetric and not reflexive

(B) A partial ordering since it is symmetric and reflexive

(C) A partial ordering since it is anti-symmetric and reflexive

(D) Not a partial ordering because it is not asymmetric and not reflexive

47. The logic of pumping lemma is a good example of :

(A) Iteration (B) Divide and Conquer technique

(C) Pigeon-hole principle (D) Recursion

48. What is the maximum value of the function $f(x) = 2x^2 – 2x + 6$ in the interval $[0, 2]$?

(A) 2 (B) 6

(C) 12 (D) 10

49. How many partitions can exist in a set of four elements ?

(A) 7 (B) 15

(C) 31 (D) 52

50. Given the relation R = {(1, 2), (2, 3). Then the minimum number of ordered pairs that must be added to this set so that the enlarged relation is an equivalence relation :

(A) 7 (B) 6

(C) 5 (D) 4

51. What is the RDBMS terminology for a table ?

(A) Domain (B) Tuple

(C) Attribute (D) Relation

52. Which of the following is the result of a SELECT statement ?

(A) TRIGGER (B) TABLE

(C) INDEX (D) CURSOR

53. **The most appropriate form of graphics used for presenting facts and figure information is :**

   (A) Flowcharts   (B) Background

   (C) Charts and Graphs   (D) 2D Graphics

54. **The degree to which a software or a system is composed of discrete, independent components such that change in one component causes minimum change in other components is called :**

   (A) Portability

   (B) Self descriptiveness

   (C) Platform independence

   (D) Modularity

55. **Which of the following is not a black box testing technique ?**

   (A) Data Flow Testing   (B) Boundary Value Analysis

   (C) Cause Effect Graphing   (D) Equivalence Partitioning

56. **For accessing a structure element using a pointer, you must use :**

   (A) Dot operator (.)   (B) Operator *

   (C) Operator &   (D) Arrow operator ($\rightarrow$)

57. **Which of the following operators in C does not associate from the left ?**

   (A) +   (B) ,

   (C) =   (D) %

58. **What will be the value of i ?**

   int i = 1;

   i = i + 2 * + +;

   printf (“%d”, i);

   (A) 4   (B) 1

   (C) 3   (D) 2

59. **Puts (argv [0]’ prints :**

   (A) The name of the source file   (B) The name of the executable file

   (C) The number of command line arguments   (D) Argv

60. Pointers are of :

(A) Integer datatype

(B) Character datatype

(C) Unsigned integer datatype

(D) None of above

61. The Gray code for decimal 7 is :

(A) 0111

(B) 1011

(C) 0100

(D) 0101

62. A storage device used to compensate the differences in flow of data is called :

(A) Buffer

(B) Auxiliary storage

(C) Core memory

(D) Main storage

63. The Boolean expression A+BC equals :

(A) (A'+B) (A'+C)

(B) (A+B) (A+C)

(C) (A+B) (A'+C)

(D) (A+B') (A'+C')

64. What is the chance of throwing at least an ace in a single throw of two dice ?

(A) 11/36

(B) 8/36

(C) 1/4

(D) 10/36

65. Artificial Intelligence is concerned with making computers behave like :

(A) Home Appliances

(B) Robots

(C) Humans

(D) Machines

66. The 32-bit internet address 10000000000010100000001000011110 :

(A) 148.20.2.30

(B) 164.100.9.61

(C) 210.20.2.64

(D) 128.10.2.30

67. Find the odd man out :

(A) CMC

(B) ANA

(C) INX

(D) RAL

68. Which of the following logic families is well suited for high speed operation ?

(A) TTL

(B) ECL

(C) MOS

(D) CMOS

69. Device that links two homogeneous packet broadcast local networks is :

(A) Bridge
(B) Hub
(C) Repeater
(D) Gateway

70. RAID configurations of disks are used to provide :

(A) Fault tolerance
(B) High Speed
(C) High Data Density
(D) None of the above

71. The property of sticking together of data elements within a single module is called :

(A) Modularity
(B) Coupling
(C) Decomposition
(D) Cohesion

72. The process of replacement of a method inherited from super-class by a specific implementation in a sub-class is called :

(A) Polymorphism
(B) Overriding
(C) Multiple Classification
(D) Encapsulation

73. ALPHA and BETA testing are forms of :

(A) Acceptance testing
(B) System testing
(C) Unit testing
(D) Integration testing

74. Worst type of coupling is :

(A) Data coupling
(B) Control coupling
(C) Content coupling
(D) Stamp coupling

75. Microprogram is :

(A) Name of source program in micro computers

(B) The set of instructions indicating the primitive operations in a system

(C) Primitive form of macros used in assembly language programming

(D) Program of very small size

ROUGH WORK