ET-18

Ph.D. ENTRANCE EXAMINATION-2017
Subject : COMPUTER SCIENCE

Roll No. (in figures) _____

Roll No. (in words) _____

Time : 3 Hours

Maximum Marks : 100
Minimum Marks : 40

Dete of Examination :

....
Signature of Invigilator

....
Signature of Exam. Sup

Important Instructions

1. DO NOT OPEN TEST BOOKLET UNLESS YOU ARE ASKED TO DO SO.

2. This test is of 3 hours duration. Your time will start after you have been asked to open the Test Booklet.

3. All questions are compulsory.

4. No Negative Marking.

5. Medium of writing should be followed strictly.

6. Write the correct alternative on the answer sheet out of the given four alternatives.

1. Which data structure allows deleting data elements from front and inserting at rear ?
   (a) Stacks
   (b) Queues
   (c) Deques
   (d) Binary search tree

2. Identify the data structure which allows deletions at both ends of the list but insertion at only one end - http://www.onlinebu.com
   (a) Input_restricted deque
   (b) Output_restricted deque
   (c) Priporty queues
   (d) None of above

3. Which of the following data structure is nonlinear type ?
   (a) Strings
   (b) Lists
   (c) Stacks
   (d) Graph

4. Which of the following data structure is linear type ? http://www.onlinebu.com
   (a) Graph
   (b) Trees
   (c) Binary tree
   (d) Stack

5. To represent hierarchical relationship between elements, which data structure is suitable ?
   (a) Deque
   (b) Priority
   (c) Tree
   (d) All of above

6. A binary tree whose every node has either zero or two children is called _____ .
   (a) Complete binary tree
   (b) Binary search tree
   (c) Extended binary tree
   (d) None of above

7. The depth of a complete binary tree is given by _____ http://www.onlinebu.com
   (a) $Dn = n \log 2n$.
   (b) $Dn = n \log 2n+1$
   (c) $Dn = \log 2n$.
   (d) $Dn = \log 2+1$.

8. The in order traversal of tree will yield a sorted listing of elements of tree in _____ .
   (a) Binary trees
   (b) Binary search trees
   (c) Heaps
   (d) None of above

9. Two main measures for the efficiency of an algorithm are _____ .
   (a) Processor and memory
   (b) Complexity and capacity
   (c) Time and space
   (d) Data and space

10. When converting binary tree into extended binary tree, all the original nodes in binary tree are _____ . http://www.onlinebu.com
    (a) Internal nodes on extended tree
    (b) External nodes on extended tree
    (c) Vanished on extended tree
    (d) Live nodes

11. An object acquires the properties of objects of other classes by - http://www.onlinebu.com
   (a) Abstraction
   (b) Inheritance
   (c) Encapsulation
   (d) None of the above

12. The process of determining the appropriate function that should be invoked during the execution of program is termed as -
   (a) Static binding
   (b) Dynamic binding
   (c) Method overloading
   (d) None of the above

13. Has-A relationship is termed as -
   (a) Inheritance
   (b) Association
   (c) Aggregation
   (d) None of these

14. Object Modeling Technique (OMT) was developed by - http://www.onlinebu.com
   (a) Rumbaugh
   (b) Booch
   (c) Jacobson
   (d) Blob

15. Which of the following symbols was used by Booch to represent a Class ?
   (a) Square
   (b) Rectangle
   (c) Cloud
   (d) One side open rectangle

16. Use-cases that do not have any actor are referred as - http://www.onlinebu.com
   (a) Abstract Use-case
   (b) Non-Use-case
   (c) Zero-Use-case
   (d) None of these

17. The structural view is depicted through -
   (a) Object Diagram
   (b) Class Diagram
   (c) Both of these
   (d) None of these

18. The property of a relationship that specifies how many instances of a class relates to a single instance of an associated class is called -
   (a) Cardinality of relationship
   (b) Degree of relationship
   (c) Both of these
   (d) None of these

19. Loan Advisor creates an object Loan for a new loan. It is an example of -
   (a) Is-A relation
   (b) Has-A relation
   (c) Uses-A relation
   (d) None of these

20. In the context of Use-case diagram, the stick person icon is used to represent -
   (a) Human users
   (b) External systems
   (c) Internal systems
   (d) None of the above

21. How long is an IPv6 address ?
    (a) 32 bits
    (b) 128 bytes
    (c) 64 bits
    (d) 128 bits

22. What flavour of Network Address Translation can be used to have one IP address allow many users to connect to the global Internet ?
    (a) NAT
    (b) Static
    (c) Dynamic
    (d) PAT

23. What are the two main types of access control lists (ACLs) ? http://www.onlinebu.com
    1. Standard
    2. IEEE
    3. Extended
    4. Specialized
    (a) 1 and 3
    (b) 2 and 4
    (c) 3 and 4
    (d) 1 and 2

24. What command is used to create a backup configuration ? http://www.onlinebu.com
    (a) Copy Running Back up
    (b) Copy Runningconfig startup-config
    (c) Config Mem
    (d) WR Mem

25. You have 10 users plugged into a hub running 10Mbps half-duplex. There is a server connected to the switch running 10Mbps half-duplex as well. How much bandwidth does each host have to the server ?
    (a) 100 kbps
    (b) 1 Mbps
    (c) 2 Mbps
    (d) 10 Mbps

26. Which WLAN IEEE specification allows up to 54 Mbps at 2.4 GHz ?
    (a) A
    (b) B
    (c) G
    (d) N

27. Which of the following is the valid host range for the subnet on which the IP address 192.168.168.188. 255.255.255.192 resides ?
    (a) 192.168.168.129-190
    (b) 192.168.168.129-191
    (c) 192.168.168.128-190
    (d) 192.168.168.129-192

28. To back up an IOS, what command will you use ? http://www.onlinebu.com
    (a) Backup IOS disk
    (b) Copy ios tftp
    (c) Copy tftp flash
    (d) Copy flash tftp

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29. What protocol does PPP use to identify the Network Layer Protocol ?
    (a) NCP
    (b) ISDN
    (c) HDLC
    (d) LCP

30. Which of the following commands will allow you to set your Telent Password on a Cisco router ? http://www.onlinebu.com
    (a) Line telnet 0 4
    (b) Line aux 0 4
    (c) Line vty 0 4
    (d) Line con 0

31. Data modeling technique used for data marts is -
    (a) Dimensional modeling
    (b) ER - Model
    (c) Extended ER - Model
    (d) Physical model

32. A warehouse architect is trying to determine what data must be included in the warehouse. A meeting has been arranged with a business analyst to understand the data requirement, which of the following should be included in the agenda ? http://www.onlinebu.com
    (a) Number of users
    (b) Corporate Objectives
    (c) Database design
    (d) Routine reporting

33. An OLAP tool provides for -
    (a) Multidimensional analysis
    (b) Roll-up and drill-down
    (c) Slicing and dicing
    (d) Rotation

34. The Synonym for data mining is -
    (a) Data warehouse
    (b) Knowledge discovery in database
    (c) ETL   http://www.onlinebu.com
    (d) Business intelligence

35. Which of the following statement is ture ?
    (a) A fact table describes the transactions stored in a DWH
    (b) A fact table describes the granularity of data held in a DWH
    (c) The fact table of a data warehouse is the main store of descriptions of the transactions stored in a DWH
    (d) The fact table of a data warehouse is the main store of all of the recorded transactions over time

36. Most common kind of queries in a data warehouse -
    (a) Inside-out queries
    (b) Outside-in queries
    (c) Browse queries
    (d) Range queries

37. Concept description is the basic form of the -
    (a) Predictive data mining
    (b) Descriptive data mining
    (c) Data warehouse
    (d) Relational data base

38. The apriori property means
    (a) If a set cannot pass a test, all of its supersets will fail the same test as well
    (b) To improve the efficiency the level-wise generation of frequent item sets
    (c) If a set can pass a test, all of its supersets will fail the same test as well
    (d) To decrease the efficiency the level-wise generation of frequent item sets

39. Which of following form the set of data created to support a specific short lived business situation ? http://www.onlinebu.com
    (a) Personal data marts
    (b) Application models
    (c) Downstream systems
    (d) Disposable data marts

40. What is/are the different types of Meta data ?
    I. Administrative http://www.onlinebu.com
    II. Business
    III. Operational
    (a) Only (I) above
    (b) Both (II) and (III) above
    (c) Both (I) and (II) above
    (d) All (I), (II) and (III) above

41. Translator for low level programming language were termed as -
    (a) Assembler http://www.onlinebu.com
    (b) Compiler
    (c) Linker
    (d) Loader

42. Analysis which determines the meaning of a statement once its grammatical structure becomes known is termed as -
    (a) Semantic analysis
    (b) Syntax analysis
    (c) Regular analysis
    (d) General analysis

43. Load address for the first word of the program is called -
    (a) Linker address origin
    (b) load address origin
    (c) Phase library
    (d) Absolute library

44. Symbolic names can be associated with -
    (a) Information http://www.onlinebu.com
    (b) Data or instruction
    (c) Operand
    (d) Mnemonic operation

45. The translator which perform macro expansion is called a - http://www.onlinebu.com
   (a) Macro processor
   (b) Macro pre-processor
   (c) Micro pre-processor
   (d) Assembler

46. Shell is the exclusive features of -
   (a) UNIX
   (b) DOS
   (c) System software
   (d) Application software

47. A program in execution is called -
   (a) Process
   (b) Instruction
   (c) Procedure
   (d) Function

48. Interval between the time of submission and completion of the job is called -
   (a) Waiting time
   (b) Turnaround time
   (c) Throughput
   (d) Response time http://www.onlinebu.com

49. A scheduler which selects processes from secondary storage device is called -
   (a) Short term schedular
   (b) Long term scheduler
   (c) Medium term scheduler
   (d) Process scheduler

50. The scheduling in which CPU is allocated to the process with least CPU-burst time is called -
   (a) Priority Scheduling
   (b) Shortest Job First Scheduling
   (c) Round Robin Scheduling
   (d) Multilevel Queue Scheduling

51. In the relational modes, cardinality is termed as - http://www.onlinebu.com
   (a) Number of tuples
   (b) Number of attributes
   (c) Number of tables
   (d) Number of constraints

52. Relational calculus is a -
   (a) Procedural language
   (b) Non-Procedural Language
   (c) Data definition language
   (d) High level language

53. The view of total database content is -
   (a) Conceptual view
   (b) Internal view
   (c) External view
   (d) Physical view

54. Cartesian product in relational algebra is -
   (a) A unary operator
   (b) A Binary operator
   (c) A Ternary operator
   (d) Not defined

55. DML is provided for -

(a) Description of logical structure of database

(b) Addition of new structures in the databse system

(c) Manipulation & Processing of database

(d) Definition of physical structure of database system http://www.onlinebu.com

56. 'AS' clause is used in SQL for -

(a) Selection operation

(b) Rename operation

(c) Join operation

(d) Projection operation

57. ODBC stands for -

(a) Object Database Connectivity

(b) Oral Database Connectivity

(c) Oracle Database Connectivity

(d) Open Database Connectivity

58. Architecture of the database can be viewed

as - http://www.onlinebu.com

(a) Two levels

(b) Four levels

(c) Three levels

(d) One levels

59. In a relational model, relations are termed

as - http://www.onlinebu.com

(a) Tuples

(b) Attributes

(c) Tables

(d) Rows

60. The database schema is written in -

(a) HLL

(b) DML

(c) DDL

(d) DCL

61. C program was developed at _____ laboratories. http://www.onlinebu.com

(a) USA

(b) Sun

(c) Bell

(d) C++

62. A C program can be viewed as a group of building blocks called _____.

(a) Groups

(b) Functions

(c) Statements

(d) Structures

63. All statements in the declaration and executable parts end with a _____.

(a) Comma

(b) Bracket

(c) Parenthesis

(d) Semicolon

64. The smallest individual units in a C Program are called _____.
   (a) Characters
   (b) Symbols
   (c) Tokens
   (d) Identifiers

65. All keywords must be written in _____.
   (a) Upper case   http://www.onlinebu.com
   (b) Lower case
   (c) Within codes
   (d) Separately

66. ANSI C supports _____ classes of data types.
   (a) One
   (b) Two
   (c) Three
   (d) Four

67. The enumerated data type is a _____ data type.   http://www.onlinebu.com
   (a) Derived data type
   (b) User-defined data type
   (c) Primary data type
   (d) Fundamental data type

68. The variable which has been declared before the main is called _____ variable.
   (a) Local
   (b) Global
   (c) Static
   (d) Auto

69. The process of giving initial values to the variables is called _____.
   (a) Initialization
   (b) Declaration
   (c) User firendly
   (d) Signed

70. An arithmetic expression without parenthesis will be evaluated form _____.
   (a) Left to right
   (b) Right to left
   (c) Top to bottom
   (d) Bottom to top

71. The most important feature of spiral model is - http://www.onlinebu.com
   (a) Requirement analysis
   (b) Risk management
   (c) Quality management
   (d) Configuration management

72. The worst type of coupling is -
   (a) Data coupling
   (b) Control Coupling
   (c) Stamp Coupling
   (d) Content coupling

73. IEEE 830-1993 is a IEEE recommended standard for - http://www.onlinebu.com
   (a) Software requirement specifications
   (b) Software design
   (c) Testing
   (d) Both a and b

74. One of the fault based testing techniques is -
    (a) Unit testing
    (b) Beta testing
    (c) Stress testing
    (d) Mutation testing

75. Changes made to an information system to add the desired but not necessarily the required features is called - http://www.onlinebu.com
    (a) Preventive maintenance
    (b) Adaptive maintenance
    (c) Corrective maintenance
    (d) Perfective maintenance

76. All the modules of the system are integrated and tested as complete system in the case of -
    (a) Bottom-up Testing
    (b) Top-Down Testing
    (c) Sandwitch Testing
    (d) Big-Bang Testing

77. Software deteriorates rather than wears out because - http://www.onlinebu.com
    (a) Software suffers from exposure to hostile environments
    (b) Defects are more likely to arise after software has been used often
    (c) Mulitple change request introduce errors in component interactions
    (d) Software spare parts become harder to order

78. What are the three generic phases of software engineering ? http://www.onlinebu.com
    (a) Definition, development support
    (b) What, how, where
    (c) Programming, debugging, maintennace
    (d) Analysis, Design, testing

79. Which of these terms is a level name in the Capability Mturity Model ?
    (a) Ad hoc
    (b) Repeatable
    (c) Reusable
    (d) Organised

80. Which of the items listed below is not one of the software engineering layers ?
    (a) Process
    (b) Manufacturing
    (c) Methods
    (d) Tools

81. When an instruction is read from the memory, it is called - http://www.onlinebu.com
    (a) Memory Read cycle
    (b) Fetch cycle
    (c) Instruction cycle
    (d) Memory write cycle

82. The ASCII code for letter A is -
    (a) 1100011
    (b) 1000001
    (c) 1111111
    (d) 0010011

83. The negative numbers in the binary system can be represented by -

(a) Sign mangnitude

(b) I's complement

(c) 2's complement

(d) All of the above

84. How many different addresses are required by the memory that contain 16K words ?

(a) 16,380

(b) 16,382

(c) 16,384

(d) 16,386

85. How many 128 × 8 RAM chips are needed to provide a memory capacity of 2048 bytes ?

(a) 8

(b) 16

(c) 24

(d) 32

86. When an instruction is read from the memory, it is called - http://www.onlinebu.com

(a) Memory Read cycle

(b) Fetch cycle

(c) Instruction cycle

(d) Memory write cycle

87. The flag register content after execution of following program by 8085 microprocessor shall be - http://www.onlinebu.com

Program

SUB A

MVI B, (01) H

DCR B

HLT

(a) (54) H

(b) (44) H

(c) (45) H

(d) (55) H

88. Which flag of the 8085's flag register is not accessible to programmer directly ?

(a) Zero flag   http://www.onlinebu.com

(b) Carry flag

(c) Auxiliary carry flag

(d) Parity flag

89. Which of the memory holds the information when the Power Supply is switched off ?

(a) Static RAM

(b) Dynamic RAM

(c) EEROM

(d) None of the above

90. An interrupt for which hardware automatically transfers the program to a specific memory location is known as -

(a) Software interrupt

(b) Hardware interrupt

(c) Maskable interrupt

(d) Vector interrupt

91. The union of the sets {1, 2, 5} and {1, 2, 6} and (1, 2, 5) is the set _____.

(a) {1, 2, 6, 1}

(b) {1, 2, 5, 6}

(c) {1, 2, 1, 2}

(d) {1, 5, 6, 3}

92. The intersection of the sets {1, 2, 5} and {1, 2, 6} is the set _____.

(a) {1, 2}

(b) {5, 6}

(c) {2, 5}

(d) {1, 6}

93. The quotient when 19 is divided by 6 is -

(a) 1

(b) 2

(c) 3

(d) 0

94. The value of 12 mod 3 is -

(a) 0

(b) 1

(c) 2

(d) 3

95. The greatest common divisor of 414 and 662 is -

(a) 4

(b) 5

(c) 2

(d) 6

96. How many different words can be formed out of the letters of the word VARANASI ?

(a) 64   http://www.onlinebu.com

(b) 120

(c) 40320

(d) 720

97. The relation { (1,2), (1,3), (3,1), (1,1), (3,3), (3,2), (1,4), (4,2) (3,4)} is -

(a) Reflexive

(b) Transitive

(c) Symmetric

(d) Asymmetric

98. In how many ways can a president and vice president be chosen from a set of 30 candidates ?   http://www.onlinebu.com

(a) 820

(b) 850

(c) 880

(d) 870

99. The number of leaf nodes in a complete binary tree of depth d is - http://www.onlinebu.com

(a) 2d

(b) 2d–1+1

(c) 2d+1+1

(d) 2d+1

100. Circle has _____.

(a) No vertices

(b) Only one vertex

(c) 8 vertices

(d) None of these

_____