(NOT TO BE OPENED BEFORE TIME OR TILL ASKED TO DO SO)

PHDURS-EE-2013

SUBJECT : COMPUTER SCIENCE & APPLICATIONS

A

Sr. No. ......10001......

Time : 1¼ Hours   Max. Marks : 100   Total Questions : 100

Candidate's Name _____ Date of Birth _____

Father's Name _____ Mother's Name _____

Roll No. (in figures)_____ (in words)_____

Date of Examination _____

_____   _____
(Signature of the Candidate)   (Signature of the Invigilator)

CANDIDATES MUST READ THE FOLLOWING INFORMATION/INSTRUCTIONS BEFORE STARTING THE QUESTION PAPER.

1. *All questions are compulsory and carry equal marks.*

2. All the candidates *must return* the question booklet as well as OMR Answer-Sheet to the Invigilator concerned before leaving the Examination Hall, failing which a case of use of unfair-means/misbehaviour will be registered against him/her, in addition to lodging of an FIR with the police. Further the answer-sheet of such a candidate will not be evaluated.

3. In case there is any discrepancy in any question(s) in the Question Booklet, the same may be brought to the notice of the Controller of Examinations in writing **within two hours** after the test is over. No such complaint(s) will be entertained thereafter.

4. The candidate *must not* do any rough work or writing in the OMR Answer-Sheet. Rough work, if any, may be done in the question booklet itself. Answers **Should Not** be ticked in the question booklet.

5. *Use black or blue ball point pen only in the OMR Answer-Sheet.*

6. For each correct answer, the candidate will get full credit. Cutting, erasing, overwriting and more than one answer in OMR Answer-Sheet will be treated as incorrect answer. There will be No Negative marking.

7. *Before answering the questions, the candidates should ensure that they have been supplied correct and complete booklet. Complaints, if any, regarding misprinting etc. will not be entertained* **30** *minutes after starting of the examination.*

PHDURS-EE-2013/Comp. Sc. & App./(A)

1. Among the logic families, the family which can be used at very high frequency greater than 100 MHz in a 4 bit synchronous counter is :

   (1) TTLAS   (2) CMOS   (3) ECL   (4) TTLLS

2. An AND gate will function as OR if :

   (1) all the inputs to the gates are" 1"

   (2) all the inputs are '0'

   (3) either of the inputs is "1"

   (4) all the inputs and outputs are complemented.

3. An OR gate has 6 inputs. The number of input words in its truth table are :

   (1) 6   (2) 32   (3) 64   (4) 128

4. NAND gates are preferred over others because these :

   (1) have lower f brication area   (2) can be used to nake any gate

   (3) consume least electronic power   (4) provide maximum density in a chip.

5. In case of OR gate, no matter what the number of inputs, a :

   (1) 1 at any input causes the output to be at logic 1

   (2) 1 at any input causes the output to be at logic 0

   (3) 0 any input causes the output to be at logic 0

   (4) 0 at any input causes the output to be at logic 1.

6. The most common addressing techniques employed by a CPU is :

   (1) immediate   (2) direct

   (3) indirect   (4) all of the above

7. Pipeline implement :

   (1) fetch instruction and decode instruction

   (2) fetch operand and calculate operand

   (3) execute instruction

   (4) all of the above

8. Which of the following code is used in present day computing was developed by IBM corporation ?

   (1) ASCII   (2) Hollerith Code

   (3) Baudot code   (4) EBCDIC code

9. When a subroutine is called, the address of the instruction following the CALL instructions stored in/on the :

   (1) stack pointer   (2) accumulator

   (3) program counter   (4) stack

10. A microprogram written as string of 0's and 1's is a :

    (1) symbolic microinstruction   (2) binary microinstruction

    (3) symbolic microprogram   (4) binary microprogram

11. Write the output of :

    ```
    main ( )
    {
    int n1 =4;
    printf(" % d ", sizeof ( n 1 ));
    }
    ```

    (1) 2   (2) 4   (3) 1   (4) 8

12. Which of the following operator can not be overloaded ?
    (1) Scope resolution operator   (2) Arrow operator
    (3) Equality operator   (4) Assignment operator

13. How do we declare an interface class ?
    (1) By declaring the class as interface with keyword interface
    (2) By making all the methods abstract using the keyword abstract in class
    (3) By making all the methods pure virtual in class
    (4) It is not possible to create interface classes in C++

14. What is the right way to declare a copy constructor of a class if the name of class is X ?

    (1) X(const X* arg)   (2) X(const X& arg)

    (3) X(X arg)   (4) X(X* arg)

15. Which statement is most appropriate for C++ language ?

    (1) Type Less language   (2) Statically types Language

    (3) Dynamically typed language   (4) Both (2) and (3)

16. What is the worst-case time for heapsort to sort an array of n elements ?

    (1) $O(\log n)$ (2) $O(n)$ (3) $O(n \log n)$ (4) $O(n^2)$

17. In AVL tree the balance factor of every node should be :

(1) 0 (2) 0 or 1 (3) -1 , 0 or 1 (4) -1 or 1

18. The elements of linked list are stored in :
(1) Successive memory locations (2) Random Memory locations
(3) Alternate memory locations (4) None of the above

19. Queue data structure is based on the principle of :
(1) Last Come First Serve (2) First Come First Serve
(3) Both (1) & (2) above (4) None of the above

20. Which of the following is a non-linear data structure ?
(1) Tree (2) Array
(3) Linked list (4) None of the above

21. To implement recursion, which of the following data structure is required ?

(1) Stack (2) Queue

(3) Tree (4) None of the above

22. Array passed as an argument to a function is interpreted as :
(1) Address of the array
(2) Values of the first elements of the array
(3) Address of the first element of the array
(4) Number of element of the array

23. Time taken for addition of element in queue is :
(1) O(1) (2) O(n)
(3) O(log n) (4) None of these options

24. The memory address of the first element of an array is called :
(1) floor address (2) foundation address
(3) first address (4) base address

25. The memory address of fifth element of an array can be calculated by the formula :
(1) LOC(Array[5])=Base(Array)+w(5-lower bound), where w is the number of words per memory cell for the array
(2) LOC(Array[5])=Base(Array[5])+w(5-lower bound), where w is the number of words per memory cell for the array
(3) LOC(Array[5])=Base(Array[4])+w(5-upper bound), where w is the number of words per memory cell for the array
(4) None of the above

26. Analysis which determines the meaning of a statement once its grammatical structure becomes known is termed as :

    (1) Semantic analysis
    (2) Syntax analysis
    (3) Regular analysis
    (4) General analysis .

27. Load address for the first word of the program is called :

    (1) Linker address origin
    (2) load address origin
    (3) Phase library
    (4) absolute library

28. Symbolic names can be associated with :

    (1) Information
    (2) data or instruction
    (3) operand
    (4) mnemonic operation

29. The translator which perform macro expansion is called a :

    (1) Macro processor
    (2) Macro pre-processor
    (3) Micro pre-processor
    (4) assembler

30. An assembler is :

    (1) programming language dependent
    (2) syntax dependant.
    (3) machine dependant.
    (4) data dependant

31. Program generation activity aims at :

    (1) Automatic generation of program
    (2) Organize execution of a program written in PL
    (3) Skips generation of program
    (4) Speed generation of program

32. Which of the following loader is executed when a system is first turned on or restarted :

    (1) Boot loader
    (2) Compile and Go loader
    (3) Bootstrap loader
    (4) Relating loader

33. A parser which is a variant of top-down parsing without backtracking is :

    (1) Recursive Descend.
    (2) Operator Precedence. .
    (3) LL(1) parser.
    (4) LALR Parser.

34. Symptoms of the software crisis would include :
    (1) Software delivered behind schedule (2) Software exceeding cost estimate
    (3) Unreliable   (4) All of the above

35. Which of the following projects would be a good one for adopting the prototyping paradigm for software development ?
    (1) Accounting System   (2) Spreadsheet
    (3) Automobile Cruise Control   (4) Algebra Tutor

36. Views of quality software would not include :
    (1) Optimizing price and performance   (2) Minimizing the execution errors
    (3) Conformance to specification   (4) Establishing valid requirements

37. Software configuration activities would not include :
    (1) Identify change
    (2) Control change
    (3) Ensure improper implementation of change
    (4) Report change to interested parties

38. In planning a software project one would :
    (1) Find ways to produce results using limited resources
    (2) Pad the schedule to accommodate errors
    (3) Overestimate the budget
    (4) Structure the team to prevent administrative interference

39. A systematic approach to software development, as epitomized by the various life-cycle models, is useful in :
    (1) Helping us understand the nature of the software product
    (2) Convincing the customer that we know what we are doing
    (3) Filling texts on software engineering
    (4) Managing the various activities necessary to get the job done

40. A process view in software engineering would consider which of the following ?
    (1) Product performance   (2) Staffing
    (3) Functionality   (4) Reliability

41. Software measurement is useful to :
    (1) Indicate quality of the product   (2) Track progress
    (3) Assess productivity   (4) All of the above

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42. Which of the following is *not* a 'concern' during the management of a software project ?
    - (1) Money
    - (2) Time
    - (3) Product quality
    - (4) Product quantity

43. The light pen is an :
    - (1) Graphics input device
    - (2) Graphic output device
    - (3) Both (1) & (2)
    - (4) None of these

44. Special System designed for some training application are known as :
    - (1) GUI
    - (2) Simulators
    - (3) Video Display Devices
    - (4) None of the above

45. The anti - aliasing technique which allows shift of 1/4, 1/2 and 3/4 of a pixel diameter enabling a closer path of a line is :
    - (1) Pixel phasing
    - (2) Filtering
    - (3) Intensity compensation
    - (4) Sampling technique

46. The .... simply reads each successive byte of data from the frame buffer.
    - (1) Digital Controller
    - (2) Data Controller
    - (3) Display Controller
    - (4) All of the above

47. If the eccentricity is less than one then the conic is :
    - (1) Circle
    - (2) Parabola
    - (3) Ellipse
    - (4) Hyperbola

48. When several types of output devices are available in graphics installation. it is convenient to use :
    - (1) Bundled attributes
    - (2) Unbundled attributes
    - (3) Inquiry attributes
    - (4) All of the above

49. All the hidden surface algorithms employee image space approach *except* :
    - (1) Back face removal
    - (2) Depth buffer method
    - (3) Scan line method
    - (4) Depth sort method

50. Computer Graphics models are now commonly used for making ?
    - (1) Motion pictures
    - (2) Music Videos
    - (3) Television shows
    - (4) All of the above

51. .... is used to build 'intuitive' queries.
    - (1) SQL
    - (2) Xbase
    - (3) QBE
    - (4) XML

52. To print information from a table, the .... tool is the best choice.
    (1) form (2) report (3) query (4) macro

53. To store your picture in a database requires a(n) .... field.
    (1) BLOB (2) text (3) image (4) logical

54. The .... is used to access one record at a time.
    (1) query (2) filter (3) form (4) report

55. A transparent DBMS :
    (1) Can not hide sensitive information from users
    (2) Keep its logical structure hidden from users
    (3) Keep its physical structure hidden from users
    (4) Both (2) and (3)

56. An unnormalized relation contains values :
    (1) Atomic (2) Non - Atomic (3) Classified (4) None of these

57. A relation scheme is said to be in .... form if the values in the domain of each attribute of the relation are atomic.
    (1) Unnormalized (2) First Normal (3) Boyce CODD (4) None of these

58. A second Normal form does not permit .... dependency between a non prime attribute and the relation key .
    (1) Partial (2) Multi (3) Functional (4) Valued

59. A relation scheme is in .... if it is in the 1 NF and if all non prime attributes are fully functionally dependent on the relation key.
    (1) First Normal Form (2) Second Normal Form
    (3) Boyce Codd Normal Form (4) Fourth Normal Form

60. In a Third Normal Form relation, every .... attribute is non - transitively and fully dependent on the every candidate key.
    (1) Prime (2) Non Prime (3) Unique (4) None of these

61. Data scrubbing is which of the following ?

    (1) A process to reject data from the data warehouse and to create the necessary indexes

    (2) A process to load the data in the data warehouse and to create the necessary indexes

    (3) A process to upgrade the quality of data after it is moved into a data warehouse

    (4) A process to upgrade the quality of data before it is moved into a data warehouse

62. The @active data warehouse architecture includes which of the following ?
    (1) At least one data mart
    (2) Data that can extracted from numerous internal and external sources
    (3) Near real-time updates
    (4) All of the above

63. A goal of data mining includes which of the following ?
    (1) To explain some observed event or condition
    (2) To confirm that data exists
    (3) To analyze data for expected relationships
    (4) To create a new data warehouse

64. An operational system is which of the following ?
    (1) A system that is used to run the business in real time and is based on historical data.
    (2) A system that is used to run the business in real time and is based on current data.
    (3) A system that is used to support decision making and is based on current data.
    (4) A system that is used to support decision making and is based on historical data.

65. A data warehouse is which of the following ?
    (1) Can be updated by end users.
    (2) Contains numerous naming conventions and formats.
    (3) Organized around important subject areas.
    (4) Contains only current data.

66. A snowflake schema is which of the following types of tables ?
    (1) Fact
    (2) Dimension
    (3) Helper
    (4) All of the above

67. The generic two-level data warehouse architecture includes which of the following ?
    (1) At least one data mart
    (2) Data that can extracted from numerous internal and external sources
    (3) Near real-time updates
    (4) All of the above.

68. Fact tables are which of the following ?
    (1) Completely denoralized
    (2) Partially denoralized
    (3) Completely normalized
    (4) Partially normalized

69. A Business Intelligence system requires data from :
    (1) Data warehouse
    (2) Operational systems
    (3) All possible sources within the organization and possibly from external sources
    (4) Web servers

70. Data mining application domains are :
    (1) Biomedical   (2) DNA data analysis
    (3) Financial data analysis   (4) All of the above

71. The generalization of multidimensional attributes of a complex object class can be performed by examining each attribute, generalizing each attribute to simple-value data and constructing a multidimensional data cube is called as :
    (1) Object cube   (2) Relational cube
    (3) Transactional cube   (4) Tuple

72. Which of the following project is a building a data mart for a business process/department that is very critical for your organization ?
    (1) High risk high reward   (2) High risk low reward
    (3) Low risk low reward   (4) Low risk high reward

73. Which of the following tools a business intelligence system will have ?
    (1) OLAP tool   (2) Data mining tool
    (3) Reporting tool   (4) Both(1) and (2) above

74. Which of the following is/are the Data mining tasks ?
    (1) Regression   (2) Classification   (3) Clustering   (4) All of the above

75. In a data warehouse, if D1 and D2 are two conformed dimensions, then :
    (1) D1 may be an exact replica of D2
    (2) D1 may be at a rolled up level of granularity compared to D2
    (3) Columns of D1 may be a subset of D2 and vice versa
    (4) Rows of D1 may be a subset of D2 and vice versa

76. In the IEEE standards 802.5 standard is also called ....
    (1) Ethernet   (2) Token Bus
    (3) Wireless Token Area Network   (4) Token Ring

77. .... have a single communication channel that is shared by all the users on the network.
    (1) Point-to-Point   (2) Broadcast Network
    (3) Protocol   (4) PAN

78. Error detection at the data link level is achieved by ....
    (1) Bit stuffing   (2) Hamming codes
    (3) Cyclic Redundancy codes   (4) Equalization

79. Which of the following is an advantage to using fiber optics data transmission ?
    (1) resistance to data theft   (2) fast data transmission rate
    (3) low noise level   (4) all of the above

80. Which of the following is required to communicate between two computers ?
    (1) communications software
    (2) protocol
    (3) communication hardware
    (4) all of the above including access to transmission medium

81. Which of the following types of channels moves data relatively slowly ?
    (1) wide band channel   (2) voice band channel
    (3) narrow band channel   (4) all of the above

82. A protocol is a set of rules governing a time sequence of events that must take place ?
    (1) between peers   (2) between an interface
    (3) between modems   (4) across an interface

83. Which of the following transmission systems provide the highest data rate to in individual device ?
    (1) computer bus   (2) telephone lines
    (3) voice and mode   (4) lease lines

84. Communication circuits that transmit data in both directions but not at the same time are operating in :
    (1) a simplex mode   (2) a half duplex mode
    (3) a full duplex mode   (4) an asynchronous mode

85. What type of information should you avoid including on your web site ?
    (1) links to sites of interest   (2) private personal information
    (3) work and academic experience   (4) graphical

86. Which of the following web elements should you know about before building your web site ?
    (1) the web audience
    (2) the operating environment of your isp
    (3) the operating system of your visitor
    (4) each consideration should determine your web design choices

87. What is the language of the Web ?
    (1) Basic
    (3) MS Visual Basic
    (2) C++
    (4) HTML

88. What does an HTML tag do ?
    (1) it specifies formatting and layout instructions for your web page.
    (2) it hides programming instructions from view.
    (3) it determines the organizational structure of your web site.
    (4) it connects your web site to an operating environment.

89. A Web document is broken into sections. What are the tags called that create these sections ?
    (1) structure tags   (2) html tags   (3) heading tags   (4) body tags

90. What should be the first and last pair of tags in your Web document ?
    (1) <html></html> and <body></body>
    (2) <start><end> and <body></body>
    (3) <head><body> and <title></title>
    (4) <title></title> and <body<>/body>

91. When you use a heading tag in a document, what does the Web browser assumes ?
    (1) heading information is to appear in bold letters
    (2) heading information is to appear on its own line
    (3) heading information has a hyperlink
    (4) heading information is shown as a size six

92. For every Web document, you can add words that appear in the upper left bar area of your browser. What set of tags allows you to provide this information ?
    (1) <head></head>
    (3) <label><label>
    (2) <head><head>
    (4) <title></title>

93. If you wanted to create text that was a different color or font than other text in your Web page, what type of tag would you use ?
    (1) layout
    (3) design
    (2) basic formatting
    (4) outline

94. .... page replacement algorithm suffers from Belady's anamoly.
    (1) LRU   (2) MRU   (3) FIFO   (4) LIFO

95. .... is a high speed cache used to hold recently referenced page table entries a part of paged virtual memory.

   (1) Translation Lookaside buffer   (2) Inverse page table

   (3) Segmented page table   (4) All of the above

96. .... does the job of allocating a process to the processor

   (1) Long term scheduler   (2) Short term scheduler

   (3) Medium term scheduler   (4) Dispatcher

97. In interactive environments such as time-sharing system, the primary requirement is to provide reasonably good response time and in general, to share system resources equitably. In such situations, the scheduling algorithm that is most popularly applied is ....

   (1) Shortest Remaining Time Next (SRTN) Scheduling

   (2) Priority Based Preemptive Scheduling

   (3) Round Robin Scheduling

   (4) None of the above

98. In the multi-programming environment, the main memory consisting of number of process :

   (1) Greater than 100   (2) Only one

   (3) Greater than 50   (4) More than one

99. In a multithreaded environment ....

   (1) Each thread is allocated with new memory from main memory.

   (2) Main thread terminates after the termination of child threads.

   (3) Every process can have only one thread.

   (4) one of the above

100. Which of the following statement is *not* true ?

   (1) Multiprogramming implies multitasking

   (2) Multi-user does not imply multiprocessing

   (3) Multitasking does not imply multiprocessing

   (4) Multithreading implies multi-user