

LD/722**2012**

Series

D**COMPUTER APPLICATIONS**

Paper - II

Time : 150 Minutes

Max. Marks : 300

INSTRUCTIONS

1. Please check the Test Booklet and ensure that it contains all the questions. If you find any defect in the Test Booklet or Answer Sheet, please get it replaced immediately.
2. The Test Booklet contains 150 questions. Each question carries two marks.
3. The Test Booklet is printed in four (4) Series, viz. **A** **B** **C** **D**. The Series, **A** or **B** or **C** or **D** is printed on the right-hand corner of the cover page of the Test Booklet. Mark your Test Booklet Series **A** or **B** or **C** or **D** in Part C on side 1 of the Answer Sheet by darkening the appropriate circle with Blue/Black Ball point pen.

Example to fill up the Booklet Series

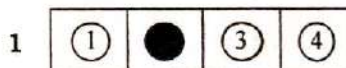
If your Test Booklet Series is A, please fill as shown below :



If you have not marked the Test Booklet Series at Part C of side 1 of the Answer Sheet or marked in a way that it leads to discrepancy in determining the exact Test Booklet Series, then, in all such cases, your Answer Sheet will be invalidated without any further notice. No correspondence will be entertained in the matter.

4. Each question is followed by 4 answer choices. Of these, you have to select one correct answer and mark it on the Answer Sheet by darkening the appropriate circle for the question. If more than one circle is darkened, the answer will not be valued at all. Use Blue/Black Ball point pen to make heavy black marks to fill the circle completely. Make no other stray marks.

e.g. : If the answer for Question No. 1 is Answer choice (2), it should be marked as follows :



5. Mark Paper Code and Roll No. as given in the Hall Ticket with Blue/Black Ball point pen by darkening appropriate circles in Part A of side 1 of the Answer Sheet. Incorrect/not encoding will lead to **invalidation** of your Answer Sheet.

Example : If the Paper Code is 027, and Roll No. is 95640376 fill as shown below :

Paper Code

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Roll No.

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6. Please get the signature of the Invigilator affixed in the space provided in the Answer Sheet. An Answer Sheet without the signature of the Invigilator is liable for **invalidation**.
7. The candidate should **not** do rough work or write any irrelevant matter in the Answer Sheet. Doing so will lead to **invalidation**.
8. Do **not** mark answer choices on the Test Booklet. Violation of this will be viewed seriously.
9. Before leaving the examination hall, the candidate should hand over the original OMR Answer Sheet (top sheet) to the invigilator and carry the bottom sheet (duplicate) for his/her record, failing which disciplinary action will be taken.
10. Use of whitener is prohibited. If used, the answer sheet is liable for invalidation.

1. Which one from the following indicates highest cohesive module?
 - (1) Communication
 - (2) Coincidentally
 - (3) Procedurally
 - (4) Logically
2. Consider following C++ declaration.

```
struct Svalues (char x; int y;) s1 = {25, 30};  
  
class Cvalues (char x; int y;) c1 = (25, 30);
```

What is wrong with above declaration?

 - (1) Members of the class and of the structure have the same names.
 - (2) Public members of a structure are being accessed by an initializer list.
 - (3) Private members of a structure are being accessed by other than a member/friend function.
 - (4) Private members of a class are being accessed by other than a member/friend function.
3. Which error detection method involves polynomials?
 - (1) VRC
 - (2) LRC
 - (3) CRC
 - (4) Checksum
4. Which one from the following is a false statement about Java interface?
 - (1) An interface can declare static methods.
 - (2) An interface is an abstract class.
 - (3) An interface may declare final variables.
 - (4) An interface can inherit abstract method declarations from another interface by using the extends keyword.
5. Which one from the following is memory of a volatile nature?
 - (1) Flash
 - (2) Masked ROM
 - (3) DRAM
 - (4) EPROM
6. Data Model doesn't represent
 - (1) Data Semantics
 - (2) Data syntax
 - (3) Data constraints
 - (4) Data relationships
7. For a Binomial distribution mean is always
 - (1) greater than variance
 - (2) less than variance
 - (3) equal to variance
 - (4) greater than or equal to variance

8. Which layer of OSI model is responsible for transmitting raw bit stream over on physical cable?
- (1) Presentation
 - (2) Physical
 - (3) Transport
 - (4) Network
9. Which of the following is not a UML diagram?
- (1) Sequence
 - (2) Use case
 - (3) E-R
 - (4) Activity
10. Which one from the following is a true statement about javadoc comments?
- (1) Each line of a javadoc comment must begin with*.
 - (2) The 1st line of javadoc comment should use the @ version tag to specify the version of the version of JDK that is being used
 - (3) All parameters to methods must be described within the @ param tag
 - (4) Both Statement (1) and (2)
11. Which one from the following is a false statement about Assembler directive?
- (1) Assembler directives control the operation of the assembler.
 - (2) Assembler directives can also used to define constants.
 - (3) PAGE is an example of assembler directive.
 - (4) Assembler directives are commands executed during program execution.
12. Which one from the following is a true statement about Binary Search trees (BST)?
- (1) A BST is the Binary tree in which data in the nodes is ordered in a particular way.
 - (2) The data in any nodes of right subtree of BST must be greater than or equal to the data in the given node.
 - (3) A BST have worst case when the data is already in order.
 - (4) All (1), (2) and (3).
13. Which of the following is not a logical database structure?
- (1) Chain
 - (2) Network
 - (3) Tree
 - (4) Relational

14. Which layer of OSI model is responsible to translates logical network address and names to their physical address?
- (1) Session
 - (2) Presentation
 - (3) Data
 - (4) Network
15. The number of tuples in the result of a left outer join operation will always be
- (1) greater than the number of tuples in the result of the corresponding join operation.
 - (2) at least equal to the number of tuples in the result of the corresponding join operation.
 - (3) less than the number of tuples in the result of the corresponding join operation.
 - (4) greater than the number of tuples in the result of the corresponding right outer join operation.
16. If A and B are independent events then
- (1) $P(A \cup B) = 0$
 - (2) $P(A \cup B) = P(A) + P(B) + P(A \cap B)$
 - (3) $P(A \cup B) = P(A) + P(B) - P(A \cap B)$
 - (4) $P(A \cup B) = P(A) + P(B)$
17. A vertex of how many degree is isolated?
- (1) 0
 - (2) 1
 - (3) 2
 - (4) 3
18. Consider the relation
Project(proj_no, project_name, programmer_no, duration)
Here duration states the time duration for which the programmer worked on the project. It is in
- (1) First Normal Form
 - (2) Second Normal Form
 - (3) BCNF
 - (4) Fourth Normal Form
19. When a language has the capability to produce new data type then it is called
- (1) Encapsulated
 - (2) Extensible
 - (3) Overloaded
 - (4) Reprehensible
20. Which network component is not associated at physical layer of OSI model?
- (1) Multiplexer
 - (2) Hubs
 - (3) Amplifier
 - (4) Router

21. Consider following four statements about read operation performing on memory by the CPU

- (I) Put the desired memory address in the Memory Address Register.
- (II) Assert the Read Control Line.
- (III) Wait for the MFC line to be set to 1 by the main memory unit or wait for appropriate time if there is no MFC.
- (IV) Get the data out of the MDR.

When CPU wants to perform the read operation on memory then

- (1) Statement (II) is not in a proper order.
- (2) Statement (III) is not in a proper order.
- (3) All statements (I) to (IV) are in order.
- (4) Statements (I) and (II) are in order but not (III).

22. A closed path with no other repeated vertices than the starting and ending vertices is known as

- (1) Steiner tree
- (2) Cycle
- (3) Complement graph
- (4) Spanning tree

23. Which one from the following is a false statement about Class diagrams of UML?

- (1) It describes Life Cycle of single object for objects with complex behavior.
- (2) It used to provide description of class interfaces and class relationship at specification level.
- (3) It used for Domain modeling.
- (4) It used for construction planning.

24. Given the functional dependencies, $\{AB \rightarrow CDE \text{ and } A \rightarrow E\}$, for relation scheme $R = (A, B, C, D, E)$ we can infer that

- (1) A is a key for R
- (2) BE is a key for R
- (3) AB is a key for R
- (4) C is a key for R

25. Which one from the following is a false statement about TCP/IP model?

- (1) Network Access layer performs encapsulation of IP datagrams into frames and mapping IP addresses to physical hardware addresses.
- (2) Transport layer has primary two protocols — TCP and UDP.
- (3) The Internet Layer is in between Network Access layer and Transport layer.
- (4) The IP is a primary protocol at Transport Layer.

26. Let the functional dependencies, $(A \rightarrow B, B \rightarrow C)$ hold for relation $P(A,B,C)$. If it is decomposed in $R(A,B)$ and $S(B,C)$, then the decomposition will be

- (1) Lossy
- (2) Lossless
- (3) Non-Lossless
- (4) Strongly

27. $Y = 4x^2$ is an equation of

- (1) Parabola
- (2) Circle
- (3) Hyperbola
- (4) Eclipse

28. Which one diagram from the following is used to indicate the sequence of steps describing interaction between user and system?

- (1) Class diagrams
- (2) Use cases
- (3) State Diagrams
- (4) Activity diagrams

29. To find the second highest salary from Employees table, which of the following query is true?

- (1) Select $\max(\text{salary})$ from employees where $\text{salary} = (\text{select } \max(\text{salary}) \text{ from employees where } \text{salary} < (\text{select } \max(\text{salary}) \text{ from employees});$
- (2) Select $\min(\text{salary})$ from $(\text{select salary from employees order by salary desc})$ where $\text{rownum} \leftarrow 2$
- (3) Select $\max(\text{salary})$ from employees where $\text{salary} < (\text{select } \max(\text{salary}) \text{ from employees})$
- (4) Select $\max(\text{salary})$ from employees where $\text{salary} = (\text{select salary from employees where } \text{rownum} = 2 \text{ order by salary})$

30. Software Quality Assurance activities during the

- (1) Acceptance and delivery phase include assuring the performance of a final configuration audit to demonstrate that all deliverable items are ready for delivery.
- (2) Detailed Design phase assuring that approved design standards are followed.
- (3) Requirement analysis phase assuring that all software requirements are allocated to software components.
- (4) Acceptance testing assuring that testing is done in accordance with plans and procedures.

Which one from above statement is a false statement?

31. Which one from the following does not have a value of (String) method in Java?
- (1) Integer
 - (2) Boolean
 - (3) Character
 - (4) Long
32. Which one from the following is a false statement about memory management?
- (1) Thrashing improves system performance
 - (2) Swapping increases system overhead.
 - (3) Overhead is more in noncontiguous memory allocation compared to contiguous allocation
 - (4) Swapping is more effective in noncontiguous memory allocation
33. Which one from the following algorithm is best suited for concave polygon clipping?
- (1) Nicholl-Lee-Nicholl
 - (2) Chhen-Sutherland
 - (3) Weiler Atherton
 - (4) Sutherland-Hodgman
34. Which diagram is used to describe interactions among classes in terms of an exchange of messages over time?
- (1) Sequence
 - (2) Collaboration
 - (3) Component
 - (4) Activity
35. Which one from the following is a false statement about MOV instruction of Intel 8086 processor?
- (1) MOV instruction can not move data from memory to memory
 - (2) MOV instruction does not affect flags
 - (3) MOV instruction can not move data from segment register to segment register
 - (4) MOV instruction sets of clears flags
36. Arrays is
- (1) A non linear data structure
 - (2) A primitive data structure
 - (3) A linear data structure
 - (4) None from (1), (2), and (3)
37. Consider following three statement about memory management
- (I) Memory fragmentation results in poor utilization of memory.
 - (II) Memory fragmentation is the area of memory, which is allocated to a process but unused.
 - (III) Demand paging can decrease the degree of multiprogramming
- The true statement from above statement is / are
- (1) Only (I) and (III)
 - (2) Only (II) and (III)
 - (3) All (I), (II) and (III)
 - (4) None from (I), (II) and (III)

38. Normalized coordinates are used to provide
- (1) Image specification
 - (2) Device Independence
 - (3) Program independence
 - (4) Text specification
39. Analysis models are
- (1) DFD and State Transition Diagrams
 - (2) DFD and E-R diagram
 - (3) State Transition Diagrams, DFD and E-R diagram
 - (4) None from (1), (2) and (3).
40. Which searching algorithm requires that all of the data must be in order?
- (1) Sequential search
 - (2) Binary search
 - (3) Linear search
 - (4) All (1), (2), and (3)
41. Which one from the following is a false statement about page replacement algorithm?
- (1) LRU page replacement algorithm uses the principle of locality of reference.
 - (2) LRU page replacement algorithm does not possess the stack property.
 - (3) Optimal page replacement algorithm is infeasible.
 - (4) FIFO page replacement algorithm does not possess the stack property.
42. Concept of display file provides interface between
- (1) the image specification process and the image display process.
 - (2) image specification and graphics device.
 - (3) normalize coordinate and display devices.
 - (4) various display devices.
43. Which one from the following is a false statement about Poisson distribution?
- (1) In Poisson distribution, the number of trials is infinite
 - (2) Poisson distribution is useful with discrete variable only.
 - (3) Poisson distribution is for unequal probability in single trial.
 - (4) None from the above (1), (2), and (3) is a false statement.
44. Time complexity of Binary search is
- (1) $O(n)$
 - (2) $O(n^2)$
 - (3) $O(\log n)$
 - (4) $O(n \log n)$
45. The data structure generally used to keep track of the current state of a file processing activity is
- (1) Active File Table (AFT)
 - (2) File Control Block (FCB)
 - (3) Disk Status Map (DSM)
 - (4) File Allocation Table (FAT)

46. If a surgeon transplants kidney in 250 cases and succeeds in 130 cases, then the probability of success after operation is
- (1) 0.52
 - (2) 0.48
 - (3) 0
 - (4) 0.25
47. Viewing Transformation in computer graphics is used
- (1) for clipping polygon
 - (2) for clipping line
 - (3) to translate clipped image to view port
 - (4) to translate and scale clipped image to view port
48. If insufficient channel separation is used in FDM systems then the effect is
- (1) Intersymbol interface
 - (2) Echo
 - (3) Intermodulation
 - (4) Cross talk
49. Which one form the following is especially useful in modeling reactive objects whose states are triggered by specific events?
- (1) Activity
 - (2) State chart
 - (3) Class
 - (4) Component
50. Consider following two statements about I/O organization.
- (I) An I/O port uses a flip-flop to implement memory cell.
 - (II) In DMA I/O peripheral device reads and writes memory without going through CPU.
- Which one from the following is more appropriate?
- (1) Statement (I) is true while (II) is false.
 - (2) Statement (II) is true while (I) is false.
 - (3) Both statements (I) and (II) are true.
 - (4) Both statements (I) and (II) are false.
51. Time complexity of Merge sort is
- (1) $O(n)$
 - (2) $O(n^2)$
 - (3) $O(\log n)$
 - (4) $O(n \log n)$
52. In which Disk scheduling algorithm starvation is possible?
- (1) FCFS
 - (2) SCAN
 - (3) Shortest Seek Time First (SSTF)
 - (4) C-SCAN

53. Undo transformation in computer graphics is possible through
- (1) Shear Transformation.
 - (2) Inverse Transformation
 - (3) Reflection Transformation
 - (4) Coordinate Transformation
54. Which one from the following is a true statement about computer bus?
- (1) A bus is typically controlled by device driver.
 - (2) A bus can logically connect several peripherals over the same set of wires.
 - (3) A bus is a subsystem that transfers data or power between computer components.
 - (4) All above (1), (2) and (3).
55. In which sorting algorithm average number of comparison is $(n^2 - n) / 2$?
- (1) Insertion sort
 - (2) Selection sort
 - (3) Merge sort
 - (4) Quick sort
56. What should be the access time of cache memory in order to achieve 98% hit ratio, if the memory access time is 200ns and effective access time required is 20ns?
- (1) 16ns
 - (2) 18ns
 - (3) 20ns
 - (4) 10ns
57. In object oriented programming, encapsulation can be described as
- (1) Separation of interface and implementation.
 - (2) Exposition of data.
 - (3) Conversion of one type of object to another.
 - (4) Runtime resolution to method call.
58. Variance of binomial distribution is
- (1) p
 - (2) np
 - (3) q
 - (4) npq
59. The Leaves of a tree
- (1) Are those nodes with single child
 - (2) Is the maximum length of a branch from the root to leaf
 - (3) Are those nodes with no children
 - (4) Are those nodes have same parent
60. Consider following three statements about Data Encryption Standard (DES).
- (I) DES uses a 56 bit key to encrypt 64 bit data blocks.
 - (II) DES is a Block cipher.
 - (III) DES provides Cipher Block Chaining mode to overcome the problem of poor diffusion.
- The false statement from above statements is / are
- (1) Only (I)
 - (2) Only (I) and (III)
 - (3) Only (III)
 - (4) None from (I), (II) and (III)

61. Consider following three statements above scheduler

- (I) Dispatcher is a part of scheduler responsible to select a new process whenever the current process yields the CPU
- (II) The medium term scheduler is responsible for swapping
- (III) The Long Term scheduler determines to whom CPU should be allocated from the ready queue.

The true statement from above statements is /are

- (1) All (I), (II), and (III)
- (2) Only (I) and (II)
- (3) Only (I) and (III)
- (4) Only (II) and (III)

62. The number 105 in decimal system is equal to

- (1) $(140)_5$
- (2) $(410)_5$
- (3) $(042)_5$
- (4) $(321)_5$

63. While restarting recovery, which sequence is followed?

- (1) Undo transactions of undo-list; redo transactions of redo-list
- (2) Redo transactions of redo-list; undo transactions of undo-list
- (3) Undo transactions of undo-list
- (4) Redo transactions of redo-list

64. IP address range for E class network is

- (1) 1.0.0.0 to 127.0.0.0
- (2) 128.0.0.0 to 191.255.0.0
- (3) 224.0.0.0 to 239.255.255.0
- (4) 240.0.0.0 to 255.255.255.255

65. Which one from the following is a false statement about Requirement phase?

- (1) Requirement Analysis is the process of reviewing a business's processes to determine the business needs and functional requirement that a system must meet.
- (2) The scope of the system must be defined during requirement phase.
- (3) A primary objective of the Requirement Analysis phase is the construction of a models describing "What" the software has to do and not "How" to do?
- (4) The functional specification is one of the input to the Requirement phase.

66. Consider following two statements about friend functions in C++.

- (I) Operator overloading through friend function defeats the purpose of information hiding.
- (II) Boolean Operator Overloading is possible through friend function.

The true statement from above statements is / are

- (1) Only (I)
- (2) Only (II)
- (3) Both (I) and (II)
- (4) Neither (I) nor (II)

67. Which one from the following is a false statement about process synchronization?

- (1) User coded solutions for process synchronization has disadvantages of busy waiting
- (2) System performance is poor in case of busy waiting implementation.
- (3) Semaphore is a better solution in place of busy waiting to solve synchronization problems.
- (4) Semaphore implementation with a waiting queue will never lead towards deadlock.

68. SQL injection consists of
- (1) Authorized Physicians injecting SQL in patients.
 - (2) A mechanism to improve performance of database
 - (3) A hacking mechanism enters the system by providing erroneous input
 - (4) Exception handling routines.
69. If A, B, and C are subsets of U then the simplified form of the expression $\sim A \cup \sim B \cup (A \cap B \cap \sim C)$ using the law of set theory is
- (1) $\sim A \cap \sim B \cap \sim C$
 - (2) $\sim A \cup \sim B \cup \sim C$
 - (3) $\sim A \cup B \cup C$
 - (4) $\sim A \cap \sim B \cup \sim C$
70. The C++ statement `cout <<(0 == 0)` will
- (1) Outputs as 0
 - (2) Outputs as 1
 - (3) Generate error at the time of compilation
 - (4) Generate run time
71. Project 802 defines standards for which layers of the OSI Models?
- (1) Application and Presentation layers
 - (2) Physical and Data Link layers
 - (3) Network and Data Link layers
 - (4) Transport and Network layers
72. Which of the following statement is true about aggregation relationship between classes?
- (1) Aggregation is a kind of Generalisation
 - (2) Aggregation is a kind of Dependency.
 - (3) Aggregation is a kind of realisation
 - (4) Aggregation is a kind of Association.
73. Consider following two statements about architectural design
- (I) Architectural design represents the structure of data and program components that are required to build software.
 - (II) Architectural design is usually first phase of design, which identify sub-systems within system.
- What can be said about above statements?
- (1) Both are true statements
 - (2) Both are false statements
 - (3) Statement (I) is true whereas (II) is false
 - (4) Statement (I) is false whereas (II) is true
74. Which scheduling algorithm from the following is allows processes to move from one queue (different classified queues based on scheduling parameters) to another?
- (1) Multilevel Queue Scheduling
 - (2) Priority Based Scheduling
 - (3) Round Robin Scheduling
 - (4) Multilevel Feedback Queue Scheduling
75. A multiprocessor computer architecture where two or more identical processor are connected to a single shared main memory is known as
- (1) Asymmetric Multiprocessing
 - (2) Symmetric Multiprocessing
 - (3) NUMA –Non Uniform Memory Access
 - (4) Clustered Multiprocessing

76. Which of the following statements is true about C++ language?
- (1) C++ supports multiple inheritance
 - (2) C++ does not support operator overloading.
 - (3) C++ supports dynamic polymorphism
 - (4) C++ supports interface definitions.
77. Which one from the following is a false statements about deadlock?
- (1) Memory is a non-preemptible resource
 - (2) Mutual exclusion condition is not possible for several resources under deadlock prevention
 - (3) Recovery from deadlock is possible through rollback
 - (4) If there is a cycle and there is single instance per resource type then there is a deadlock
78. The initial value of decision parameter according to BRESENHAM's line drawing algorithm is
- (1) $2dx-dy$
 - (2) $2dx-2dy$
 - (3) $2dy-dx$
 - (4) $2dy$
79. Bit Stuffing is a networking technique available in
- (1) Bit oriented protocol
 - (2) Sliding window protocol with go-back-N
 - (3) Sliding window protocol with selective repeat
 - (4) All (1), (2) and (3)
80. Which one from the following is a false statement about software testing phase?
- (1) During validation, the software is tested against requirements
 - (2) The testing carried out during maintenance phase is known as regression testing
 - (3) Primary objective of testing is to discover the bugs where as of V & V is to discover defects in a system.
 - (4) None from above (1), (2), and (3)
81. Which one from the following is a true statement about Java?
- (1) The Java Virtual Machine ensures mutual exclusion over the synchronized methods in a monitor.
 - (2) The JVM does not implement FIFO behavior for the wait and notify calls.
 - (3) Bottom-up programming approach is well supported by Java language.
 - (4) All (1), (2), and (3)
82. Following are the conditions of deadlock
- (I) Mutual exclusion
 - (II) Hold and Wait
 - (III) No preemption
 - (IV) Circular Wait
- Which conditions from above are necessary conditions for deadlock?
- (1) Only (I), (II), and (III)
 - (2) Only (II), (III) and (IV)
 - (3) Only (I), (III) and (IV)
 - (4) All (I), (II), (III) and (IV)

83. Which of the following filling method is best for concave type polygon?
- (1) Flood Fill
 - (2) Scan Fill
 - (3) Boundary Fill
 - (4) None from (1), (2), and (3)
84. In OSI model, data compression is carried out by
- (1) Network layer
 - (2) Physical layer
 - (3) Data Link layer
 - (4) Presentation layer
85. The closest meaning of 2 GHz CPU clock is that the processor can
- (1) Execute maximum to 2 billion instructions per second
 - (2) Receive 2 billion pulses per second from the clock.
 - (3) Addresses upto 2 billion address
 - (4) Execute maximum to 2 billion instructions per minute
86. Which of the following is a false statement about Java?
- (1) An array is an object in Java
 - (2) The notify method changes thread state from ready to run state
 - (3) The thread start () method puts a thread into the running state
 - (4) Java supports dynamic polymorphism
87. Which one from the following is a true statement about disk performance?
- (1) Disk striping can increase performance
 - (2) Mirroring policy degrade performance
 - (3) Defragmentation usually improves system performance
 - (4) All (1), (2), and (3)
88. Which one from the following is a true statement about Cohen-Sutherland algorithm?
- (1) It is best suited for convex polygon clipping
 - (2) It quickly removes lines, which lie entirely to one side of clipping region.
 - (3) It also work for concave polygon
 - (4) It cannot clip connected lines
89. Which one from the following is most true for collaboration diagram?
- (1) Collaboration diagrams represent a combination of information taken from class, and use case diagrams describing both the static structure and dynamic behavior of a system.
 - (2) Collaboration diagrams represent a combination of information taken from class, sequence, and use case diagrams describing the static structure of a system
 - (3) Collaboration diagrams represent a combination of information taken from sequence, and use case diagrams describing dynamic behavior of a system
 - (4) Collaboration diagrams represent a combination of information taken from class, sequence, and use case diagrams describing both the static structure and dynamic behavior of a system.
90. The age of a father is twice that of the elder son. After ten years the age of the father will be three times that of younger son. If the difference of ages of the two sons is 15 years then what will be the age of the father?
- (1) 50
 - (2) 54
 - (3) 56
 - (4) 58

91. For the sets $A = \{X \in R: -4 < X < 3\}$ and $B = \{x \in R: -1 < x < 7\}$, the value of $A \cup B$ is
- (1) $\{x \in R: -1 < x < 7\}$
 - (2) $\{x \in R: -4 < x < 3\}$
 - (3) $\{x \in R: -4 < x < 7\}$
 - (4) $\{x \in R: -1 < x < 3\}$
92. Which of the following properties is implemented by concurrency control algorithms.
- (1) Durability
 - (2) Consistency
 - (3) Atomicity
 - (4) Isolation
93. Which one from the following is not a characteristic of software?
- (1) Software is manufactured; not an engineered
 - (2) Software does not wear out, it keeps changing
 - (3) Software is a logical element rather than a physical
 - (4) Most software is custom-built, rather than assembled
94. Consider the following 'C' language declaration in $a[4] = \{1, 2, 3, 4\}$; What would be the output of the following statement
`printf("%d", *(a+2) + 1);`
- (1) 2
 - (2) 3
 - (3) 4
 - (4) None of the above
95. Which of the following concepts characterize best in case of a "Text Book"?
- (1) Inheritance
 - (2) Composition
 - (3) Association
 - (4) Specialization
96. Program Counter register contains address of the
- (1) Memory data
 - (2) Next instruction to be executed by the CPU
 - (3) Current instruction being executed by the CPU
 - (4) Address (i.e. indirect address) of next instruction to be executed by the CPU
97. Which one from the following is true with respect of Hierarchical Database Model?
- (1) Partially ordered
 - (2) Totally ordered
 - (3) Unordered
 - (4) Concept of ordering doesn't apply
98. Any "C" statement that begins with # is process by
- (1) Compiler
 - (2) Linker
 - (3) Preprocessor
 - (4) Assembler
99. Partial dependencies are removed to achieve which normal form?
- (1) First normal form
 - (2) Second normal form
 - (3) BCNF
 - (4) Third normal form

100. Which operator among the following can only operate on relations with the same schema?

- (1) Intersection
- (2) Equi-Join
- (3) Cartesian Product
- (4) All (1),(2), and (3)

101. Risk management in software engineering is build-in part of

- (1) Incremental model
- (2) Prototype model
- (3) Spiral model
- (4) Waterfall model

102. Consider following three statements about protocol of TCP/IP model.

- (I) ICMP protocol is used at Internet Layer of the TCP/IP model to communicate control messages between IP systems.
- (II) PPP is a Network Access layer protocol designed for reliable point-to-point serial connections.
- (III) IPCP protocol is used for establishing and configuring IP over PPP.
- (IV) SMTP is used to transfer messages across a network and is implemented at Application layer protocol.

The true statement from above statement is/are

- (1) All (I), (II), (III), and (IV)
- (2) Only (I), (II) and (III)
- (3) Only (II), (III) and (IV)
- (4) Only (II) and (III)

103. Which one from the following is invalid pointer arithmetic?

- (1) Addition of float value to a pointer
- (2) Subtracting an integer from a pointer
- (3) Assigning value 0 (zero) to pointer variable.
- (4) Comparison of pointers that do not point to the element of the same.

104. Which one from the following is a true statement about software design?

- (1) The stronger the coupling between modules in a system, the more difficult it is to implement and maintain the system.
- (2) The worst modules are those that are coincidentally cohesive
- (3) Cohesion is the measure of the strength among the elements in the same module
- (4) All above (1), (2), and (3) are valid statements.

105. Which can be immediate next state of a process after Ready state?

- (1) Blocked
- (2) Terminated
- (3) Running
- (4) None from (1), (2), and (3)

106. What is difficult to gain if concurrent executions are allowed?

- (1) Improved Throughput
- (2) Consistency
- (3) Improved resource utilization
- (4) Reduced waiting time

107. If mean = 0.02 and $n = 6$ the variance of Poisson distribution is
- (1) 0.03
 - (2) 0.5
 - (3) 0.25
 - (4) 0.02
108. In object Oriented programming languages, Generalisation implemented using
- (1) Polymorphism
 - (2) Inheritance
 - (3) Isomorphism
 - (4) Operator Overloading
109. Which one from the following is a false statement about CPU scheduling criteria?
- (1) Throughput should be maximized
 - (2) Turnaround time should be minimized
 - (3) Response time should be maximized
 - (4) Waiting time should be minimized
110. Which one from the following is a false statement about IP?
- (1) IP works at network layer
 - (2) IP is designed for a packet switched network, which uses the datagram approach
 - (3) IP is unreliable protocol
 - (4) IP is connection oriented protocol
111. In UML, the object attributes are listed in the
- (1) Top section
 - (2) Bottom section
 - (3) Either at top or bottom section
 - (4) Neither at top nor at bottom section
112. In 8086 processor memory segment size is of
- (1) 64 MB
 - (2) 128 MB
 - (3) 64 KB
 - (4) 32 KB
113. Which class has no direct instance but whose descendent classes have direct instance?
- (1) Parent
 - (2) Child
 - (3) Concrete
 - (4) Abstract
114. Consider following four statements about CPU scheduling algorithm
- (I) FIFO scheduling algorithm is of non-preemptive nature
 - (II) Round Robin scheduling algorithm is enough fair
 - (III) Priority based scheduling algorithm may cause low priority processes to starve
 - (IV) Shortest Job First scheduling algorithm minimizes average waiting time but may penalize processes with high service time requests.
- The true statement from above statements is /are
- (1) All (I), (II), (III), and (IV)
 - (2) Only (I), (II) and (III)
 - (3) Only (II), (III) and (IV)
 - (4) Only (I) and (III)

115. Which among the following is used to determine conflict serializability of a schedule (i.e. Execution sequences)?

- (1) Bar graph
- (2) Circle graph
- (3) Adjoint graph
- (4) Precedence graph

116. Which one from the following is a false statement about Cache memory?

- (1) An L2 Cache external to the CPU but still be directly connected to it.
- (2) The Cache hit ratio is poor in the beginning of program execution
- (3) The Cache memory is faster in data access compared to main memory.
- (4) The cache memory holds only data that are recently accessed by the processor

117. Double bit errors in network can be detected through

- (1) CRC
- (2) VRC
- (3) LRC
- (4) None from (1), (2) and (3)

118. In object oriented design the CRC stands for

- (1) Consistent Review Coding
- (2) Collaboration Responsibility Class
- (3) Coding Review Consistent
- (4) Class Responsibility collaboration

119. Consider following three statements.

- (I) Product quality describes the attributes of the products of the software process
- (II) Process quality describes the attributes of the software development process itself
- (III) Process metrics help us to assess attributes like reliability, usability, portability, and maintainability

The true statement from above statement is/are

- (1) Only (I) and (II)
- (2) Only (II) and (III)
- (3) Only (I) and (III)
- (4) Only (III)

120. What is the relationship between a class and one or more refined version of class?

- (1) Generalisation
- (2) Encapsulation
- (3) Aggregation
- (4) Composition

121. Which one from the following is a false statement about filling concave polygon?

- (1) Filling concave polygon using odd-even method will result into unfilled overlap regions.
- (2) Filling concave polygon using flood fill method may result into unfilled area.
- (3) Filling concave polygon using scan fill method will result into unfilled overlap regions.
- (4) Filling concave polygon using boundary fill method may result into unfilled area.

122. Class model expresses

- (1) Persistent state of the system.
- (2) The behavior of the system.
- (3) Both persistent state of the system as well as the system behavior.
- (4) Neither (1) nor (2).

123. Consider following three statements about microprogram.

- (I) Microprograms provide implementation of more complex machine instructions in a simple way compared to hard-wired instruction.
- (II) Microprograms also helps in solving memory bandwidth problem.
- (III) Microprograms operate on more primitive than the assembly instructions.

The true statement from above statements is / are

- (1) Only (I) and (II)
- (2) Only (I)
- (3) Only (II) and (III)
- (4) All (I), (II) and (III).

124. Which class or interface from the following can not be found in java.util package?

- (1) List
- (2) Array List
- (3) Double
- (4) Tree

125. Parser is a sub component of

- (1) Transaction manager
- (2) Query evaluation engine
- (3) Storage manager
- (4) Recovery manager

126. A scheduler can perform which of the actions from the following on the database operation?

- (1) Delete
- (2) Reject
- (3) Change
- (4) Delete and Change

127. Which one from the following is a false statement about computer network?

- (1) PPP connection is necessary when we dial into network through a modem.
- (2) Router forwards the packets.
- (3) Default network mask for Class C subnetworks is 255.255.0.0.
- (4) DNS translates hostnames into IP addresses.

128. A class diagram in UML provides

- (1) Structural View
- (2) Behavioural View
- (3) External View
- (4) Internal View

129. Consider following three statements about random variables.

- (I) A random variable is a function that associates a unique numerical value with every outcome of experiment.
- (II) The value of random variable will vary from trial to trail as the experiment repeated.
- (III) A light bulb is burn until it burns out is an example of discrete random variable.

The false statement from above statements is / are

- (1) Only (I)
- (2) Only (II)
- (3) Only (III)
- (4) Only (II) and (III).

130. In preorder traversal, the order of traversal is

- (1) Visit root, Traverse the left subtree, Traverse the right subtree.
- (2) Visit root, Traverse the right subtree, Traverse the left subtree.
- (3) Traverse the left subtree, visit root, Traverse the right subtree.
- (4) Traverse the left subtree, Traverse the right subtree, visit root.

131. Which one from the following is a false statement about process models of software engineering?

- (1) Software Process models are abstract representations of software processes.
- (2) The major advantage of Iterative process models is that it avoids premature commitments to a specification or design.
- (3) Prototype model reduces risk
- (4) The Incremental Model attempts to combine the Waterfall model sequence with some advantages of Spiral model.

132. Which sorting algorithm from the following is best for set of element {1, 2, 3, 4, 5}?

- (1) Quick sort
- (2) Bubble sort
- (3) Merge sort
- (4) B+ tree

133. When we refer to a relation instance as consisting of a set of n-tuples, the n refers to

- (1) Number of tuples in the relation.
- (2) Number of relations in the database
- (3) Number of attributes in the relation.
- (4) Number of bytes in a tuple.

134. Consider following three statements about Process model of software engineering.

- (I) The drawback of the waterfall model is the difficulty of accommodating change after the process is underway.
- (II) The Incremental Development model is an example of Iterative process models.
- (III) A typical process model covers the whole of the life cycle and clearly defines each phase and the tasks and activities to be performed within that phase as well as those activities that are continuous throughout the life cycle.

The true statement from above statements is / are

- (1) All (I), (II) and (III)
- (2) Only (I) and (II)
- (3) Only (I) and (III)
- (4) Only (II) and (III)

135. According to BRASENHAM's midpoint circle algorithm the initial decision parameter is
- (1) $5/4-R$
 - (2) R
 - (3) $1-R$
 - (4) $R-1$
136. The equation of line whose two coordinates are (2, 3) and (4, 5) is
- (1) $y = x+3$
 - (2) $y = 2x + 7$
 - (3) $y = x + 1$
 - (4) None from the above (1), (2) and (3)
137. Flow control in network is needed to prevent
- (1) bit errors
 - (2) overflow of the sender buffer
 - (3) overflow of the receiver buffer
 - (4) collision between sender and receiver.
138. UML stands for
- (1) Unified Markup Language
 - (2) Unique Modelling Language
 - (3) Unified Modelling Language
 - (4) Unique Markup Language
139. A reference in object oriented programming is
- (1) An operator
 - (2) An alias for an object
 - (3) Used to rename an object
 - (4) None from (1), (2), and (3)
140. If a relation schema has 5 attributes and 3 of those attributes make up the only key, then how many different superkeys does the relation have?
- (1) 2
 - (2) 3
 - (3) 4
 - (4) 5
141. A girl was given two candles by her father for her birthday and was told that one candle would burn for six hours and the other for four hours. After lighting both at a same time and allowed to burn for sometime, the girl noticed that one candle was twice as long as the other. How long (in hours) the candles had been burning together?
- (1) 2
 - (2) 3
 - (3) 4
 - (4) 5
142. Which one from the following is true for inside test of polygon?
- (1) If there are odd numbers of intersections with scan line, then the point in question is inside; an even numbers indicate it is outside.
 - (2) If there are even numbers of intersections with scan line, then the point in question is inside; an odd numbers indicate it is outside.
 - (3) Statement (1) is true but need to take special care in case of intersection point is vertex.
 - (4) Statement (2) is true but need to take special care in case of intersection point is vertex.

143. Which one from the following is not associated activity of Unit testing?

- (1) Checking about number of input parameters equal to number of arguments.
- (2) Checking of consistency of global variable across module.
- (3) Checking of matches between Buffer size and Record size.
- (4) Checks whether drivers and stubs have been defined and developed.

144. Suppose relations R and S have 1 tuple and 2 tuples, respectively. The minimum number of tuples R U S could have

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

145. How many bytes are there in a Unicode character?

- (1) 16
- (2) 8
- (3) 2
- (4) 1

146. Based on DDA line drawing algorithm, for line $m > 1$; if we sample at unit Y interval ($\Delta y = 1$); the x value is increment by

- (1) m
- (2) $1/m$
- (3) b
- (4) -m

147. A C++ class without name

- (1) is not possible.
- (2) can not have a constructor.
- (3) can not have a destructor.
- (4) can not be passed as an argument.

148. What is the maximum main memory an 8086 processor can support?

- (1) 64 KB
- (2) 1 GB
- (3) 1 MB
- (4) 16 MB

149. Which of the following statement is true about view serializability?

- (1) View serializability is implemented by 2PL
- (2) View serializability is implemented by 2 PC
- (3) View serializability cannot be implemented as it is a np-complete problem
- (4) View serializability can be implemented by optimistic concurrency algorithms

150. Negative unit scaling in graphics will result image into

- (1) Reflection in the axis Y.
- (2) Reflection in the axis X.
- (3) Reflection in the axis $X = Y$
- (4) Reflection in the origin

ROUGH WORK

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