Examrace

Paper 3 has been removed from NET from 2018 (Notification)- now paper 2 and 3 syllabus is included in paper 2. Practice both paper 2 and 3 from past papers.

CBSE NET Computer-Science June-2012 Solved Paper III

1. Consider the following pseudo code segment: K: =0

For i1:= l to n

For i2:= 1 to i1

:

:

:

For im: = 1 to im – 1

K: = K+1

The value of K after the execution of this code shall be

(A) C (n + m – 1, m)

(B) C (n – m + 1, m)

(C) C (n + m – 1, n)

(D) C (n – m + 1, n)

Answer: A

2. In Delta Rule for error minimization

(A) Weights are adjusted w.r.to change in the output

(B) Weights are adjusted w.r.to difference between desired output and actual output

(C) Weights are adjusted w.r.to difference between input and output

(D) None of the above

Answer: B

3. The concept of pipelining is most effective in improving performance if the tasks being performed in different stages:

(A) Require different amount of time

(B) Require about the same amount of time

(C) Require different amount of time with time difference between any two tasks being same

(D) Require different amount with time difference between any two tasks being different

Answer: B

4. What is Granularity?

(A) The size of database

(B) The size of data item

(C) The size of record

(D) The size of file

Answer: B

5. Suppose that a given application is run on a 64-processor machine and that 70 percent of the application can be parallelized. Then the expected performance improvement using Amdahl's law is

(A) 4.22

(B) 3.22

(C) 3.32

(D) 3.52

Answer: B

7. Match the following:

(i) OLAP (a) Regression

(ii) OLTP (b) Data Warehouse

(iii) Decision Tree (c) RDBMS

(iv) Neural Network (d) Classification

(i) (ii) (ii) (iv)

(A) (b) (c) (a) (d)

(B) (b) (c) (d) (a)

(C) (c) (b) (a) (d)

(D) (c) (b) (d) (a)

Answer: B

8. Which level of Abstraction describes what data are stored in the Database?

(A) Physical level

(B) View level

(C) Abstraction level

(D) Logical level

Answer: D

9. The problem that occurs when one transaction updates a database item and then the transaction fails for some reason is _____.

(A) Temporary Select Problem

(B) Temporary Modify Problem

(C) Dirty Read Problem

(D) None

Answer: C

10. In an image compression system 16384 bits are used to represent 256 × 256 image with 256 gray levels. What is the compression ratio for this system?

(A) 1

(B) 2

(C) 4

(D) 8

Answer: B

11. X.25 is _____ Network.

(A) Connection Oriented Network

(B) Connection less Network

(C) Either Connection Oriented or Connection Less

(D) Neither Connection Oriented nor Connection Less

Answer: A

12. Which of the following can be used for clustering of data?

(A) Single layer perception

(B) Multilayer perception

(C) Self organizing map

(D) Radial basis function

Answer: C

13. Which of the following is scheme to deal with deadlock?

(A) Time out

(B) Time in

(C) Both (A) & (B)

(D) None of the above

Answer: A

14. If the pixels of an image are shuffled then the parameter that may change is

(A) Histogram

(B) Mean

(C) Entropy

(D) Covariance

Answer: D

15. The common property of functional language and logical programming language:

(A) Both are declarative

(B) Both are based on l-calculus

(C) Both are procedural

(D) Both are functional

Answer: A

16. Given the following statements:

(i) The power of deterministic finite state machine and nondeterministic finite state machine are same.

(ii) The power of deterministic pushdown automaton and nondeterministic pushdown automaton are same.

Which of the above is the correct statement(s)?

(A) Both (i) and (ii)

(B) Only (i)

(C) Only (ii)

(D) Neither (i) nor (ii)

Answer: B

18. Consider a schema R (A, B, C, D) and functional dependencies A- > B and C - > D. Then the decomposition R1 (A, B) and R2(C, D) is

(A) Dependency preserving but not lossless join

(B) Dependency preserving and lossless join

(C) Lossless Join but not dependency preserving

(D) Lossless Join

Answer: A

19. The quantiser in an image-compression system is a

(A) lossy element which exploits the psych visual redundancy

(B) lossless element which exploits the psych visual redundancy

(C) lossy element which exploits the statistical redundancy

(D) lossless element which exploits the statistical redundancy

Answer: A

20. Data Warehouse provides

(A) Transaction Responsiveness

(B) Storage, Functionality Responsiveness to queries

(C) Demand and Supply Responsiveness

(D) None of the above

Answer: B

21. A* algorithm uses f ‘ = g + h’ to estimate the cost of getting from the initial state to the goal state, where g is a measure of the cost of getting from initial state to the current node and the function h’ is an estimate of the cost of getting from the current node to the goal state. To find a path involving the fewest number of steps, we should set

(A) g = 1

(B) g = 0

(C) h' = 0

(D) h' = 1

Answer: A

22. The transform which possesses the highest ' energy compaction' property is

(A) Slant transform

(B) Cosine transforms

(C) Fourier transforms

(D) Karhunen-Loeve transforms

Answer: D

Answer: B

24. The _____ memory allocation function modifies the previous allocated space.

(A) calloc( )

(B) free( )

(C) malloc( )

(D) realloc( )

Answer: D

25. Which is not the correct statement(s)?

(i) Every context sensitive language is recursive.

(ii) There is a recursive language that is not context sensitive.

(A) (i) is true, (ii) is false.

(B) (i) is true and (ii) is true.

(C) (i) is false, (ii) is false.

(D) (i) is false and (ii) is true.

Answer: B

26. The mechanism that binds code and data together and keeps them secure from outside world is known as

(A) Abstraction

(B) Inheritance

(C) Encapsulation

(D) Polymorphism

Answer: C

27. Identify the addressing modes of below instructions and match them:

(a) ADI (1) Immediate addressing

(b) STA (2) Direct addressing

(c) CMA (3) Implied addressing

(d) SUB (4) Register addressing

(A) a – 1, b – 2, c – 3, d – 4

(B) a – 2, b – 1, c – 4, d – 3

(C) a – 3, b – 2, c – 1, d – 4

(D) a – 4, b – 3, c – 2, d – 1

Answer: A

28. Which one of the following is not a Greibach Normal form grammar?

(i) S -> a | bA | aA | bB

A -> a

B -> b

(ii) S -> a | aA | AB

A -> a

B -> b

(iii) S -> a | A | aA

A -> a

(A) (i) and (ii)

(B) (i) and (iii)

(C) (ii) and (iii)

(D) (i), (ii) and (iii)

Answer: C

29. Which of the following IP address class is a multicast address?

(A) Class A

(B) Class B

(C) Class C

(D) Class D

Answer: D

30. While unit testing a module, it is found that for a set of test data, maximum 90% of the code alone were tested with a probability of success 0.9. The reliability of the module is

(A) atleast greater than 0.9

(B) equal to 0.9

(C) atmost 0.81

(D) atleast 1/0.81

Answer: C

31. The upper bound of computing time of m coloring decision problem is

(A) O(nm)

(B) O(nm)

(C) O(nmn)

(D) O(nmmn)

Answer: C

Answer: D

33. Which one of the following statements is incorrect?

(A) The number of regions corresponds to the cyclomatic complexity.

(B) Cyclometric complexity for a flow graph G is V (G) = N – E + 2, where E is the number of edges and N is the number of nodes in the flow graph.

(C) Cyclometric complexity for a flow graph G is V (G) = E – N + 2, where E is the number of edges & N is the number of nodes in the flow graph.

(D) Cyclometric complexity for a flow graph G is V (G) = P + 1, where P is the number of predicate nodes contained in the flow graph G.

Answer: C

34. Consider a weighted undirected graph with positive edge weights and let (u, v) be an edge in the graph. It is known that the shortest path from source vertex s to u has weight 53 and

shortest path from s to v has weight 65. Which statement is always true?

(A) Weight (u, v) < 12

(B) Weight (u, v) = 12

(C) Weight (u, v) > 12

(D) Weight (u, v) > 12

Answer: C

35. Consider the regular expression (a + b) (a + b) ... (a + b) (n-times). The minimum number of states in finite automaton that recognizes the language represented by this regular expression contains

(A) n states

(B) n + 1 states

(C) n + 2 states

(D) 2n states

Answer: B

36. Number of binary trees formed with 5 nodes is

(A) 32

(B) 36

(C) 120

(D) 42

Answer: D

37. Are we building the right product? This statement refers to

(A) Verification

(B) Validation

(C) Testing

(D) Software quality assurance

Answer: B

38. The following postfix expression is evaluated using a stack 823^/23* + 51* –

The top two elements of the stack after first * is evaluated

(A) 6, 1

(B) 5, 7

(C) 3, 2

(D) 1, 5

Answer: A

39. The following CFG

S -> aB | bA, A -> a | as | bAA,

B -> b | bs | aBB

Generates strings of terminals that have

(A) Odd number of a's and odd number of b's

(B) Even number of a's and even number of b's

(C) Equal number of a's and b's

(D) Not equal number of a's and b's

Answer: C

40. Consider the following pseudo-code:

If (A > B) and (C > D) then

A = A + 1

B = B + 1

Endif the cyclomatic complexity of the pseudo-code is

(A) 2

(B) 3

(C) 4

(D) 5

Answer: B

41. Which layer of OSI reference model uses the ICMP (Internet Control Message Protocol)?

(A) Transport layer

(B) Data link layer

(C) Network layer

(D) Application layer

Answer: C

Answer: D

Answer: D

44. Which diagram provides a formal graphic notation for modelling objects, classes and their relationships to one another?

(A) Object diagram

(B) Class diagram

(C) Instance diagram

(D) Analysis diagram

Answer: A

45. A computer system supports 32 bit virtual address as well as 32 bit physical addresses. Since the virtual address space is of same size as that of physical address space, if we want to get rid of virtual memory, which one of the following is true?

(A) Efficient implementation of multiuser support is no longer possible.

(B) The processor cache can be made more efficient.

(C) Hardware support for memory management is not needed.

(D) CPU scheduling can be made more efficient.

Answer: C

46. The feasible region represented by the constraints

$x1 - x2 < 1$, $x1 + x2 > 3$, $x1 > 0$, $x2 > 0$ of the objective function Max $Z = 3x1 + 2x2$ is

(A) A polygon

(B) Unbounded feasible region

(C) A point

(D) None of these

Answer: B

47. The colour of an object is largely determined by its diffuse reflection coefficient. If Kd = (0.8, 0.4, 0), then what shall be the colour of the object, if the light used is blue and magenta?

(A) White and Red

(B) Red and Blue

(C) Black and White

(D) Black and Red

Answer: D

48. If an instruction takes ‘i’ microseconds and a page fault takes an additional ‘j’ microseconds. The effective instruction time, if on the average a page fault occurs every k instructions, is

(A) i + j/k

(B) i + j * k

(C) (i + j)/k

(D) (i + j) * k

Answer: A

Answer: B

50. How many relations are there on a set with n elements that are symmetric and a set with n elements that are reflexive and symmetric?

(A) $2n(n+1)/2$ and $2n.3n(n-1)/2$

(B) $3n(n-1)/2$ and $2n(n-1)$

(C) $2n(n+1)/2$ and $3n(n-1)/2$

(D) $2n(n+1)/2$ and $2n(n-1)/2$

Answer: D

51. The strategy used to reduce the number of tree branches and the number of static evaluations applied in case of a game tree is

(A) Minmax strategy

(B) Alpha-beta pruning strategy

(C) Constraint satisfaction strategy

(D) Static max strategy

Answer: B

52. Match the following:

List I

(i) Regular Grammar

(ii) Context free Grammar

(iii) Unrestricted Grammar

(iv) Context Sensitive Grammar

List II

(a) Pushdown automaton

(b) Linear bounded automaton

(c) Deterministic finite automaton

(d) Turing machine

(i) (ii) (iii) (iv)

(A) (c) (a) (b) (d)

(B) (c) (a) (d) (b)

(C) (c) (b) (a) (d)

(D) (c) (b) (d) (a)

Answer: B

Answer: A

54. What is the size (in terms of bits) of Header length field in IPV4 header?

(A) 2

(B) 4

(C) 8

(D) 16

Answer: B

55. Match the following with respect to java.util.* class methods:

List I

(i) Time zone getTimezone( )

(ii) int hashcode( )

(iii) int nextInt( )

(iv) Void setID(String tzName)

List II

(a) Bit Set

(b) Calendar

(c) Time zone

(d) Random

(a) (b) (c) (d)

(A) (ii) (i) (iv) (iii)

(B) (iii) (iv) (i) (ii)

(C) (iv) (iii) (ii) (i)

(D) (ii) (i) (iii) (iv)

Answer: A

56. _____ is sometimes said to be object oriented, because the only way to manipulate kernel objects is by invoking methods on their handles.

(A) Windows NT

(B) Windows XP

(C) Windows VISTA

(D) Windows 95/98

Answer: A

57. A user level process in Unix traps the signal sent on a Ctrl + C input and has a signal handling routine that saves appropriate files before terminating the process. When a Ctrl + C input is given to this process, what is the mode in which the signal handling routine executes?

(A) User mode

(B) Kernel mode

(C) Superuser mode

(D) Privileged mode

Answer: B

58. A CPU generally handles an interrupt by executing an interrupt service routine

(A) As soon as an interrupt is raised

(B) By checking the interrupt register at the end of fetch cycle

(C) By checking the interrupt register after finishing the executing the current instruction

(D) By checking the interrupt register at fixed time intervals

Answer: C

Answer: B

60. Radio signals generally propagate according to the following mechanisms:

(A) Modulation, Amplification, Scattering

(B) Reflection, Diffraction, Scattering

(C) Amplification, Diffraction, Modulation

(D) Reflection, Amplification, Diffraction

Answer: B

61. Identify the devices given below with their IC numbers:

List I

(i) USART

(ii) Micro controller

(iii) Interrupt controller

(iv) DMA controller

List II

(a) 8251

(b) 8051

(c) 8259

(d) 8257

(i) (ii) (iii) (iv)

(A) (a) (b) (c) (d)

(B) (b) (a) (d) (c)

(C) (c) (d) (a) (b)

(D) (d) (a) (b) (c)

Answer: A

62. The optimal solution of the following assignment problem using Hungarian method is

I II III IV

A 8 26 17 11

B 13 28 4 26

C 38 19 18 15

D 19 26 24 10

(A) (B) (C) (D)

(A) (I) (II) (III) (IV)

(B) (I) (III) (II) (IV)

(C) (I) (III) (IV) (II)

(D) (I) (IV) (II) (III)

Answer: B

63. If a and bare the end points of a line, then which one of the following is true?

(A) If both end points are left, right, above or below the window, the line is invisible.

(B) If both end points are left, right, above or below the window, the line is completely visible.

(C) If both end points are left, right, above or below the window, the line is trivially visible.

(D) If both end points are left, right, above or below the window, the line is trivially invisible.

Answer: D

64. Match the following with link quality measurement and handoff initiation:

(a) Networked- Controlled Handoff (NCHO) (i) MS connect to BS

(b) Mobile- Assisted Handoff (MAHO) (ii) Process via channel the target BS

(c) Forward Handoff (iii) First Generation Analog Cellular System

(d) Hard Handoff (iv) Second Generation Digital Cellular System

(a) (b) (c) (d)

(A) (iii) (iv) (ii) (i)

(B) (ii) (iii) (i) (iv)

(C) (ii) (i) (iv) (iii)

(D) (iv) (iii) (i) (ii)

Answer: A

65. Consider the methods used by processes P1 and P2 for accessing their critical sections. The initial values of shared Boolean variables S1 and S2 are randomly assigned,

P1 P2

While (S1 = = S2); while (S1 = = S2);

Critical section critical section

S1 = S2; S1 = S2;

Which one of the following statements describes the properties achieved?

(A) Mutual exclusion but not progress

(B) Progress but not mutual exclusion

(C) Neither mutual exclusion nor progress

(D) Both mutual exclusion and progress

Answer: A

66. If the period of a signal is 1000 ms, then what is its frequency in kilohertz?

(A) 10–3 KHz

(B) 10–2 KHz

(C) 10–1 KHz

(D) 1 KHz

Answer: A

67. Let a * H and b * H be two cosets of H.

(i) Either a * H and b * H are disjoint

(ii) a * H and b * H are identical

Then,

(A) only (i) is true

(B) only (ii) is true

(C) (i) or (ii) is true

(D) (i) and (ii) is false

Answer: C

68. HTML is defined using SGML – an _____ standard, information processing-text and office systems (SGML) for text information processing.

(A) ISO – 8878

(B) ISO – 8879

(C) ISO – 8880

(D) ISO – 8881

Answer: B

69. What is the meaning of 'Hibernate' in Windows XP/Windows 7?

(A) Restart the computers in safe mode.

(B) Restart the computers in normal mode.

(C) Shutdown the computer terminating all the running applications.

(D) Shutdown the computer without closing the running applications.

Answer: D

70. Assume that we have constructor functions for both base class and derived class. Now consider the declaration in main ( ). Base * P = New Derived; in what sequence will the constructor be called?

(A) Derived class constructor followed by Base class constructor.

(B) Base class constructor followed by derived class constructor.

(C) Base class constructor will not be called.

(D) Derived class constructor will not be called.

Answer: B

71. Which one of the following options is not a shell in UNIX system?

(A) Bourne Shell

(B) C Shell

(C) Net Shell

(D) Korn Shell

Answer: C

Answer: D

73. In which file the compiler manage the various objects, which are used in windows programming?

(A) Control File

(B) Binary File

(C) Text File

(D) Obj File

Answer: C

74. On a disk with 1000 cylinders (0 to 999) find the number of tracks, the disk arm must move to satisfy all the requests in the disk queue. Assume the last request service was at track 345 and the head is moving toward track 0. The queue in FIFO order contains requests for the following tracks: 123, 874, 692, 475, 105, 376

(Assume SCAN algorithm)

(A) 2013

(B) 1219

(C) 1967

(D) 1507

Answer: B

75. Halftoning is defined as

(A) A technique to obtain increased visual resolution using multiple intensity levels.

(B) A technique for using minimum number of intensity levels to obtain increased visual resolution.

(C) A technique to obtain increased visual resolution using maximum number of intensity levels.

(D) A technique for using appropriate number intensity levels to obtain increased visual resolution.

Answer: B