Deptt. of Governance Reforms, Punjab State

e-Governance Society

Post: District IT Manager (DITM)

(26 -10-2024) (Morning)

Question Booklet & Answer Key

1. Which of the following HTML code will affect the vertical alignment of the table content?
   A) <td style= "vertical-align: middle">Text goes here.</td>
   B) <td valign= "center">Text goes here.</td>
   C) <td style= "text-align: center">Text goes here.</td>
   D) <td align= "middle">Text goes here.</td>

2. What is the value of variable z after executing the following C-code?

   ```
   int x = 5;
   int y = 5;
   int z = 5;
   if (x > 3)
           if (y > 4)
                   if (z > 5)
                      z += 1;
           else
                   z += 2;
       else
           z += 3;
           z += 4;
   ```

   A) 9   B) 5   C) 11   D) 7

3. Consider the following C-code:

   ```
   #include < stdio.h >
   main()
   {
     float sum= 0.0, j =1.0, i = 2.0;
     while (i / j > 0.001)
     {
       j = j + j;
       sum = sum + i / j;
       printf ("% f" \n", sum);
     }
   }
   ```

   When this code is executed, which of the following integer best approximates the last number that is printed?

   A)3   B)2   C)1   D)0

4. In the context of C++, given below are three implementations I-III of the swap() function:

I	II	III

void swap (int a, int b)
{
  int temp;
  temp = a;
  a = b;
  b = temp;
  }
int main () {
int p = 0, q = 1;
swap (p, q);
  }
	void swap (int &a, int &b)
	{
	  int temp;
	  temp = a;
	  a = b;
	  b = temp;
	  }
	int main () {
	int p = 0, q = 1;
	swap (p, q);
	  }
		void swap (int *a, int *b) {
		  int *temp;
		  temp = a;
		  a = b;
		  b = temp;
		  }
		int main () {
		int p = 0, q = 1;
		swap (&p, &q);
		  }

   Which of I-III would actually swap the contents of the two integer values p and q?
   A)I only   B) II only   C)III only   D)II and III only

5. What term is used to describe a function that calls itself in a programming language and what is the value returned by the function call F(2)?

    int F(int n) {

        if (n = = 4) return 2;
        else   return 2*F(n+1);
    }

    A)Iterative and 2   B)Recursive and 4
    C)Recursive and 8   D)Iterative and 16

6. Assuming that 'int' occupies 2-bytes (16 bits) of memory, what will be the output of the following C-program?

    #include <stdio.h>
    void main(){
        int x = 0x15213F10 >> 4;
        char y = (char) x;
        unsigned char z = (unsigned char) x;
        printf("%d,%d, %u",x, y, z);
    }
    A)5105, -241, 15   B)5105, -15, 241   C)5105, -241, -241   D)5105, -15, 15

7. Which of the following is a TRUE statement regarding a <u>constructor</u> in an object oriented programming?
    A)it has no return type   B)its return type changes based on how you write it
    C)its return type is *void*   D)its return type is *int*

8. Consider the following C++ program:

    int a[10] = {1, 3, 2, 0, 5, -2, 6, 8, 7, 11};
    int sum, p; int c = 1; sum = p = a[0];
    for (inti = 1; i< 10; i++){
            if (a[i] > p) {
                    sum += a[i]; p = a[i]; c++; } }
    cout<< c << ":" << sum;

    Which of the following is the resulting output?
    A)10:41   B)9:30   C)4:7   D) 6:34

9. When an ADT is implemented as a C++ class, which of the following should normally be TRUE?
    A)Member functions are private, member variables are public
    B)Member functions are public, member variables are private
    C)Members functions as well as member variables are private
    D)Member functions as well as member variables are public

10. Whether by private or public inheritance in C++, a derived class scope nests inside
    A)The scope of its immediate base class
    B)The Global scope
    C)The Local scope
    D)The scope of the abstract class with pure virtual function

11. Which of the following are <u>FACTS</u> about top-down software project implementation approach?

I.A top-down process is more time consuming because of the unit tests

II.Top-down lets you present a demo of the project to the management faster than using a bottom-up process

III. In a top-down design, if an error is detected, then it's always because a lower-level module is not meeting its specifications (because the higher-level ones have already been tested)

IV.A top-down process makes it possible to detect performance problems faster

V.A top-down process makes it easier to fix a global conceptual problem

A)Only I   B) Only I, III, and IV   C)Only II and V   D)Only I, II and IV

12. _____abstraction is used in both structured design and object-oriented design, while _____ abstraction is only used in object-oriented design.

A)Fast, Slow   B) Data, Procedural   C)Procedural, Data   D)Off-line, On-line

13. Consider a database table T with attributes X and Y. Which of the following SQL queries is illegal?

A)select X from T;   B)select X, count(*) from T;

C)select X, count(*) from T group by X;   D)select X, Y, count(*) from T group by X, Y;

14. Read the following descriptions about X, Y and Z:

X: It does something harmful to the computer system, but is disguised as something useful. Usually it does not make copies of them.

Y: It is a computer program that propagates itself across computers, creating copies of itself in each computer and infecting the entire network.

Z: It is a computer program designed to replicate itself by infecting other files or system areas which need a host program to spread to another computer.

Identify X, Y, Z.

A)X: Virus,   Y: Worm,   Z: Trojan horse.

B)X: Trojan horse,   Y: Virus,   Z: Worm.

C)X: Worm,   Y: Trojan horse   Z: Virus.

D)X: Trojan horse,   Y: Worm,   Z: Virus.

15. Consider a database with the following relations:

Customer (customerName, street, age)
Restaurant (restaurantName, owner, street)
Frequent (customerName, restaurantName)

What does the following SQL query return?
SELECT *Frequent.restaurantName*
FROM *Customer, Frequent*
WHERE (*Customer.age<21*) AND (*Customer.customerName=Frequent.customerName*)

A)Returns the names of customers who are younger than the legal drinking age of 21.

B)Returns the names of restaurants where only those customers who are not younger than the legal drinking age of 21 can visit.

C)Returns the names of restaurants with frequent customers who are younger than the legal drinking age of 21.

D)Returns the names of restaurants with frequent customers

16. SQL provides a mechanism for the nesting of subqueries. A subquery is a *select-from-where expression* that is nested within another query. The EXISTS construct of SQL returns a value 'true' if the argument subquery is:

A)Empty   B) Non-empty   C)In error   D)Unique

17. Consider the following two commands C1 and C2 on the relation R from an SQL database:

    I. Both C1 and C2 delete the schema R
    II. C2 retains relation R, but delets all tuples in R
    III. C1 deletes not only all tuples, but also the schema for R

    A)I only   B) I and II only   C)II and III only   D)I, II and III only

18. In computer networking, from what has the term 'Wi-MAX' been derived?
    A)Worldwide Interoperability for Microwave Access
    B)Worldwide Interconnection for Microwave Access
    C)Worldwide Interchangeability for Microwave Access
    D)Worldwide Interconnection for Multiple Access

19. Delivery and storage of email messages to a server is achieved using _____ .
    A)Post Office Protocol (POP)
    B)Internet Mail Access Protocol (IMAP)
    C)Simple Mail Transfer Protocol (SMTP)
    D)Hypertext Transfer Protocol (HTTP)

20. In 'https', the letter 's' stands for:
    A)Standard   B)Secure   C)Simple   D)Smart

21. Which of the following statements is FALSE?
    A)Dividing large messages into packets makes it easier to recover from transmission errors.
    B)DNS translates between numeric IP addresses and human-readable hostnames.
    C)IP (the Internet Protocol) numbers data packets so they can be reassembled into the correct order after they are received.
    D)Peer-to-peer networks are more resistant to failure than client-server networks.

22. Which of the following transmission media is used in Bluetooth Technology?
    A)Radio Links   B)Microwave Links
    C)VSAT Communication   D)Fiber-optic

23. In computer networking, what percentage of the IPv4 IP address space do all class C addresses consume?
    A)25%   B)12.5%   C)50%   D)37.5%

24. Encryption and decryption are the functions of the _____ layer of OSI model in computer network.
    A)Transport   B)Session   C)Router   D)Presentation

25. Match Column A with Column B, in the context of computer networking.

	Column A		Column B
(a)	The Web	(i)	FTP
(b)	File Transfer	(ii)	Telnet
(c)	Remote Login	(iii)	SMTP
(d)	Network News	(iv)	HTTP
(e)	email	(v)	NNTP

    A)(a)-(iv); (b)-(i); (c)-(ii); (d)-(v); (e)-(iii)
    B)(a)-(iii); (b)-(iv); (c)-(i); (d)-(ii); (e)-(v)
    C)(a)-(ii); (b)-(iii); (c)-(i); (d)-(iv); (e)-(v)
    D)(a)-(v); (b)-(ii); (c)-(i); (d)-(iii); (e)-(iv)

26. You are designing a link layer protocol for a link with bandwidth of *1 Gbps* (10^9 *bits/seconds*), over a fiber link with length of *800 km*. Assume the speed of light in this medium is *200,000 km/seconds*.
    What is the propagation delay in this link?
    A)1 ms   B)2 ms   C)3 ms   D)4 ms

27. The first instruction of bootstrap loader program of an operating system is stored in:
   A)RAM   B)Hard Disk   C)Cache Memory   D)BIOS

28. This occurs if too large a portion of available CPU time is spent performing paging, leaving very little time to actually execute user programs.
   A)Fragmentation   B)Thrashing   C)Corruption   D)Partitioning

29. There are 'n' processes in memory. A process spends a fraction 'p' of its time waiting for I/O to complete. The CPU utilization is given by:

   A) p^n B)$1 - p^n$ C)$(1 - p)^n$ D)$1 - n^p$

30. The main goal while selecting a CPU scheduling algorithm is:
   A)To maximize CPU utilization and to minimize turnaround time, waiting time and response time.
   B)To minimize the waiting time and to maximize the throughput and response time.
   C)To minimize the response time, waiting time and throughput and to maximize the turnaround time.
   D)To minimize CPU utilization and to maximize turnaround time, waiting time and response time.

31. The operation of defragmenting a hard disk:
   A)uses compaction to combat internal fragmentation
   B)uses compaction to combat external fragmentation
   C)uses compression to combat internal fragmentation
   D)uses compression to combat external fragmentation

32. When you sign up for something like a free e-mail account, you may be presented with a CAPTCHA. The most common form of CAPTCHA is an image of several distorted letters. CAPTCHA stands for:
   A)"Coverage Analysis and Planning Tool for Computers and Humans Apart."
   B)"Completely Automated Public Turing test to tell Computers and Humans Apart."
   C)"Completely Applied Parallel Technologies for Communication and Hardware Apart."
   D)"Comparable Additional Protected Turing test to tell Computers and Humans Apart."

33. What ASP.NET object encapsulates the state of the client and the browser?
   A)The Session object   B)The Application object
   C)The Response object   D)The Request object

34. To calculate gross pay, hours are multiplied by the hourly rate. What MS.EXCEL formula would you put in cell C4 and then you are able to copy that cell down to the rest of the column C?

	A	B	C
1	Hourly Rate (in Rs)	12.75	
2			
3	Name	Hours	Gross Pay
4	Arjun	26	
5	Rishi	37	
6	Ishan	36	
7	Ajay	28	
8	Arun	30	
9	Nitin	30	

   A)=B1*B4   B)=$B1*B4   C)=B1*B4   D)=$B$1*B4

35. Consider the MS-EXCEL spreadsheet given below:

	A	B	C
1	Project	Number of Days	
2	A	15	
3	A	20	
4	B	30	
5	A	10	
6	B	10	
7	A	5	

What is the output of the following formula in cell C1?
=SUMIF(A2:A7,"A", B2:B7)
A)   90   B)80   C)50   D)20

36. Given below are two statements: in the context of MS-WORD software
Statement I: The tool which is used to insert decorative text in a document is called Clipart.
Statement II: The purpose of using Keyboard shortcut CTRL+X followed by CTRL+V for a selected text paragraph in a document is to Cut and Paste.
In the light of the above statements, choose the correct answer from the options given below:
A)Both Statements I and Statement II are true
B)Both Statements I and Statement II are false
C)Statement I is true but Statement II is false
D)Statement I is false but Statement II is true

37. With regard to a word processing software, the process of combining static information in a publication together with variable information in a data source to create one merged publication is called
A)Electronic mail   B)Data sourcing   C)Mail merge D)Spam mail

38. In the Microsoft PowerPoint software, there are two types of slide orientation that are supported. What are these orientation types?
A)Portrait and Landscape   B)Upright and Landscape
C)Portrait and Facedown   D)Landscape and Facedown

39. Which of the following views is the best view to use when setting transition effects for all slides in a MS-PowerPoint presentation?
A)Slide sorter view   B)Notes pages view
C)Slide view   D)Outline view

40. Which of the following statements is/ are true?
P: Google Drive is an example of Cloud storage and an example of a private cloud.
Q: Google Docs is an example of cloud computing.
A)P only   B)Q only   C)Both P and Q   D)Neither P nor Q

41. Mark the correct opposite of the given word out of the given options:
Flippant
A) Crazy   B) Proud   C) Respectful   D) Casual

42. Choose the correct synonym of the following word out of the four given options:
Sporadic
A) Occasion   B) Occasional   C) Occult   D) Overt

43. Theme of World Earth Day 2024:
A) Planet vs. Plastics   B) Restore our Earth
C) Give a breath to a Mother Earth   D) Invest in our Planet

44. Which player was named *'Most Valuable Player'* in the recently held IPL-2024:
    A) Virat Kohli   B) SunilNarine   C) Mitchell Starc   D) Shreyas Iyer

45. Point R is 5m west of point Q. Point P is 16m north of point Q. Point R is 25m south of point T. Point T is 10m west of point V. Point V is 9m north of point J. Point J is at how much distance and in which direction with respect to point P.
    A) 10m Southeast   B) 5m South   C) 5m East   D) 10m Northwest

46. Mohan's age was equal to square of some number last year and the following year it would be cube of a number. If again Mohan's age has to be equal to the cube of some number, then for how long he will have to wait?
    A) 10 years   B) 38 years   C) 39 years   D) 64 years

47. Three statements are given in the following question, followed by three conclusions numbered I, II and III. You have to take the given statements to be true even if they seem to be at variance from commonly known facts. Read all the conclusions and then decide which of the given conclusions logically follows from the given statements, disregarding commonly known facts.
    Statements:
    Some buses are doors.
    Some doors are windows.
    All windows are gardens.
    Conclusions:
    I. Some gardens are buses   II. Some windows are buses   III. Some gardens are doors
    A) Only I follows   B) Only II follows
    C) Only I and II follow   D) None of the above

48. A cube is coloured red on all of its faces. It is then cut into 64 smaller cubes of equal size. The smaller cubes so obtained are now separated. How many smaller cubes will have atleast two surfaces painted with red colour?
    A) 4   B) 8   C) 32   D) 24

49. The following diagram shows the number of students who got distinction in three subjects in a total of 500 students. Study the diagram carefully and answer the question:

    What is the percentage of students who got distinction in at least one subject ?
    A) 27.8%   B) 89.8 %   C) 38%   D) None of these

50. **Read the following information carefully and answer the questions given below:**
    There is a group of five persons — A, B, C, D and E. One of them is a horticulturist, one is a physicist, one is a journalist, one is an industrialist and one is an advocate. Three of them — A, C and advocate prefer tea to coffee and two of them — B and the journalist – prefer coffee to tea. The industrialist and D and A are friends to one another but two of them prefer coffee to tea. The horticulturist is C's brother.
    Which of the following groups includes a person who likes tea but is not an advocate?
    A) ACE   B) DE   C) BCE   D) None of these

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ANSWER KEY (A-Series)

Q.No.	Ans	Q.No.	Ans
1	A	26	D
2	C	27	D
3	B	28	B
4	B	29	B
5	C	30	A
6	B	31	B
7	A	32	B
8	D	33	A
9	B	34	D
10	A	35	C
11	C	36	D
12	C	37	C
13	B	38	A
14	D	39	A
15	C	40	B
16	B	41	C
17	C	42	B
18	A	43	A
19	C	44	B
20	B	45	C
21	C	46	B
22	A	47	D
23	B	48	C
24	D	49	C
25	A	50	D