COMPUTER SCIENCE AND APPLICATIONS
Paper – II

Note : This paper contains **fifty (50)** objective type questions, each question carrying **two (2)** marks. Attempt **all** the questions.

1. Which of the following data structure is Non-linear type ?

(A) Strings

(B) Lists

(C) Stacks

(D) None of the above

2. The total number of comparisons in a bubble sort is

(A) 0(log n)

(B) 0(n log n)

(C) 0(n)

(D) None of the above

3. Which of the following is a bad example of recursion ?

(A) Factorial

(B) Fibonacci numbers

(C) Tower of Hanai

(D) Tree traversal

4. Domain and Range of the function

$Y = -\sqrt{-2x+3}$ is

(A) $x \geq \frac{3}{2}, y \geq 0$ (B) $x > \frac{3}{2}, y \leq 0$

(C) $x \geq \frac{3}{2}, y \leq 0$ (D) $x \leq \frac{3}{2}, y \leq 0$

5. Maximum number of edges in a n-Node undirected graph without self loop is

(A) n^2 (B) $n(n-1)$

(C) $n(n+1)$ (D) $\frac{n(n-1)}{2}$

6. A hash table has space for 75 records, then the probability of collision before the table is 6% full.

(A) .25 (B) .20

(C) .35 (D) .30

7. BCC in the internet refers to

(A) Black carbon copy

(B) Blind carbon copy

(C) Blank carbon copy

(D) Beautiful carbon copy

8. Hub is a term used with

(A) A Star Networks

(B) A Ring Networks

(C) A Router

(D) A Bridge

9. The amount of uncertainty in a system of symbol is called

(A) Bandwidth (B) Entropy

(C) Loss (D) Quantum

10. Which of the following network access standard disassembler is used for connection station to a packet switched network ?

(A) X.3 (B) X.21

(C) X.25 (D) X.75

11. A station in a network in a network forward incoming packets by placing them on its shortest output queue. What routing algorithm is being used ?

(A) Hot potato routing

(B) Flooding

(C) Static routing

(D) Delta routing

12. Start and stop bits are used in serial communications for

(A) Error detection

(B) Error correction

(C) Synchronization

(D) Slowing down the communication

13. For a data entry project for office staff who have never used computers before (user interface and user-friendliness are extremely important), one will use

(A) Spiral model

(B) Component based model

(C) Prototyping

(D) Waterfall model

14. An SRS

(A) establishes the basis for agreement between client and the supplier.

(B) provides a reference for validation of the final product.

(C) is a prerequisite to high quality software.

(D) all of the above.

15. McCabe's cyclomatic metric V(G) of a graph G with n vertices, e edges and p connected component is

(A) e

(B) n

(C) e – n + p

(D) e – n + 2p

16. Emergency fixes known as patches are result of

(A) adaptive maintenance

(B) perfective maintenance

(C) corrective maintenance

(D) none of the above

17. Design recovery from source code is done during

(A) reverse engineering

(B) re-engineering

(C) reuse

(D) all of the above

18. Following is used to demonstrate that the new release of software still performs the old one did by rerunning the old tests :

(A) Functional testing

(B) Path testing

(C) Stress testing

(D) Regression testing

19. The post order traversal of a binary tree is DEBFCA. Find out the pre-order traversal.

(A) ABFCDE (B) ADBFEC

(C) ABDECF (D) ABDCEF

20. B + tree are preferred to binary tree in database because

(A) Disk capacities are greater than memory capacities

(B) Disk access much slower than memory access

(C) Disk data transfer rates are much less than memory data transfer rate

(D) Disk are more reliable than memory

21. What deletes the entire file except the file structure ?

(A) ERASE

(B) DELETE

(C) ZAP

(D) PACK

22. Which command classes text file, which has been created using "SET ALTERNATIVE" <FILE NAME> "Command" ?

(A) SET ALTERNATE OFF

(B) CLOSE DATABASE

(C) CLOSE ALTERNATE

(D) CLEAR ALL

23. Data security threats include

(A) privacy invasion

(B) hardware failure

(C) fraudulent manipulation of data

(D) encryption and decryption

24. Which of the following statements is true, when structure of database file with 20 records is modified ?

(A) ? EOF ( ) Prints. T

(B) ? BOF ( ) Prints F

(C) ? BOF ( ) Prints T

(D) ? EOF ( ) Prints F

25. The SQL Expression

Select distinct T. branch name from branch T, branch S where T. assets > S. assets and S. branch-city = DELHI, finds the name of

(A) all branches that have greater asset than any branch located in DELHI.

(B) all branches that have greater assets than allocated in DELHI.

(C) the branch that has the greatest asset in DELHI.

(D) any branch that has greater asset than any branch located in DELHI.

26. Dijkestra banking algorithm in an operating system, solves the problem of

(A) deadlock avoidance

(B) deadlock recovery

(C) mutual exclusion

(D) context switching

27. The multiuser operating system, 20 requests are made to use a particular resource per hour, on an average the probability that no request are made in 45 minutes is

(A) e^{-15} (B) e^{-5}

(C) $1 - e^{-5}$ (D) $1 - e^{-10}$

28. On receiving an interrupt from an I/O device, the CPU

(A) halts for predetermined time.

(B) branches off to the interrupt service routine after completion of the current instruction.

(C) branches off to the interrupt service routine immediately.

(D) hands over control of address bus and data bus to the interrupting device.

29. The maximum amount of information that is available in one portion of the disk access arm for a removal disk pack (without further movement of the arm with multiple heads)

(A) a plate of data

(B) a cylinder of data

(C) a track of data

(D) a block of data

30. Consider a logical address space of 8 pages of 1024 words mapped with memory of 32 frames. How many bits are there in the physical address ?

(A) 9 bits (B) 11 bits

(C) 13 bits (D) 15 bits

31. CPU does not perform the operation

(A) data transfer

(B) logic operation

(C) arithmetic operation

(D) all of the above

32. A chip having 150 gates will be classified as

(A) SSI (B) MSI

(C) LSI (D) VLSI

33. If an integer needs two bytes of storage, then the maximum value of unsigned integer is

(A) $2^{16} - 1$

(B) $2^{15} - 1$

(C) 2^{16}

(D) 2^{15}

34. Negative numbers cannot be represented in

(A) signed magnitude form

(B) 1's complement form

(C) 2's complement form

(D) none of the above

35. The cellular frequency reuse factor for the cluster size N is

(A) N

(B) N^2

(C) $\frac{1}{N}$

(D) $\frac{1}{N^2}$

36. X – = Y + 1 means

(A) X = X – Y + 1

(B) X = –X – Y – 1

(C) X = –X + Y + 1

(D) = X – Y – 1

37. Handoff is the mechanism that

(A) transfer an ongoing call from one base station to another

(B) initiating a new call

(C) dropping an ongoing call

(D) none of above

38. Which one of the following statement is false ?

(A) Context-free languages are closed under union.

(B) Context-free languages are closed under concatenation.

(C) Context-free languages are closed under intersection.

(D) Context-free languages are closed under Kleene closure.

39. All of the following are examples of real security and privacy risks except

(A) Hackers

(B) Spam

(C) Viruses

(D) Identify theft

40. Identify the incorrect statement :

(A) The ATM adoption layer is not service dependent.

(B) Logical connections in ATM are referred to as virtual channel connections.

(C) ATM is streamlined protocol with minimal error and flow control capabilities

(D) ATM is also known as cell delays.

41. Software risk estimation involves following two tasks :

(A) Risk magnitude and risk impact

(B) Risk probability and risk impact

(C) Risk maintenance and risk impact

(D) Risk development and risk impact

42. The number of bits required for an IP_{V_6} address is

(A) 16 (B) 32

(C) 64 (D) 128

43. The proposition ~ q∨p is equivalent to

(A) $p \rightarrow \underline{q}$ (B) $\underline{q} \rightarrow p$

(C) $p \leftrightarrow \underline{q}$ (D) $p \vee \underline{q}$

44. Enterprise Resource Planning (ERP)

(A) has existed for over a decade.

(B) does not integrate well with the functional areas other than operations.

(C) is inexpensive to implement.

(D) automate and integrates the majority of business processes.

45. Which of the following is false concerning Enterprise Resource Planning (ERP) ?

(A) It attempts to automate and integrate the majority of business processes.

(B) It shares common data and practices across the enterprise.

(C) It is inexpensive to implement.

(D) It provides and access information in a real-time environment.

46. To compare, overlay or cross analyze to maps in GIS

(A) both maps must be in digital form

(B) both maps must be at the same equivalent scale.

(C) both maps must be on the same coordinate system

(D) All of the above

47. Web Mining is not used in which of the following areas ?

(A) Information filtering

(B) Crime fighting on the internet

(C) Online transaction processing

(D) Click stream analysis.

48. A telephone conference call is an example of which type of communications ?

(A) same time / same place

(B) same time / different place

(C) different time / different place

(D) different time / same place

49. What is the probability of choosing correctly an unknown integer between 0 and 9 with 3 chances ?

(A) $\frac{963}{1000}$

(B) $\frac{973}{1000}$

(C) $\frac{983}{1000}$

(D) $\frac{953}{1000}$

50. The number of nodes in a complete binary tree of height h (with roots at level 0) is equal to

(A) $2^0 + 2^1 + \ldots. 2^h$

(B) $2^0 + 2^1 + \ldots. 2^{h-1}$

(C) $2^0 + 2^1 + \ldots. 2^{h+1}$

(D) $2^1 + \ldots. 2^{h+1}$