502- MSc Computer Science

1. The postfix expression for the infix expression A + B \* (C + D) / F + D \* E is:

|  |  |
| --- | --- |
| (A) | AB + CD + \*F/D + E\*  |
| (B) | ABCD + \*F/ + DE\* + |
| (C) | A\*B + CD/F\*DE + +  |
| (D) | A + \*BCD/F\*DE + +  |

2. Which of the following is essential for converting infix expression to postfix form efficiently?

|  |  |
| --- | --- |
| (A) | An operator stack  |
| (B) | An operand stack |
| (C) | An operator stack and an operand stack  |
| (D) | No need of a stack |

3. The following sequence of operation is performed on stack:

push(1),push(2),pop, push(1), push(2), pop, pop, pop, push(2), pop.

The sequence of popped out values is?

|  |  |
| --- | --- |
| (A) | 2, 2, 1, 1, 2  |
| (B) | 2, 2, 1, 2, 2 |
| (C) | 2, 1, 2, 2, 1  |
| (D) | 2, 1, 2, 1, 2 |

4. Stack can be implemented using ……………. and …………….

|  |  |
| --- | --- |
| (A) | Trees and Linked List  |
| (B) | Array and Graph |
| (C) | Linked list and Array  |
| (D) | Queue and Graph |

5. In a circular linked list organization, insertion of a record involves the assignment of

|  |  |
| --- | --- |
| (A) | No pointer  |
| (B) | 1 Pointer |
| (C) | 2 Pointers  |
| (D) | 3 Pointers |

6. Which of the following is not a type of constructor?

|  |  |
| --- | --- |
| (A) | Copy constructor  |
| (B) | Default constructor |
| (C) | Friend constructor  |
| (D) | Parameterized constructor |

7. Which of the following concept determines at runtime what method to invoke?

|  |  |
| --- | --- |
| (A) | Dynamic Binding  |
| (B) | Dynamic Loading |
| (C) | Dynamic Typing  |
| (D) | Data Hiding |

8. Which of the following two entities (reading from Left to Right) can be connected by the dot operator?

|  |  |
| --- | --- |
| (A) | A class object and a member of that class  |
| (B) | A class and a member of that class |
| (C) | A class member and a class object |
| (D) | A class object and a class |

9. Which of the following is not an arithmetic operation?

|  |  |
| --- | --- |
| (A) | a \*= 10; |
| (B) | a /= 10; |
| (C) | a != 10; |
| (D) | a %= 10; |

10. What is the output of this C code?

#include <stdio.h>

 void main()

 {

 double k = 0;

 for (k = 0.0; k < 3.0; k++)

 printf("Hello");

 }

|  |  |
| --- | --- |
| (A) | Run time error  |
| (B) | Hello is printed thrice |
| (C) | Hello is printed twice  |
| (D) | Hello is printed infinitely |

11. Relational operators can be used on

|  |  |
| --- | --- |
| (A) | structure  |
| (B) | long  |
| (C) | string  |
| (D) | float |

12. What is the output of this C code?

 #include <stdio.h>

 void main()

 {

 int k;

 for (k = -3; k < -5; k++)

 printf("Hello");

}

|  |  |
| --- | --- |
| (A) | Hello |
| (B) | Infinite Hello |
| (C) | Run time error |
| (D) | Nothing |

13. #include <stdio.h>

 int main()

 {

 int i = 0;

 for (; ; ;)

 printf("In for loop\n");

 printf("After loop\n");

 }

 Output of above code

|  |  |
| --- | --- |
| (A) | compile error  |
| (B) | infinite loop |
| (C) | after loop  |
| (D) | undefined behaviour  |

14. If a process needs I/O to or from a disk, and if the drive or controller is busy then:

|  |  |
| --- | --- |
| (A) | the request will be placed in the queue of pending requests for that drive |
| (B) | the request will not be processed and will be ignored completely |
| (C) | the request will not be placed |
| (D) | None of the above |

15. SSTF algorithm, like SJF …………… of some requests.

|  |  |
| --- | --- |
| (A) | may cause starvation |
| (B) | will cause starvation |
| (C) | does not cause starvation |
| (D) | causes aging |

16. The part of machine level instruction, which tells the central processor what has to be done, is

|  |  |
| --- | --- |
| (A) | Operation code  |
| (B) | Address |
| (C) | Locator  |
| (D) | Flip-Flop |

17. Which of the following refers to the associative memory?

|  |  |
| --- | --- |
| (A) | The address of the data is generated by the CPU |
| (B) | The address of the data is supplied by the users |
| (C) | There is no need for an address i.e. the data is used as an address |
| (D) | The data are accessed sequentially |

18. To avoid the race condition, the number of processes that may be simultaneously inside their critical section is

|  |  |
| --- | --- |
| (A) | 8 |
| (B) | 1 |
| (C) | 16 |
| (D) | 0 |

19. Process is

|  |  |
| --- | --- |
| (A) | program in High level language kept on disk  |
| (B) | contents of main memory |
| (C) | a program in execution  |
| (D) | a job in secondary memory |

20. Which of the following system software does the job of merging the records from two files into one?

|  |  |
| --- | --- |
| (A) | Security software  |
| (B) | Utility program |
| (C) | Networking software  |
| (D) | Documentation system |

21. Which of the following instruction steps, would be written within the diamond-shaped box, of a flowchart?

|  |  |
| --- | --- |
| (A) | S = B – C  |
| (B) | IS A < 10 |
| (C) | PRINT A  |
| (D) | DATA X, 4Z |

22. Interprocess communication

|  |  |
| --- | --- |
| (A) | is required for all processes |
| (B) | is usually done via disk drives |
| (C) | is never necessary |
| (D) | allows processes to synchronize activity |

23. A system program that sets up an executable program in main memory, ready for execution is

|  |  |
| --- | --- |
| (A) | Assembler  |
| (B) | Linker |
| (C) | Loader  |
| (D) | Compiler |

24. Which of the following are loaded into main memory when the computer is booted?

|  |  |
| --- | --- |
| (A) | Internal command instructions  |
| (B) | External command instructions |
| (C) | Utility programs  |
| (D) | Word processing instructions |

25. The FIFO algorithm

|  |  |
| --- | --- |
| (A) | executes first the job that last entered the queue |
| (B) | executes first the job that first entered the queue |
| (C) | executes first the job that has been in the queue the longest |
| (D) | executes first the job with the least processor needs |

26. Which of the following is not a logical data-base structure?

|  |  |
| --- | --- |
| (A) | Tree  |
| (B) | Relational |
| (C) | Network  |
| (D) | Chain |

27. Which of the following are the applications of stack?

|  |  |
| --- | --- |
| (A) | Function calls |
| (B) | Large number Arithmetic |
| (C) | Evaluation of arithmetic expressions |
| (D) | All of the above  |

28. If the post order traversal of a binary tree is DEBFCA, find the pre order traversal

|  |  |
| --- | --- |
| (A) | ABFCDE |
| (B) | ADBFEC |
| (C) | ABDECF |
| (D) | ABDCEF |

29. If several elements are competing for the same bucket in the hash table, what is it called?

|  |  |
| --- | --- |
| (A) | Diffusion |
| (B) | Replication |
| (C) | Collision |
| (D) | Chaining |

30. In linked list implementation of a queue, if front and rear pointers are tracked, which of these pointers will change during an insertion into a NONEMPTY queue?

|  |  |
| --- | --- |
| (A) | Only front pointer |
| (B) | Only rear pointer |
| (C) | Both front and rear pointer |
| (D) | No change |

31. Consider the following operation performed on a stack of size 5.

Push(1);

Pop();

Push(2);
Push(3);

Pop();

Push(4);

Pop();
Pop();

Push(5);
After the completion of all operation, the number of elements present in stack are

|  |  |
| --- | --- |
| (A) | 1 |
| (B) | 2 |
| (C) | 3 |
| (D) | 4 |

32. Which of the following is the postfix expression of the given infix expression converted using a stack?

 x + y \* z + (p \* q + r) \* s

|  |  |
| --- | --- |
| (A) | xyz \* **+** pq \* r **+** s \* **+** |
| (B) | xyz \* **+** pq \* r **+** s **+** \* |
| (C) | xyz **+** \* pq \* r **+** s \* **+** |
| (D) | None of the above |

33. The strategy of allowing processes that are logically runnable to be temporarily suspended is called

|  |  |
| --- | --- |
| (A) | preemptive scheduling |
| (B) | non preemptive scheduling |
| (C) | shortest job first |
| (D) | first come first served |

34. The data transfer operation that is done without using the CPU is called

|  |  |
| --- | --- |
| (A) | Program controlled data transfer |
| (B) | Interrupt controlled data transfer |
| (C) | Direct memory access data transfer |
| (D) | Bidirectional data transfer |

35. The height of tree is the length of the longest root-to-leaf path in it. The maximum and minimum number of nodes in a binary tree of height 5 are

|  |  |
| --- | --- |
| (A) | 63 and 6 respectively  |
| (B) | 64 and 5 respectively |
| (C) | 32 and 6 respectively  |
| (D) | 31 and 5 respectively |

36. Which member function of class cannot modify its objects’ attributes?

|  |  |
| --- | --- |
| (A) | Friend functions |
| (B) | Private member functions |
| (C) | Static member functions |
| (D) | Constant member functions |

37. What is the minimum number of two-input NAND gates used to perform the function of two input OR gate?

|  |  |
| --- | --- |
| (A) | One |
| (B) | Two |
| (C) | Three |
| (D) | Four |

38. The ability to modify the database schema without causing changes to existing application programs is called ............... data independence.

|  |  |
| --- | --- |
| (A) | Logical |
| (B) | Physical |
| (C) | View |
| (D) | None of the above |

39. Which of the following is another name of primary index?

|  |  |
| --- | --- |
| (A) | Secondary index  |
| (B) | Random index  |
| (C) | Clustering index  |
| (D) | None of the above |

40. If an entity set does not have sufficient attributes to form a primary key, it is called as a ............... entity set.

|  |  |
| --- | --- |
| (A) | Weak |
| (B) | Dependent |
| (C) | Partial |
| (D) | None of the above |

41. Given the basic ER and relational models, which of the following is INCORRECT?

|  |  |
| --- | --- |
| (A) | An attribute of an entity can have more than one value |
| (B) | An attribute of an entity can be composite |
| (C) | In a row of a relational table, an attribute can have more than one value |
| (D) | In a row of a relational table, an attribute can have exactly one value or a NULL value |

42. The set of all allowable values that an attribute of a record can take is called as

|  |  |
| --- | --- |
| (A) | Fields |
| (B) | Domain |
| (C) | Constraint |
| (D) | None of the above |

43. Groups of data items or records that are physically stored and retrieved together is called as

|  |  |
| --- | --- |
| (A) | Cluster |
| (B) | Blocks |
| (C) | Index |
| (D) | None of the above |

44. What will be the number of columns of a Cartesian product if the participating relations have 3 and 4 fields each?

|  |  |
| --- | --- |
| (A) | 3 |
| (B) | 4 |
| (C) | 12 |
| (D) | 7 |

45. What is a DFD?

|  |  |
| --- | --- |
| (A) | The modern version of flowchart |
| (B) | Mainly used at systems specification stage |
| (C) | The primary output of the system design phase |
| (D) | All of the above |

46. Which one of the following is an application of Queue Data Structure?

|  |  |
| --- | --- |
| (A) | When a resource is shared among multiple consumers. |
| (B) | When data is transferred asynchronously (data not necessarily received at same rate as sent) between two processes |
| (C) | Load Balancing |
| (D) | All of the above |

47. Which of the following sorting algorithms can be used to sort a random linked list with minimum time complexity?

|  |  |
| --- | --- |
| (A) | Insertion Sort |
| (B) | Quick Sort |
| (C) | Heap Sort |
| (D) | Merge Sort |

48. The concatenation of two lists is to be performed in O(1) time. Which of the following implementations of a list should be used?

|  |  |
| --- | --- |
| (A) | Singly linked list |
| (B) | Doubly linked list |
| (C) | Circular doubly linked list |
| (D) | Array implementation of lists |

49. Identify the incorrect file opening mode from the following.

|  |  |
| --- | --- |
| (A) | r |
| (B) | x |
| (C) | w |
| (D) | A |

50. Which of the data types has the size that varies?

|  |  |
| --- | --- |
| (A) | int |
| (B) | struct |
| (C) | float |
| (D) | double |

51. What are the things inherited from the base class?

|  |  |
| --- | --- |
| (A) | Constructor and its destructor |
| (B) | Operator=() members |
| (C) | Friends |
| (D) | All of the mentioned |

52. Consider the statement, int val[2][4] = {1, 2, 3, 4, 5, 6, 7, 8}; 4 will be the value of

|  |  |
| --- | --- |
| (A) | val [1][4] |
| (B) | val [0][4] |
| (C) | val [1][1] |
| (D) | None of the above |

53. If integer needs two bytes of storage, then maximum value of a signed integer is

|  |  |
| --- | --- |
| (A) | 216 – 1 |
| (B) | 215 – 1  |
| (C) | 216 |
| (D) | 215 |

54. Which of the following is the output for the given program fragment?

 int a = 4, b = 6;

printf(“% d”, a = = b);

|  |  |
| --- | --- |
| (A) | Outputs an error message |
| (B) | Prints 0 |
| (C) | Prints 1 |
| (D) | None of the above |

55. The statement printf(“%d”, 10?0?5:11:12); prints

|  |  |
| --- | --- |
| (A) | 10 |
| (B) | 0 |
| (C) | 12 |
| (D) | 11 |

56. In the following program

main()

{

 float a = .5, b = .7;

 if (b < = 0.7)

 if (a < 0.5)

 printf(“KCET”);

 else

 printf(“CUSAT”);

 else

 printf(“CET”);

}

Output is

|  |  |
| --- | --- |
| (A) | CUSAT |
| (B) | KCET |
| (C) | CET |
| (D) | None of the above |

57. Consider the following program segment in C

 main()

{

printf(“CUSAT”);

main();

}

|  |  |
| --- | --- |
| (A) | is illegal |
| (B) | keeps on printing CUSAT |
| (C) | prints CUSAT once |
| (D) | None of the above |

58. #include<stdio.h>

int main(){

 int k = 5;

if(5 == k)

printf("%d",k<<2<<1);

 else

printf("Not equal");

}

|  |  |
| --- | --- |
| (A) | 1 |
| (B) | 48 |
| (C) | 40 |
| (D) | Compiler error |

59. #include<stdio.h>

int main(){

 int i=11;

 int const \* p=&i;

 p++;

printf("%d",\*p);

return 0;

}

|  |  |
| --- | --- |
| (A) | 11 |
| (B) | 12 |
| (C) | Garbage value |
| (D) | Compiler error |

60. #include<stdio.h>

int main(){

 int array[2][2][3]={0,1,2,3,4,5,6,7,8,9,10,11};

printf("%d",array[1][0][2]);

 return 0;

}

|  |  |
| --- | --- |
| (A) | 5 |
| (B) | 7 |
| (C) | 8 |
| (D) | 6 |

61. What does polymorphism in OOPs mean?

|  |  |
| --- | --- |
| (A) | Concept of allowing overriding of functions |
| (B) | Concept of hiding data |
| (C) | Concept of keeping things in different modules/files |
| (D) | Concept of wrapping things into a single unit |

62. Which concept allows you to reuse the written code?

|  |  |
| --- | --- |
| (A) | Encapsulation |
| (B) | Abstraction |
| (C) | Inheritance |
| (D) | Polymorphism |

63. When destructors are called?

|  |  |
| --- | --- |
| (A) | When a program ends |
| (B) | When a function ends |
| (C) | When a delete operator is used |
| (D) | All of the mentioned |

64. What happens if a user forgets to define a constructor inside a class?

|  |  |
| --- | --- |
| (A) | Error occurs |
| (B) | Segmentation fault |
| (C) | Objects are not created properly |
| (D) | Compiler provides a default constructor to avoid faults/errors |

65. Why do we need to handle exceptions?

|  |  |
| --- | --- |
| (A) | To avoid unexpected behaviour of a program during run-time |
| (B) | To let compiler remove all exceptions by itself |
| (C) | To successfully compile the program |
| (D) | To get correct output |

66. Which alternative can replace the throw statement?

|  |  |
| --- | --- |
| (A) | for |
| (B) | break |
| (C) | return |
| (D) | exit |

67. What is the use of RAII in C**++** programming?

|  |  |
| --- | --- |
| (A) | Improve the exception safety |
| (B) | Terminate the program |
| (C) | Exit from the block |
| (D) | Crash the compiler |

68. Which of the following is true?

|  |  |
| --- | --- |
| (A) | Static methods cannot be overloaded |
| (B) | Static data members can only be accessed by static methods |
| (C) | Non-static data members can be accessed by static methods |
| (D) | Static methods can only access static members (data and methods) |

69. A machine needs a minimum of 100 sec to sort 1000 names by quick sort. The minimum time needed to sort 100 names will be approximately

|  |  |
| --- | --- |
| (A) | 50.2 |
| (B) | 6.7 |
| (C) | 72.7 |
| (D) | 11.2 |

70. Which of the following is the average number of key comparisons done by sequential search in the successful case?

|  |  |
| --- | --- |
| (A) |  |
| (B) |  |
| (C) | *n* + 1 |
| (D) | 2*n* |

71. Which of the following is asymptotically smaller?

|  |  |
| --- | --- |
| (A) | lg(lg\**n*) |
| (B) | lg\*(lg*n*) |
| (C) | lg(*n*!) |
| (D) | lg\*(*n*!) |

72. What is recurrence for worst case of Quicksort and what is the time complexity in worst case?

|  |  |
| --- | --- |
| (A) | Recurrence is *T*(*n*) = *T*(*n* – 2) + *O*(*n*) and time complexity is *O*(*n*2) |
| (B) | Recurrence is *T*(*n*) = *T*(*n* – 1) + *O*(*n*) and time complexity is *O*(*n*2) |
| (C) | Recurrence is *T*(*n*) = 2*T*(*n*/2) + *O*(*n*) and time complexity is *O*(*n* log *n*) |
| (D) | Recurrence is *T*(*n*) = *T*(*n*/10) + T(9*n*/10) + *O*(*n*) and time complexity is *O*(*n* log *n*) |

73. Which one of the following in place sorting algorithms needs the minimum number of swaps?

|  |  |
| --- | --- |
| (A) | Quick sort |
| (B) | Insertion sort |
| (C) | Selection sort |
| (D) | Heap sort |

74. Which of the following is true about Huffman Coding?

|  |  |
| --- | --- |
| (A) | Huffman coding may become lossy in some cases |
| (B) | Huffman codes may not be optimal lossless codes in some cases |
| (C) | In Huffman coding, no code is prefix of any other code |
| (D) | All of the above |

75. Which of the following expression accesses the (*i*, *j*)th entry of a (M **×** N) matrix stored in column major form?

|  |  |
| --- | --- |
| (A) | N(*i* – 1) **+** *j* |
| (B) | M(*j* – 1) **+** *i* |
| (C) | M(N – *j*) **+** *j* |
| (D) | N(M – *i*) **+** *j* |

76. A binary tree *T* has *n* leaf nodes. The number of nodes of degree 2 in *T* is

|  |  |
| --- | --- |
| (A) | log2 *n* |
| (B) | *n* − 1 |
| (C) | *n* |
| (D) | 2*n* |

77. The post fix form of A$B\*C – D **+** E/F/(G **+** H)

|  |  |
| --- | --- |
| (A) | AB$C\*D – EF**/**GH**+/+** |
| (B) | AB$C – D **+** EF**/**GH**/+** |
| (C) | AB$C **+** D – EF**/**GH–**/+** |
| (D) | AB$C – D\*EF**/**GH**/++** |

78. A complete binary tree of level 5 has how many nodes? (Assume root node at level 0)

|  |  |
| --- | --- |
| (A) | 15 |
| (B) | 25 |
| (C) | 63 |
| (D) | 33 |

79. Which of the following operations is not *O*(1) for an array of sorted data. You may assume that array elements are distinct?

|  |  |
| --- | --- |
| (A) | Find the *i*th largest element |
| (B) | Delete an element |
| (C) | Find the *i*th smallest element |
| (D) | All of the above |

80. Which data structure is used for balancing of symbols in an expression?

|  |  |
| --- | --- |
| (A) | Stack |
| (B) | Queue |
| (C) | Tree |
| (D) | Graph |

81. Which of the following data structures is best suited for efficient implementation of priority queue?

|  |  |
| --- | --- |
| (A) | Array |
| (B) | Linked List |
| (C) | Heap |
| (D) | Stack |

82. The minimum number of stacks needed to implement a queue is

|  |  |
| --- | --- |
| (A) | 3 |
| (B) | 1 |
| (C) | 2 |
| (D) | 4 |

83. Given the following prefix expression: \* **+** 3 **+** 3 ↑ 3 **+** 3 3 3. What is the value of the prefix expression?

|  |  |
| --- | --- |
| (A) | 2178 |
| (B) | 2199 |
| (C) | 2205 |
| (D) | 2232 |

84. Which normal form considered adequate for relational database design?

|  |  |
| --- | --- |
| (A) | 2 NF |
| (B) | 3 NF |
| (C) | 4 NF |
| (D) | BCNF |

85. If every non-key attribute is only functionally dependent on the primary key, then the relation will be in

|  |  |
| --- | --- |
| (A) | 1 NF |
| (B) | 2 NF |
| (C) | 3 NF |
| (D) | 4 NF |

86. A data model is a collection of conceptual tools for describing

|  |  |
| --- | --- |
| (A) | Data ad data relationship |
| (B) | Data semantics and consistency constraints |
| (C) | Data, data relationship, data semantics and consistency constraints |
| (D) | None of the above |

87. A trigger is

|  |  |
| --- | --- |
| (A) | a statement that enables to start any DBMS |
| (B) | a statement that is executed by the user when debugging an application program |
| (C) | a condition the system tests for the validity of the database user |
| (D) | a statement that is executed automatically by the system as a side effect of a modification to the database |

88. Generally speaking, for a week entity set to be meaningful it must be part of a

|  |  |
| --- | --- |
| (A) | one-to-one relationship |
| (B) | one-to-many relationship |
| (C) | many-to- many relationship |
| (D) | None of the above |

89. Assume transaction *A* holds a shared lock *R*. If transaction *B* also requests for a shared lock on *R*, it will

|  |  |
| --- | --- |
| (A) | result in a deadlock situation |
| (B) | immediately be granted |
| (C) | immediately be rejected |
| (D) | be granted as soon as it is released by *A* |

90. Which of the following is not usually part of the responsibilities of a database administrator?

|  |  |
| --- | --- |
| (A) | Approving structural changes to the database |
| (B) | Designing data entry screens |
| (C) | Ensuring that an adequate back-up regime in place |
| (D) | Issuing account to users and monitoring the performance of the system |

91. The way a particular view the data from the database that an application uses is

|  |  |
| --- | --- |
| (A) | Module |
| (B) | Relation |
| (C) | Schema |
| (D) | Subschema |

92. Which of the following operations is not part of the five basic set operations in relational algebra?

|  |  |
| --- | --- |
| (A) | Union |
| (B) | Division |
| (C) | Cartesian Product |
| (D) | Set Difference |

93. Which of the following statements concerning relational database is true?

|  |  |
| --- | --- |
| (A) | A foreign key field may be null |
| (B) | A primary key field may be null |
| (C) | All relations must be in at least third normal form |
| (D) | The primary key fields of a relation must be adjacent |

94. Relation R has attributes A, B, C, D, E, F, G, H, I, J and satisfies FD’S

 ABD 🡪 E

C 🡪 J

AB 🡪 G

CI 🡪 I

B 🡪 F

G 🡪 HI

 Find the candidate key.

|  |  |
| --- | --- |
| (A) | ABCI |
| (B) | ABCDG |
| (C) | ABCDE |
| (D) | ABCD |

95. The page replacement policy that sometimes leads to more page faults when the size of the memory is increased is

|  |  |
| --- | --- |
| (A) | FIFO |
| (B) | LRU |
| (C) | No such policy exists |
| (D) | None of the above |

96. Kernel is

|  |  |
| --- | --- |
| (A) | considered as the critical part of the operating system |
| (B) | the software which monitors the operating system |
| (C) | the set of primitive functions upon which the rest of operating system functions are built up |
| (D) | None of the above |

97. In a time-sharing operating system, when the time slot given to a process is completed, the process goes from the RUNNING state to the

|  |  |
| --- | --- |
| (A) | BLOCKED state |
| (B) | READY state |
| (C) | SUSPENDED state |
| (D) | TERMINATED state |

98. Virtual memory is

|  |  |
| --- | --- |
| (A) | part of main memory only used for swapping |
| (B) | a technique to allow a program, of size more than the size of main memory, to run |
| (C) | part of secondary storage used in program execution |
| (D) | None of the above |

99. A process executes the code

fork();

fork();

fork();

The total number of child processes created is

|  |  |
| --- | --- |
| (A) | 3 |
| (B) | 4 |
| (C) | 7 |
| (D) | 8 |

100. What problem is solved by Dijkstra banker’s algorithm?

|  |  |
| --- | --- |
| (A) | Cache coherence |
| (B) | Mutual exclusion |
| (C) | Deadlock recovery |
| (D) | Deadlock avoidance |

101. Find out which of the figures (1), (2), (3) and (4) can be formed from the pieces given in figure (X).

|  |
| --- |
| 001.jpg |
| (X) | (1) | (2) | (3) | (4) |

|  |  |
| --- | --- |
| (A) | 1 |
| (B) | 2 |
| (C) | 3 |
| (D) | 4 |

102. Find the number of triangles in the given figure.



|  |  |
| --- | --- |
| (A) | 16 |
| (B) | 22 |
| (C) | 28 |
| (D) | 32 |

103. Identify the figure that completes the pattern.

|  |
| --- |
| https://www.indiabix.com/_files/images/non-verbal-reasoning/pattern-completion/68.png |
| (X) | (1) | (2) | (3) | (4) |

|  |  |
| --- | --- |
| (A) | 1 |
| (B) | 2 |
| (C) | 3 |
| (D) | 4 |

104. Identify the figure that completes the pattern.

|  |
| --- |
| https://www.indiabix.com/_files/images/non-verbal-reasoning/pattern-completion/95.png |
| (X) | (1) | (2) | (3) | (4) |

|  |  |
| --- | --- |
| (A) | 1 |
| (B) | 2 |
| (C) | 3 |
| (D) | 4 |

105. Identify the figure that completes the pattern.

|  |
| --- |
| https://www.indiabix.com/_files/images/non-verbal-reasoning/pattern-completion/53.png |
| (X) | (1) | (2) | (3) | (4) |

|  |  |
| --- | --- |
| (A) | 1 |
| (B) | 2 |
| (C) | 3 |
| (D) | 4 |

106. Look at this series: 22, 21, 23, 22, 24, 23, ………. What number should come next?

|  |  |
| --- | --- |
| (A) | 22 |
| (B) | 24 |
| (C) | 25 |
| (D) | 26 |

107. Look at this series: 664, 332, 340, 170, ………, 89. What number should fill the blank?

|  |  |
| --- | --- |
| (A) | 85  |
| (B) | 97 |
| (C) | 109  |
| (D) | 178 |

108. A person crosses a 600 m long street in 5 minutes. What is his speed in km per hour?

|  |  |
| --- | --- |
| (A) | 3.6  |
| (B) | 7.2 |
| (C) | 8.4  |
| (D) | 10 |

109. If a person walks at 14 km/hr instead of 10 km/hr, he would have walked 20 km more. The actual distance travelled by him is:

|  |  |
| --- | --- |
| (A) | 50 km  |
| (B) | 56 km  |
| (C) | 70 km  |
| (D) | 80 km  |

110. The angle of elevation of a ladder leaning against a wall is 60° and the foot of the ladder is 4.6 m away from the wall. The length of the ladder is:

|  |  |
| --- | --- |
| (A) | 2.3 m  |
| (B) | 4.6 m |
| (C) | 7.8 m  |
| (D) | 9.2 m |

111. Which one of the following is not a prime number?

|  |  |
| --- | --- |
| (A) | 31  |
| (B) | 61 |
| (C) | 71  |
| (D) | 91  |

112. The largest 4 digit number exactly divisible by 88 is:

|  |  |
| --- | --- |
| (A) | 9944  |
| (B) | 9768 |
| (C) | 9988  |
| (D) | 8888 |

113. A number when divided by 296 leaves 75 as remainder. When the same number is divided by 37, the remainder will be:

|  |  |
| --- | --- |
| (A) | 1 |
| (B) | 2 |
| (C) | 8 |
| (D) | 11 |

114. A number, divided by 6 leaves a remainder 3. When the square of that number is divided by 6, the remainder is:

|  |  |
| --- | --- |
| (A) | 0 |
| (B) | 1 |
| (C) | 2 |
| (D) | 3 |

115. Find the value of *a*/(*b* + *a*/(*b* + *a*/(*b* – *a*/*b*))) where the value of *a* = 1 and *b* =3

|  |  |
| --- | --- |
| (A) | 3/10  |
| (B) | 10/3 |
| (C) | 27/89 |
| (D) | 89/27 |

116. The ratio of two numbers is 4:7 and their HCF is 6. Find the LCM.

|  |  |
| --- | --- |
| (A) | 84  |
| (B) | 1008 |
| (C) | 132 |
| (D) | 168 |

117. The difference between a two-digit number and the number obtained by interchanging the positions of its digits is 36. What is the difference between the two digits of that number?

|  |  |
| --- | --- |
| (A) | 3 |
| (B) | 4 |
| (C) | 5 |
| (D) | 6 |

118. Find a positive number which when increased by 17 is equal to 60 times the reciprocal of the number.

|  |  |
| --- | --- |
| (A) | 3 |
| (B) | 10 |
| (C) | 17 |
| (D) | 20 |

119. If *A* is the son of *Q*, *Y* and *Q* are sisters, *Z* is the mother of *Y*, *P* is the son of *Z*, then which of the following statements is correct?

|  |  |
| --- | --- |
| (A) | *P* is the maternal uncle of *A* |
| (B) | *A* and *P* are cousins |
| (C) | *P* and *Y* are sisters |
| (D) | *Z* and *Y* are parents of *A* |

120. Looking at a photograph, Ram says “His mother is the wife of my father’s son. I don’t have any brothers or sisters”. How is the person in the photograph related to Ram?

|  |  |
| --- | --- |
| (A) | His cousin |
| (B) | His son |
| (C) | His father |
| (D) | His uncle |

121. Fill in the next pattern

 ZA1, 3YB, C5X, WD7,………

|  |  |
| --- | --- |
| (A) | V9E |
| (B) | VE9 |
| (C) | EV9 |
| (D) | 9VE |

**Directions**:Study the diagram below and answer the questions. Triangle represents doctors, circle represents players and rectangle represents artists.



122. What does letter D represent?

|  |  |
| --- | --- |
| (A) | Doctors who are players |
| (B) | Artists who are doctors |
| (C) | Doctors who are not artists |
| (D) | Players who are not doctors |

123. Players who are doctors but not artist is represented by

|  |  |
| --- | --- |
| (A) | A |
| (B) | E |
| (C) | G |
| (D) | F |

124. Which letter represents artists who are neither doctor nor player?

|  |  |
| --- | --- |
| (A) | A |
| (B) | G |
| (C) | F |
| (D) | B |

125. How many rectangles are there in the figure?

|  |  |  |
| --- | --- | --- |
|  |  |  |
|  |
|  |

|  |  |
| --- | --- |
| (A) | 6 |
| (B) | 7 |
| (C) | 8 |
| (D) | 9 |

126. Find the term which do not fit into the series G4T, J10R, M20P, P43N, S90L.

|  |  |
| --- | --- |
| (A) | G4T  |
| (B) | J10R  |
| (C) | M20P |
| (D) | S90L |

**Directions**: Use the following figure to answer questions.



127. The number of students who took any three of the above subjects was

|  |  |
| --- | --- |
| (A) | 62  |
| (B) | 63  |
| (C) | 64 |
| (D) | 66 |

128. The number of students who took both History and Geography among other subjects was

|  |  |
| --- | --- |
| (A) | 62  |
| (B) | 63  |
| (C) | 65 |
| (D) | 66 |

129. Which subject was taken by the largest number of students?

|  |  |
| --- | --- |
| (A) | Mathematics  |
| (B) | Science  |
| (C) | Geography |
| (D) | History |

130. Select a suitable figure from the four alternatives that would complete the figure matrix.



|  |  |
| --- | --- |
| (A) | 1 |
| (B) | 2 |
| (C) | 3 |
| (D) | 4 |

131. Select a suitable figure from the four alternatives that would complete the figure matrix.



|  |  |
| --- | --- |
| (A) | 1 |
| (B) | 2 |
| (C) | 3 |
| (D) | 4 |

132. Select a suitable figure from the four alternatives that would complete the figure matrix.



|  |  |
| --- | --- |
| (A) | 1 |
| (B) | 2 |
| (C) | 3 |
| (D) | 4 |

133. Select a suitable figure from the four alternatives that would complete the figure matrix.



|  |  |
| --- | --- |
| (A) | 1 |
| (B) | 2 |
| (C) | 3 |
| (D) | 4 |

134. Select a suitable figure from the four alternatives that would complete the figure matrix.



|  |  |
| --- | --- |
| (A) | 1 |
| (B) | 2 |
| (C) | 3 |
| (D) | 4 |

135. Select a suitable figure from the four alternatives that would complete the figure matrix.



|  |  |
| --- | --- |
| (A) | 1 |
| (B) | 2 |
| (C) | 3 |
| (D) | 4 |

136. What is the missing number in the following sequence?

2, 12, 60, 240, 720, 1440, ....

|  |  |
| --- | --- |
| (A) | 2880 |
| (B) | 1440 |
| (C) | 720 |
| (D) | 0 |

137. Choose the missing number in the series: 9, 7, 12, 12, 15, 17, 18, 22, ?

|  |  |
| --- | --- |
| (A) | 27 |
| (B) | 21 |
| (C) | 22 |
| (D) | 24 |

138. Which one will replace the question mark in the given series?

 1, 9, 25, 49, **?**, 121

|  |  |
| --- | --- |
| (A) | 100 |
| (B) | 91 |
| (C) | 64 |
| (D) | 81 |

139. Which one will replace the question mark in the given series.

 6, 11, 21, 36, 56, **?**

|  |  |
| --- | --- |
| (A) | 91 |
| (B) | 81 |
| (C) | 51 |
| (D) | 42 |

140. Find the missing number in the series. 8, 27, 125, …..…,1331.

|  |  |
| --- | --- |
| (A) | 512 |
| (B) | 216 |
| (C) | 343 |
| (D) | 169 |

141. Find the missing number in the series. 1, 8, 4, 27, 9, ?

|  |  |
| --- | --- |
| (A) | 8 |
| (B) | 9 |
| (C) | 64 |
| (D) | 16 |

142. Find the missing values in the series. 3, 6, 8, 16, 18, ?

|  |  |
| --- | --- |
| (A) | 28 |
| (B) | 36 |
| (C) | 54 |
| (D) | 34 |

143. A man walks 1 KM to east and then he turns to south and walks a distance of 5 KM. Again, he turns to east and walks 2 KM. After this he turns to North and walks 9 KM. now how far is he from his starting point?

|  |  |
| --- | --- |
| (A) | 3 |
| (B) | 4 |
| (C) | 5 |
| (D) | 7 |

144. The product of the complex numbers (4, 3) and (–7, 6) is?

|  |  |
| --- | --- |
| (A) | (–46, 3) |
| (B) | (46, –3) |
| (C) | (46, 3) |
| (D) | (3, 46) |

145. The value of log2 16 is:

|  |  |
| --- | --- |
| (A) |  |
| (B) | 4 |
| (C) | 8 |
| (D) | 16 |

146. If log*x* *y* = 100 and log2 *x* = 10, then the value of *y* is:

|  |  |
| --- | --- |
| (A) | 210 |
| (B) | 2100 |
| (C) | 21000 |
| (D) | 210000 |

|  |  |  |
| --- | --- | --- |
| 147. | A | They fled to the higher ground |
| B | Soon the floods retired and the villagers were able to return |
| C | The river overflowed its banks |
| D | The rain fell steadily for several days |
| E | The terrified villagers abandoned their homes |

 The proper sequence should be:

|  |  |
| --- | --- |
| (A) | CEBAD |
| (B) | DEBCA |
| (C) | DCEAB |
| (D) | EDABC |

148. The next term in the series ABD, DGK HMS MTB SBL …….… is

|  |  |
| --- | --- |
| (A) | ZKU |
| (B) | ZCA |
| (C) | ZKW |
| (D) | KZU |

149. Select a suitable figure from the four alternatives that would complete the figure matrix.



|  |  |
| --- | --- |
| (A) | 1 |
| (B) | 2 |
| (C) | 3 |
| (D) | 4 |

150. Select a suitable figure from the four alternatives that would complete the figure matrix.



|  |  |
| --- | --- |
| (A) | 1 |
| (B) | 2 |
| (C) | 3 |
| (D) | 4 |

