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**NIELIT**

# NIELIT 2021

Scientist 'B' Exam

CS | IT | ECE

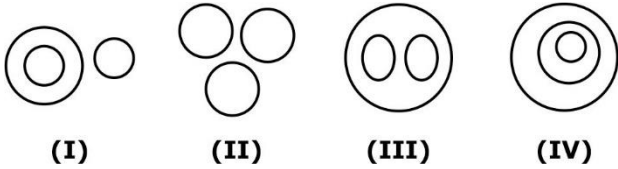
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with Answer Key

**PART-A**

**GENERIC**

**Directions (1-2) :** Use following diagrams to answer questions number 1 to 2:



1. Cloud, River, Mountain :  
 (A) II (B) I  
 (C) IV (D) III
2. Oxygen, Atmosphere, Nitrogen :  
 (A) II (B) I  
 (C) IV (D) III

**Directions (3-5) :** In each of the following questions, one number is wrong in the series. Find out the wrong number.

3. 3, 5, 12, 39, 154, 772, 4634  
 (A) 5 (B) 3  
 (C) 39 (D) 154
4. 701, 348, 173, 85, 41, 19, 8  
 (A) 173 (B) 41  
 (C) 19 (D) 348
5. 1, 9, 25, 49, 86, 121  
 (A) 25 (B) 121  
 (C) 166 (D) 86
6. Rakesh is standing at a point. He walks 20 m towards the East and further 10 m towards the South, then he walks 35 m towards the West and further 5 m towards the North, then he walks 15 m towards the East. What is the straight distance in metres between his starting point and the point where he reached last ?  
 (A) 0 (B) 5  
 (C) 10 (D) 15

**Directions (7-8):** In the given questions below, a statement is given followed by two

conclusions numbered I and II. You have to take the statement to be true. Read both the conclusions and decide which of the two or both follow from the given statement. Give answer:

- (A) If only conclusion I follows.
  - (B) If only conclusion II follows.
  - (C) If either I or II follows.
  - (D) If neither I nor II follows.
7. A study of planning commission reveals boom in revenues. However, this has been of little avail owing to soaring expenditure. In the event, there has been a high dose of deficit financing, leading to marked rise in prices. Large financial outlays year after year had little impact on level of living.
    - I. A boom in revenues leads to rise in prices.
    - II. Large financial outlays should be avoided.
  8. The top management has asked the four managers either to resign by tomorrow or face the order of service termination. Three of them have resigned till this very evening.
    - I. The manager who did not resign yesterday will resign tomorrow
    - II. The management will terminate the service of one manager.

**Directions (9-13) :** Read the information given below and on the basis of the information, select the current alternative for each question given after the information.

There are five persons P, Q, R, S and T. One is football player, one is chess player, one is hockey player. P and S are unmarried ladies and do not participate in any game. None of the ladies plays chess or football. There is a married couple in which T is the husband. Q is the brother of R and is neither a chess player nor a hockey player.

9. Which of the following is the correct group of ladies ?  
(A) P, Q and R                      (B) Q, R and S  
(C) P, Q and S                      (D) P, R and S
10. Who is the football player ?  
(A) Q                                      (B) R  
(C) S                                      (D) T
11. Who is the hockey player ?  
(A) T                                      (B) S  
(C) R                                      (D) Q
12. Who is the wife of T ?  
(A) Q                                      (B) R  
(C) S                                      (D) None of these
13. Who is the chess player ?  
(A) Q                                      (B) R  
(C) S                                      (D) T

**Directions (14-18) : Read the information given below and on the basis of the information, select the correct alternative for each question given after the information.**

M and N are good at hock and volleyball. O and M are good at hocky and baseball. P and N are good at cricket and volleyball. O, P and Q are good at football and basketball.

14. Who is good at cricket, volleyball and hockey ?  
(A) Q                                      (B) P  
(C) O                                      (D) N
15. Who is good at baseball, hockey and volleyball ?  
(A) Q                                      (B) P  
(C) O                                      (D) M
16. Who is good at the largest number of games ?  
(A) Q                                      (B) P  
(C) O                                      (D) N

17. Who among the following is good at four games ?  
(A) Q                                      (B) P  
(C) O                                      (D) M
18. Who is good at cricket, baseball and volleyball ?  
(A) Q                                      (B) P  
(C) O                                      (D) N

**Directions (19-21): Read the information given below and on the basis of the information, select the correct alternative for each question given after the information.**

- (i) Six flats on the floor in two rows facing North and South are allotted to P, Q, R, S, T and U.  
(ii) Q gets a north facing flat and is not next to S.  
(iii) S and U get diagonally opposite flats.  
(iv) R next to U, gets a south facing flat and T gets a north facing flat.
19. The flats of which of the other pairs than SU, is diagonally opposite to each other ?  
(A) PT                                      (B) PQ  
(C) QR                                      (D) TS
20. If the flats of T and P are interchanged, who's flat will be next to that of U ?  
(A) Q                                      (B) T  
(C) P                                      (D) R
21. Whose flat is between Q and S ?  
(A) T                                      (B) U  
(C) R                                      (D) P
22. A cylindrical vessel 60 cm in diameter is partially filled with water. A sphere 30 cm in a diameter is dropped into it. The increase in the level of water in the vessel is :  
(A) 2 cm                                      (B) 3 cm  
(C) 4 cm                                      (D) 5 cm

- 23.** If  $x = p$ ,  $y = q$  then which of the following are  $p$  and  $q$  respectively for pair of equations  $3x - 5y + 10 = 0$  and  $y - 2x - 3 = 0$  :
- (A)  $-1, 1$  (B)  $1, 1$   
 (C)  $1, 0$  (D)  $0, 1$
- 24.** A cuboid of dimension  $24 \text{ cm} \times 9 \text{ cm} \times 8 \text{ cm}$  is melted and smaller cubes of side  $3 \text{ cm}$  are formed. Find how many such cubes can be formed :
- (A) 27 (B) 64  
 (C) 54 (D) 32
- 25.** In a parallelogram ABCD, AP and BP are the angle bisectors of  $\angle DAB$  and  $\angle ABC$ . Find  $\angle APB$  :
- (A)  $85^\circ$  (B)  $90^\circ$   
 (C)  $94^\circ$  (D)  $86^\circ$
- 26.** In a fraction, numerator is increased by 25% and the denominator is diminished by 10%. The new fraction obtained is  $5/9$ , the original fraction is :
- (A)  $2/5$   
 (B)  $5/9$   
 (C)  $3/5$   
 (D) None of the above
- 27.**  $\frac{1}{2} \log_{10} 25 - 2 \log_{10} 3 + \log_{10} 18$  equals :
- (A) 18 (B) 1  
 (C)  $\log_{10}$  (D) None of these
- 28.** A, B and C rented a pasture by paying ₹ 2160 per month. They put 60, 40 and 20 sheep respectively. A sells  $1/3$  of his sheep to B after 6 months and after 3 months more C sells  $2/5$  of his sheep to A. Find the rent paid by C at the end of the year :
- (A) ₹ 4355 (B) ₹ 3888  
 (C) ₹ 2464 (D) ₹ 6224
- 29.** Instead of walking along two adjacent sides of a rectangular field, a boy took a

short cut along the diagonal and saved a distance equal to half the longer side. Then, the ratio of the shorter side to the longer side is :

- (A)  $1/2$  (B)  $2/3$   
 (C)  $1/4$  (D)  $3/4$

- 30.** The students in a class are seated according to their marks in the previous examination. Once it so happens that four of these students get equal marks and therefore the same rank. To decide their seating arrangement, the teacher wants to write down all possible arrangements, one in each of separate bits of paper, in order to choose one of these by lots. How many bits of paper are required ?
- (A) 9 (B) 12  
 (C) 15 (D) 24
- 31.** In a mixture of 60 L, the ratio of milk and water is  $2 : 1$ . If the ratio of milk and water is to be  $1 : 2$ , then the amount of water to be further added must be:
- (A) 40 L (B) 30 L  
 (C) 20 L (D) 60 L
- 32.** A factory employees skilled workers, unskilled workers and clerks in the proportion  $8 : 5 : 1$ , and the wages of a skilled worker, an unskilled worker and a clerk are in the ratio  $5 : 2 : 3$ . When 20 unskilled workers are employed, the total daily wages of all (skilled workers, unskilled workers and clerks) amount to ₹ 318. The wages paid to each category of workers are :
- (A) ₹ 240, ₹ 60, ₹ 18  
 (B) ₹ 200, ₹ 90, ₹ 28  
 (C) ₹ 150, ₹ 108, ₹ 60  
 (D) ₹ 250, ₹ 50, ₹ 18

**Directions (33-34) : Read the information given below and on the basis of the information, select the correct alternative for each question given after the information.**

Year	RURAL		SEMI-URBAN		STATE CAPITAL		METROPOLITAN	
	App	Pass	App	Pass	App	Pass	App	Pass
2015	1652	208	7894	2513	5054	1468	9538	3214
2016	1839	317	8562	2933	7164	3248	10158	4018
2017	2153	932	8139	2468	8258	3159	9695	3038
2018	5032	1798	9432	3528	8529	3628	11247	5158
2019	4915	1668	9784	4015	9015	4311	12518	6328
2020	5628	2392	9969	4263	10725	4526	13624	6449

\* App - Appeared

\*Pass - Passed

- 33.** In which of the following years was the percentage passed to appeared candidates from semi-urban area the least ?  
 (A) 2015 (B) 2016  
 (C) 2017 (D) 2018
- 34.** What approximate value was the percentage drop in the number of semi-urban candidates appeared from 2016 to 2017 ?  
 (A) 15 (B) 10  
 (C) 5 (D) 8
- 35.** "The dress \_\_\_\_\_ him so well that she immediately \_\_\_\_\_ him on his appearance." The words that best fill the blanks in the above sentence are :  
 (A) complemented, complemented  
 (B) complimented, complemented  
 (C) complimented, complimented  
 (D) complemented, complimented
- 36.** He will not only accused of theft \_\_\_\_\_ of conspiracy.  
 (A) rather (B) but also  
 (C) but even (D) rather than

**Each of these questions (37-38) has an idiomatic expression followed by four options. Choose the one closest to its meaning.**

- 37.** Stick to once guns:  
 (A) remain faithful to the cause  
 (B) suspect something  
 (C) make something fail  
 (D) be satisfied
- 38.** Talk shop :  
 (A) Talk about once profession  
 (B) Talk about shopping  
 (C) Ridicule  
 (D) Treat lightly
- 39.** Identify the correct spelling out of the given options.  
 (A) Managable (B) Manageable  
 (C) Mangaeble (D) Managible
- 40.** "Going by the \_\_\_\_\_ that many hands make light work, the school \_\_\_\_\_ \_involved all the students in the task." The words that best fill the blanks in the above sentence are :  
 (A) principle, principal  
 (B) principal, principle  
 (C) principle, principle  
 (D) principal, principal
- 41.** The fisherman, \_\_\_\_\_ the flood victims owed their lives, were rewarded by the govt.  
 (A) whom (B) to which  
 (C) to whom (D) to that
- 42.** Which of the following options is the closest in meaning to the word below ?  
 DELETERIOUS  
 (A) delaying (B) glorious  
 (C) harmful (D) graduating

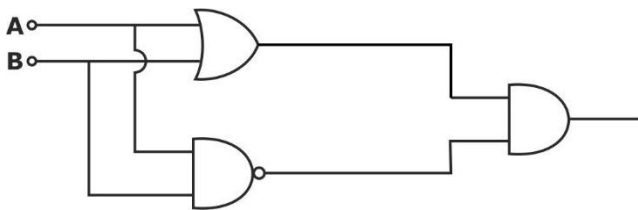
## PART – B

### TECHNICAL

- 43.** A protected variable which can be accessed and changed by particular set of operation is called :
- (A) interrupt (B) monitor  
(C) semaphore (D) IPC
- 44.** Which of the following Boolean expressions is not logically equivalent to all of the rest ?
- (A)  $ab + (cd)' + cd + bd'$   
(B)  $a(b + c) + cd$   
(C)  $ab + ac + (cd)'$   
(D)  $bd' + c'd' + ab + cd$
- 45.** In Software Modeling 'IS A' represents \_\_\_\_\_ relationship.
- (A) Aggregation (B) Over loading  
(C) Inheritance (D) Design Patterns
- 46.** If data stored in AC = 5F h and DR = C2 h what is value of AC after AC^DR operation?
- (A) 9D (B) 42  
(C) DF (D) DE
- 47.** On changing to spherical co-ordinates, the integral  $\iiint_V dy dx dz$ , where V is the volume of the hemisphere  $x^2 + y^2 + z^2 = a^2$ , is equivalent to the integral \_\_\_\_\_ .
- (A)  $\int_0^{2\pi} \int_0^{\frac{\pi}{2}} \int_0^a r^2 \sin \theta dr d\theta d\phi$   
(B)  $\int_0^{2\pi} \int_0^{\pi} \int_0^a r^2 \sin \theta dr d\theta d\phi$   
(C)  $\int_0^{\frac{\pi}{2}} \int_0^{\frac{\pi}{2}} \int_0^a r^2 \sin \theta dr d\theta d\phi$   
(D)  $\int_0^{2\pi} \int_0^{\frac{\pi}{2}} \int_0^a r^2 \cos \theta dr d\theta d\phi$
- 48.** In \_\_\_\_\_ , machine is executing operating system instruction :
- (A) System mode (B) User mode  
(C) Normal mode (D) Safe mode
- 49.** Two important, lexical categories are \_\_\_\_\_ .
- (A) White Space  
(B) Comments  
(C) White Space & Comments  
(D) None of the options
- 50.** What is the value of f(4) using the following C code :
- ```
int f(int k) |
    if (k < 3)
        return k;
    else
        return f(k - 1) * f(k - 2) + f(k - 3);
```
- (A) 5 (B) 6  
(C) 7 (D) 8
- 51.** A binary tree of depth K is called a full binary tree of depth K, if it has exactly \_\_\_\_\_ nodes.
- (A) K (B)  $2^K$   
(C)  $2^K - 1$  (D)  $2^K + 1$
- 52.** What is WPA ?
- (A) wi-fi protected access  
(B) wired protected access  
(C) wired process access  
(D) wi-fi process access
- 53.** A high resolution B/w TV picture contains  $3 \times 10^4$  picture elements and 16 different brightness levels. Pictures are repeated at a rate of 24 per second. All levels have equal likelihood of occurrence and all picture elements are assumed to be independent. What will be the average rate of information carried by this TV picture source ?
- (A) 288 Mbps (B) 24 Mbps  
(C) 132 Mbps (D) 3 Mbps



- 54.** Convert (503203) into  $(?)_4$   
 (A) 12122231 (B) 11000011  
 (C) 21222301 (D) 22323301
- 55.** A bottom-up parser generates \_\_\_\_\_.  
 (A) Rightmost derivation  
 (B) Rightmost derivation in reverse  
 (C) Leftmost derivation  
 (D) Leftmost derivation in reverse
- 56.** Which of the following sorting algorithms has the lowest worst-case complexity?  
 (A) Merge sort (B) Bubble sort  
 (C) Quick sort (D) Insertion sort
- 57.** For a hamming code of parity bit  $m = 5$ , what is the total bits and data bits?  
 (A) (253, 247) (B) (127, 119)  
 (C) (31, 26) (D) (0, 8)
- 58.** The following circuit depicts the implementation of \_\_\_\_\_.



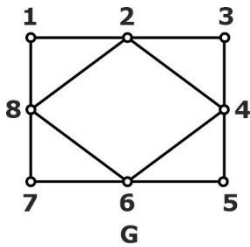
- (A) XOR Gate (B) AND Gate  
 (C) OR Gate (D) NAND Gate
- 59.** Let  $B_n$  denote the number of full binary trees with  $n$  vertices, then a recurrence relation for  $B_n$  is :  
 (A)  $B_n = B_{n-1} + O(1)$   
 (B)  $B_n = 2B_{n-1} + O(1)$   
 (C)  $B_n = B_{n-1} + O(n)$   
 (D)  $B_n = 2B_{n-1} + O(n)$
- 60.** A variable  $p$  is said to be line at point  $m$  if and only if :  
 (A)  $p$  is assigned at point  $m$   
 (B)  $p$  is not assigned at point  $m$   
 (C) Value of  $p$  at  $m$  would be used along some path in the flow graph starting at point  $m$

- (D) Value of  $p$  at  $m$  would be used along some path in the flow graph ending at point  $m$
- 61.** Dijkstra's Algorithm cannot be applied on \_\_\_\_\_.  
 (A) Directed and weighted graphs  
 (B) Graphs having negative weight function  
 (C) Unweighted graph  
 (D) Undirected and unweighted graphs
- 62.** The operating system stores an \_\_\_\_\_ in order to decide to which user to graph which access rights to which file?  
 (A) File allocation table  
 (B) Process control block  
 (C) Access control matrix  
 (D) File control matrix
- 63.** The complement of the expression  $Y = ABC + AB\bar{C} + \bar{A}BC + \bar{A}\bar{B}C$  is :  
 (A)  $(\bar{A} + \bar{B})(A + \bar{C})$  (B)  $(\bar{A} + B)(A + C)$   
 (C)  $(A + \bar{B})(\bar{A} + C)$  (D)  $(A + \bar{B})(A + \bar{C})$
- 64.** The bit rate of digital communication system is  $R$  kbit/s. The modulation used is to 32-QAM. The minimum bandwidth required for ISI free transmission is :  
 (A)  $R/10$  Hz (B)  $R/10$  kHz  
 (C)  $R/5$  Hz (D)  $R/5$  kHz
- 65.** What is the access point (AP) in a wireless LAN ?  
 (A) device that allows wireless devices to connect to a wired network  
 (B) wireless devices itself  
 (C) both device that allows wireless devices to connect to a wired network and wireless devices itself  
 (D) all the nodes in the network

66. The equivalent relational algebra expression for the query "Find the names of suppliers who supplied all the items to all the customers".
- (A)  $\neg t/t \in \text{supplier } (Q(t))$   
 (B)  $\forall t [\text{Sname}] / t \in \text{supplier } (Q(t))$   
 (C)  $t/\neg t \in \text{supplier } (Q(t))$   
 (D)  $\forall t / (-Q(t))$
67. Let  $P(x)$  be "x is perfect",  $F(x)$  be "x is your friend" and the domain be all people. The statement. "At least one of your friends is perfect" is :
- (A)  $\forall x (F(x) \rightarrow P(x))$   
 (B)  $\forall x (F(x) \wedge P(x))$   
 (C)  $\exists x (F(x) \wedge P(x))$   
 (D)  $\exists x (F(x) \rightarrow P(x))$
68. If the Value of Register A = 9B h & Carry = 1. What will be the value of Register A after executing the RORC instruction 1 time ?
- (A) AB h                      (B) CD h  
 (C) EF h                      (D) AC h
69. In a paging scheme if page size is of 2048 bytes, then while accommodating a process of 72, 766 bytes, how much internal fragmentation occurs ?
- (A) 962 bytes              (B) 2048 bytes  
 (C) 1024 bytes              (D) 1086 bytes
70. The \_\_\_\_\_ of a relationship is 0 if there is no explicit need for the relationship to occur or the relationship is optional.
- (A) modality  
 (B) cardinality  
 (C) entity  
 (D) structured analysis
71. The number of 4 digit numbers which contain not more than two different digits is :
- (A) 576                      (B) 567
- (C) 513                      (D) 504
72. Which address is used to identify a process on a host by the transport layer ?
- (A) physical address  
 (B) logical address  
 (C) port address  
 (D) specific address
73. If all transactions obey the \_\_\_\_\_, then all possible interleaved schedules (non-serial schedules) are serializable.
- (A) Lock based protocol  
 (B) Two phase Locking protocol  
 (C) Read-write lock based protocol  
 (D) Time stamp based protocol
74. The determinant of matrix
- $$\begin{bmatrix} 0 & p - q & p - r \\ q - p & 0 & q - r \\ r - p & r - q & 0 \end{bmatrix}$$
- is \_\_\_\_\_.
- (A) 0  
 (B)  $(p - q)(q - r)(r - p)$   
 (C) pqr  
 (D) 3pqr
75. Delivery of the software are product on time is considered as \_\_\_\_\_.
- (A) SDLC  
 (B) User Satisfaction  
 (C) Planning  
 (D) UI/UX design for software
76. What will be the result of following relational algebra expression ?
- $$\pi_{A,B} (\sigma_{C=10} (R))$$
- (A) Print columns A & B from relation R when C = 10  
 (B) Print C = 10 from relation R  
 (C) Print all data of relation R when C = 10  
 (D) Print A, B, C from relation B when C = 10



77. What will be the Eulerian tour of the following graph G ?



- (A) 1 - 2 - 3 - 4 - 5 - 6 - 7 - 8 - 6 - 4 - 2 - 8 - 1
- (B) 1 - 2 - 3 - 4 - 5 - 6 - 7 - 8
- (C) 1 - 2 - 3 - 4 - 5 - 6 - 7 - 8 - 1
- (D) 8 - 7 - 6 - 3 - 3 - 4 - 3 - 2 - 1

78. Which notation gives the lower bound of a function ?

- (A)  $\Theta$  - notation
- (B)  $O$  - notation
- (C)  $\Omega$  - notation
- (D) None of the these

79. Number of entity types participating in E-R diagrams is represented by :

- (A) Degree of relationship
- (B) Structure of relationship
- (C) Instance of relationship
- (D) Role of relationship

80. \_\_\_\_\_ is the elapsed time between the time a program or job is submitted and the time when it is completed.

- (A) Response time
- (B) Turnaround time
- (C) Waiting time
- (D) Throughput

81. TCP/IP model does not have \_\_\_\_\_ layer but OSI model have this layer.

- (A) session layer
- (B) transport layer
- (C) application layer
- (D) network layer

82. Assume that a DBA issued the following create table command :

```
create table A (Aid, .....)  
storage (initial 20480, next 20480,
```

maxextents 8, minextents 3, pctincrease 0);

How many bytes of disk space will be allocated to this file when it is first created?

- (A) 163,840 bytes
- (B) 20480 bytes
- (C) 61,440 bytes
- (D) 8 bytes

83. A wireless network interface controller can work in \_\_\_\_\_ .

- (A) infrastructure mode
- (B) ad-hoc mode
- (C) both infrastructure mode and ad-hoc mode
- (D) WDS mode

84. ABC \* + is the postfix form of :

- (A) A \* B + C
- (B) A \* + BC
- (C) A + B \* C
- (D) Noe of these

85. The number of un-labeled non-isomorphic graphs with four vertices is :

- (A) 12
- (B) 11
- (C) 10
- (D) 9

86. The \_\_\_\_\_ enables the software consumer to develop models of the information domain and functional domain at the same time.

- (A) data flow diagram
- (B) inter transmission diagram
- (C) control specification
- (D) activity diagram

87. Each layer of the CSI model receives services or data from a \_\_\_\_\_ layer.

- (A) below layer
- (B) above layer
- (C) both (A) and (B)
- (D) None of the above

88. 100 elements can be sorted in 100 sec using bubble sort in 400 sec, approximately \_\_\_\_\_ elements can be sorted.

- (A) 100
- (B) 200
- (C) 300
- (D) 400

- 89.** Which type of illustration lists the functionality of whole project ?  
 (A) DED-0 (B) Class Diagram  
 (C) Use case Diagram (D) State Diagram
- 90.** The two numbers represented in Signed 2's complement form are  
 A = 11101101 and B = 11100110, If B is subtracted from A, then value obtained in signed 2's complemented is :  
 (A) 111000101 (B) 00000111  
 (C) 11111000 (D) 10000011
- 91.**  $y = 10 \cos(1800 \pi t) + 20 \cos(2000 \pi t) + 10 \cos(220 \pi t)$ . Find the modulation index ( $\mu$ ) of the given wave  
 (A) 0.3 (B) 0.5  
 (C) 0.7 (D) 1
- 92.** Let the random variable X has a missed distribution with probability  $P(X = 0) = \alpha$ , and the density function  

$$f_x(x) = \begin{cases} \beta x^2(1-x), & 0 < x < 1 \\ 0, & \text{otherwise} \end{cases}$$
 If the expectation of X is  $\alpha$ , then the value of  $4\alpha + \beta$  is equal to :  
 (A) 9/2 (B) 6  
 (C) 9 (D) 5/2
- 93.** An analog signal having 3 kHz bandwidth is sampled at 1.5 times the Nyquist rate. The successive samples are statistically independent. Each sample is quantized into one of 256 equally likely levels. The information rate of the source is :  
 (A) 3 kbps (B) 72 kbps  
 (C) 256 kbps (D) 9 kbps
- 94.** The spectral efficiency of QPSK null to null having a width 4 Hz will be :  
 (A)  $\frac{1}{2}$  (B) 1  
 (C)  $\frac{1}{4}$  (D) 4
- 95.** Following are implicitly provided in C programming language :  
 (A) Output facility  
 (B) Input facility  
 (C) Both Input and Output facility  
 (D) No input and Output facility
- 96.** If integer means to 2 bytes of storage then maximum value of a signed integer is :  
 (A)  $2^{14} - 1$  (B)  $2^{13} - 1$   
 (C)  $2^{14}$  (D)  $2^{15}$
- 97.** Write Recurrence of Quick sort in worst case.  
 (A)  $T(n) - T(n - 1) - 1$   
 (B)  $T(n) - T(n - 1) - n$   
 (C)  $T(n) - 27(n - 1) + n$   
 (D)  $T(n) = T(n/3) + T(2n/2) + n$
- 98.** A language L is recognizable by a turing machine M if and easily if L is a \_\_\_ language.  
 (A) Type 0 (B) Type 1  
 (C) Type 2 (D) Type 3
- 99.** For which one of the following sequences CANNOT be a degree sequence of a graph of order 5 ?  
 (A) 3, 3, 2, 2, 2 (B) 3, 3, 3, 3, 2  
 (C) 3, 3, 3, 2, 2 (D) 4, 3, 3, 2, 2
- 100.** In the wire of the logical address space is  $2^n$  and the page wire is  $2_n$ -addressing units, then the high order m-n bits of a logical address designate the \_\_\_\_\_.  
 (A) offset  
 (B) page no  
 (C) frame no  
 (D) physical address
- 101.** One root of  $x^3 - x - 4 = 0$  lies in (1, 2). In bisection method, after first iteration the root lies in the interval \_\_\_\_\_.  
 (A) (1, 1.5) (B) (1.5, 2)  
 (C) (1.25, 1.75) (D) (1.75, 2)

**102.** \_\_\_\_\_ is the class of decisions problem that can be solved by non-deterministic polynomial

- (A) NP
- (B) P
- (C) Hard
- (D) Complex

**103.** When factorizing the Boolean equation  $Y = A\bar{B} + AB$ , the result will be

- (A)  $A\bar{B}$
- (B)  $AB$
- (C)  $A$
- (D)  $B$

**104.** Integration testing, unit testing & system Testing are \_\_\_\_\_ .

- (A) Fundamental logic of testing
- (B) Level Testing
- (C) Core Testing
- (D) Testing

**105.** DELETE (FROM) table (WHERE condition]; from the syntax if you commit the WHERE clause.

- (A) All rows in the table are deleted
- (B) It will give you an error
- (C) No rows will be deleted
- (D) Only one row will be deleted

**106.** Match the following :

|    | List-I                         |    | List-II             |
|----|--------------------------------|----|---------------------|
| W. | Condition coverage             | 1. | Block box testing   |
| X. | Equivalence class partitioning | 2. | System testing      |
| Y. | Volume testing                 | 3. | White-box testing   |
| Z. | Alpha testing                  | 4. | Performance testing |

- (A) W-2, X-3, Y-1, Z-4
- (B) W-3, X-4, Y-2, Z-1
- (C) W-3, X-1, Y-4, Z-2
- (D) W-3, X-1, Y-2, Z-4

**107.** The bit transmission rate in a pulse coded modulation system with number of

quantization levels 8 and maximum signal frequency 4000 Hz is given by :

- (A) 16 kbps
- (B) 24 kbps
- (C) 32 kbps
- (D) 8 kbps

**108.** When a cache is 10 times faster than main memory, and the cache can be used 70% of the time, how much speed can be gained using cache ?

- (A)  $\approx 10$
- (B)  $\approx 0.3$
- (C)  $\approx 0.7$
- (D)  $\approx 2.7$

**109.** Who developed standards for the OSI reference model ?

- (A) ANSI – American National Standards Institute
- (B) ISO – International Standards Organization
- (C) IEEE – Institute of Electrical and Electronics Engineering
- (D) ACM – Association for Computing Machinery

**110.**  $(a + b)^2$  corresponds to the language :

- (A)  $\{a + b, a + b\}$
- (B)  $\{aa, ab, ba, bb\}$
- (C)  $\{abab, baba\}$
- (D)  $\{a + b, (a + b)^2\}$

**111.** If  $z = \cos\left(\frac{x}{y}\right) + \sin\left(\frac{x}{y}\right)$ , then  $xz_x + yz_y$  is equal to \_\_\_\_\_ .

- (A)  $z$
- (B)  $2z$
- (C)  $4z$
- (D)  $0$

**112.** The following grammar is an example of \_\_\_\_\_ .

- $A \rightarrow a A B C$
- $CB \rightarrow B c$
- $A \rightarrow a b c$
- $b B \rightarrow b b$
- $B \rightarrow c b a$

- (A) Type 0 Grammar
- (B) Type 1 Grammar
- (C) Type 2 Grammar
- (D) Type 3 Grammar

**113.** What does the following code do ?

```
int a, b;  
a = a + b;  
b = a - b;  
a = a - b;
```

- (A) leaves a and b unchanged
- (B) a doubles and stores in a
- (C) b doubles and stores in a
- (D) Exchanges a and b

**114.** The maximum number of times the decrease key operation performed in Dijkstra's algorithm will be equal to \_\_\_\_\_

- (A) Total number of vertices
- (B) Total number of edges
- (C) Number of vertices - 1
- (D) Number of edges - 1

**115.** If developer wants to transform model into source code is also known as \_\_\_\_\_.

- (A) Backward Testing/Engineering
- (B) Forward Engineering
- (C) Forward Testing
- (D) Reverse Engineering

**116.** The following type definition is for \_\_\_\_\_.

```
type pointer = node  
  node y record  
    data : integer  
    link : pointer  
  end;
```

- (A) Structure
- (B) Link List
- (C) Stack
- (D) Doubly link list

**117.** A sequence of statement of the form  $x = y$  op 1 is called a :

- (A) Three address code
- (B) Syntax tree
- (C) Postfix rotation
- (D) Operator

**118.** The channel capacity of a noise free channel having M symbols is given by :

- (A) M
- (B)  $2^M$
- (C)  $\log M$
- (D) None of these

**119.** If A and B are two sets. A binary relation from set A and set B is any subset of the \_\_\_\_\_ .

- (A) Cartesian Product  $A \times B$
- (B) Union  $A \cup B$
- (C) Intersection  $A \cap B$
- (D) Addition  $A + B$

**120.** Which is the layer that converts Packets to Frames and Frames to Packets in the OSI model ?

- (A) Physical Layer
- (B) Data Link Layer
- (C) Network Layer
- (D) Transport Layer

## ANSWER KEY

- 1. A
- 2. D
- 3. C
- 4. D
- 5. D
- 6. B
- 7. D
- 8. C
- 9. D
- 10. A
- 11. C
- 12. B
- 13. D
- 14. D
- 15. D
- 16. B/C
- 17. B/C
- 18. None
- 19. **B**
- 20. **D**
- 21. A
- 22. **D**
- 23. A
- 24. B
- 25. B
- 26. A
- 27. B
- 28. B
- 29. D
- 30. D
- 31. D
- 32. A
- 33. C
- 34. C
- 35. D
- 36. B
- 37. A
- 38. A
- 39. B
- 40. A

- 41. C
- 42. C
- 43. C
- 44. D
- 45. C
- 46. A
- 47. A
- 48. A
- 49. C
- 50. A
- 51. C
- 52. A
- 53. A
- 54. D
- 55. B
- 56. A
- 57. C
- 58. A
- 59. B
- 60. C
- 61. B
- 62. C
- 63. A
- 64. B
- 65. A
- 66. B
- 67. C
- 68. B
- 69. A
- 70. A
- 71. A
- 72. C
- 73. B
- 74. A
- 75. B
- 76. A
- 77. A
- 78. C
- 79. A
- 80. B

- 81. A
- 82. C
- 83. C
- 84. C
- 85. B
- 86. A
- 87. C
- 88. B
- 89. C
- 90. B
- 91. D
- 92. Ans:0 (None of the option match)
- 93. B
- 94. B
- 95. D
- 96. A
- 97. B
- 98. A
- 99. C
- 100. B
- 101. B
- 102. A
- 103. C
- 104. B
- 105. A
- 106. C
- 107. B
- 108. D
- 109. B
- 110. B
- 111. D
- 112. A, B
- 113. D
- 114. B
- 115. D
- 116. B
- 117. A
- 118. C
- 119. A
- 120. B

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