88013

Booklet Serial No.

DO NOT BREAK THE SEAL OF THE BOOKLET UNTIL YOU ARE TOLD TO DO SO

QUESTION BOOKLET

SERIES : I

Subjects : General English and Computer Science

Full Marks : 300 **Time Allowed : 2½ Hours**

Read the following instructions carefully before you begin to answer the questions.

INSTRUCTIONS TO CANDIDATES

1. This Booklet contains 150 Questions to be answered in a separate OMR Answer Sheet using Black Ballpoint Pen in the following two Parts :

Part—A	**:**	**General English**	**:**	**50 questions**
Part—B	**:**	**Computer Science**	**:**	**100 questions**

2. **All** questions are compulsory.
3. You will be supplied the Answer Sheet separately by the Invigilator. You must complete the details of particulars asked for.
4. Answers must be shown by completely blackening the corresponding circles in the Answer Sheet against the relevant question number by Black Ballpoint Pen. OMR Answer Sheet without marking Series shall not be evaluated.

   Example **:**

   Suppose the following question is asked :

   The Capital of Meghalaya is

   (A) Guwahati

   (B) Kohima

   (C) Shillong

   (D) Delhi

   You will have four alternatives in the Answer Sheet for your response corresponding to each question of the Question Booklet as below :

   Ⓐ Ⓑ Ⓒ Ⓓ

   In the above illustration, if your chosen response is alternative (C), i.e., Shillong, then the same should be marked on the Answer Sheet by blackening the relevant circle with a Black Ballpoint Pen only as below :

   Ⓐ Ⓑ ● Ⓓ

   The example shown above is the only correct method of answering.
5. Answer the questions as quickly and as carefully as you can. Some questions may be difficult and others easy. Do not spend too much time on any one question.
6. There will NOT be any negative marking for wrong answers.
7. The Answer Sheet must be handed over to the Invigilator before you leave the Examination Hall.
8. No Rough Work is to be done on the Answer Sheet. Space for Rough Work has been provided in the Question Booklet.

SEAL

PART—A : GENERAL ENGLISH

(*Marks* : 100)

Each question carries **2** marks

***Directions* (Q. Nos. 1–10) : Fill in the blanks with the appropriate preposition from the options given.**

1. Alice fell _____ the stairs and hurt her ankle.

(A) from

(B) off

(C) down

(D) on

2. You should always wash your hands _____ handling food.

(A) after

(B) in

(C) on

(D) before

3. Jack sat _____ the fire.

(A) beside

(B) by

(C) besides

(D) before

4. The boys hid _____ the door.

(A) by

(B) beside

(C) behind

(D) at

5. The slope was too steep to cycle _____.

(A) off

(B) up

(C) down

(D) on

6. Keep _____ from the electric fence.

(A) out

(B) apart

(C) away

(D) off

7. I may not get _____ the exam.

(A) over

(B) to

(C) through

(D) in

8. I'll meet you _____ the cinema.

(A) outside

(B) in

(C) at

(D) before

9. Hard work is the key _____ success.

(A) into

(B) toward

(C) to

(D) for

10. Joe seemed pleased _____ the gift I brought him.

(A) about

(B) over

(C) with

(D) at

Directions **(Q. Nos. 11–20) : In these questions, out of the four alternatives given, choose the one which is opposite in meaning to the underlined word(s).**

11. The monks have chosen to live a Spartan life.

(A) austere

(B) complicated

(C) luxurious

(D) frugal

12. This meat is extremely tender.

(A) raw

(B) supple

(C) breakable

(D) tough

13. The cheering swelled through the hall.

(A) aggravated

(B) surged

(C) slumped

(D) plumped

14. The new system expanded the role of family doctors.

(A) magnified

(B) contracted

(C) distended

(D) diffused

15. The company is glad to be in the vanguard of scientific progress.

(A) avant-garde

(B) precursor

(C) rearguard

(D) harbinger

16. During winter the seeds lie dormant in the soil.

(A) stative

(B) passive

(C) restive

(D) active

17. She was too drunk to remember anything about the party.

(A) maudlin

(B) soused

(C) sober

(D) razed

18. Company losses reached their nadir in 2020.

(A) zenith

(B) vertex

(C) butt

(D) trough

19. She is so reticent about her achievements.

(A) laconic

(B) discreet

(C) uptight

(D) garrulous

20. A placid parent makes a placid home.

(A) unsentimental

(B) detrimental

(C) judgemental

(D) temperamental

Directions **(Q. Nos. 21–30) In these questions, out of the four alternatives given, choose the one which best expresses the meaning of the underlined word(s).**

21. In my view, this book would deprave young children.

(A) extol

(B) laud

(C) aggrandize

(D) corrupt

22. The marriage had been distinctly dodgy for a long time.

(A) exemplary

(B) veracious

(C) ingenuous

(D) dubious

23. Despite these measures, the economy remains in the doldrums.

(A) morose

(B) subdued

(C) buoyant

(D) lively

24. The evidence was totally fabricated.

(A) specious

(B) scrupulous

(C) indubitable

(D) bona fide

25. The report is full of howlers.

(A) stupid mistakes

(B) misprints

(C) inaccuracies

(D) laughs

26. The patient was moribund by the time the doctor arrived.

(A) poised

(B) recuperating

(C) nonchalant

(D) in extremis

27. Considerations of safety override all other concerns.

(A) endorse

(B) legitimize

(C) accede

(D) nullify

28. She became neurotic about keeping the house clean.

(A) fidgety

(B) deviant

(C) disturbed

(D) frightened

29. Most newspapers are politically partisan.

(A) narrow-minded

(B) one-sided

(C) open-minded

(D) non-discriminatory

30. Negotiations have reached an impasse.

(A) protraction

(B) prolongation

(C) perpetuation

(D) cessation

***Directions* (Q. Nos. 31–40) : In these questions, some of the sentences have errors and some have none. Find out which part of a sentence, A, B, C has an error and select that part as an answer. If there is no error, then D is the answer.**

31. If your braces (A) / is loose your (B) / trousers come down. (C) / No error (D)

32. This misogynist hates (A) / all mother-in-laws (B) / and house-maids . (C) / No error (D)

33. He hasn't a (A) / beautiful furniture (B) / in his house. (C) / No error (D)

34. I believe (A) / he is more wicked (B) / than any living man. (C) / No error (D)

35. They have (A) / a little money (B) / so they're not poor. (C) / No error (D)

36. Is the old / always wiser /
(A) (B)

than the young? / No error
(C) (D)

37. What nonsense / to have a picnic /
(A) (B)

in such a bad weather ! / No error
(C) (D)

38. That is the girl / whom we all agree /
(A) (B)

is very beautiful. / No error
(C) (D)

39. He was so afraid / that his knees /
(A) (B)

knocked one another. / No error
(C) (D)

40. There wasn't much furniture /
(A)

in the room—just /
(B)

a table and, few chairs. /
(C)

No error
(D)

***Directions* (Q. Nos. 41–50) : In the following questions, sentences are given with blanks to be filled in with appropriate and suitable word. Four alternatives are suggested for each question. Choose the correct alternative out of the four.**

41. The police tried to _____ her fears but failed.

(A) alley

(B) allay

(C) ally

(D) alle

42. The village has always maintained a/an _____ independence.

(A) sturdy

(B) unwieldy

(C) trendy

(D) mustardy

43. The journey soon became _____.

(A) tedious

(B) porous

(C) malicious

(D) tenuous

44. I'm taking History as a _____ subject.

(A) complementary

(B) supplementary

(C) tertiary

(D) subsidiary

45. We made a _____ arrangement to meet on Friday.

(A) speculative

(B) tentative

(C) probationary

(D) provisional

46. Julia had to _____ an urge to stroke his hair.

(A) subdue

(B) perdue

(C) crush

(D) curb

47. The play was greeted with _____ applause.

(A) insipid

(B) limpid

(C) tepid

(D) intrepid

48. The boys were older now; she could _____ a bit, and not get home until four.

(A) tardy

(B) tawdry

(C) tarry

(D) tally

49. As the whisky took effect, he gradually fell into a drunken _____.

(A) stupor

(B) outpour

(C) languor

(D) torpor

50. I invited them to dinner, a _____ of goodwill.

(A) feature

(B) posture

(C) vesture

(D) gesture

PART—B : COMPUTER SCIENCE

(*Marks* : 200)

Each question carries **2** marks

51. The range of signed decimal numbers that can be represented by 7-bit 1's complement representation is

(A) −64 to +63

(B) −63 to +63

(C) −127 to +128

(D) −128 to +127

52. Decimal 54 in hexadecimal and BCD number systems are

(A) 63 and 10000111 respectively

(B) 36 and 01010100 respectively

(C) 66 and 01010100 respectively

(D) 36 and 00110110 respectively

53. $(0{\cdot}25)_{10}$ in binary number system is

(A) 0·01

(B) 0·11

(C) 0·001

(D) 0·101

54. Which of the following is the De Morgan's law?

(A) $A \cdot A = A$

(B) $A(A + B) = A$

(C) $A + 1 = 1$

(D) $(A + B)' = A' \cdot B'$

55. An OR gate has six inputs. How many input words are there in its truth table?

(A) 6

(B) 36

(C) 32

(D) 64

56. The sum of product forms can be implemented by using

(A) AND–OR

(B) NAND–NAND

(C) NOR–NOR

(D) Both (A) and (B)

57. The dual form of the expression $AB + A'C + BC$ is

(A) $(A + B)(A + C)(B + C)$

(B) $(A + B)(A' + C)(B + C)$

(C) $(A' + B)(A + C)(B + C)$

(D) $AB + AC + BC$

58. To implement an n variable function, the minimum order of the multiplexer is

(A) $2^n \times 1$

(B) $2^{n-1} \times 1$

(C) $(2^n - 1) \times 1$

(D) $(2^{n-1} - 1) \times 1$

59. Which of the following addressing modes requires more number of memory accesses?

(A) DIRECT

(B) IMMEDIATE

(C) INDIRECT

(D) IMPLIED

60. Which of the following is ***not*** a characteristic of RISC computers?

(A) Simplified set of instructions

(B) Fewer addressing modes

(C) Memory access limited to load and store instructions

(D) Variable length instruction format

61. Which of the following states cannot be reached from a running state in a process state transition diagram?

(A) Ready

(B) New

(C) Exit

(D) Blocked

62. Which of the following need(s) ***not*** be saved on a context switch between processes?

(A) General purpose registers

(B) Translation look-aside buffer

(C) Program counter

(D) All of the above

63. For each thread in a multithreaded process, there is a separate

(A) process control block

(B) user address space

(C) user and kernel stack

(D) kernel space only

64. In a virtual memory system using FIFO page replacement, increasing the number of page frames will

(A) always increase the number of page faults

(B) always decrease the number of page faults

(C) not affect the number of page faults

(D) sometime increase the number of page faults

65. The problems that may arise when multiple processes communicate with each other to achieve synchronization are

(A) deadlock

(B) starvation

(C) Both (A) and (B)

(D) Neither (A) nor (B)

66. Semaphores are used to solve the problem of

(A) race condition

(B) multitasking

(C) mutual exclusion

(D) Both (A) and (C)

67. Hold and wait is a technique for

(A) deadlock prevention

(B) deadlock avoidance

(C) deadlock detection

(D) None of the above

68. Consider the following page trace :

4, 3, 2, 1, 4, 3, 5, 4, 3, 2, 1, 5

Number of frames for the Job $M = 4$. The page fault ratio using FIFO technique will be

(A) 63%

(B) 75%

(C) 83%

(D) 94%

69. Match List–I with List–II and select the correct answer using the codes given below the Lists :

List–I	*List–II*
a. Disk scheduling	1. Round robin
b. Batch processing	2. SCAN
c. Time sharing	3. LIFO
d. Interrupt processing	4. FIFO

Codes :

(A)	a	b	c	d
	3	4	2	1
(B)	a	b	c	d
	4	3	2	1
(C)	a	b	c	d
	2	4	1	3
(D)	a	b	c	d
	2	1	4	3

70. If 32-bit logical addressing is used for pages whose maximum size is 512 KB, what is the maximum number of pages that can be addressed?

(A) 4096

(B) 2048

(C) 8192

(D) 16384

71. In a mesh topology with 10 nodes, each node requires _____ port(s).

(A) 1

(B) 9

(C) 10

(D) 11

72. Which of the following are issues concerning data link layer?

1. Ensures that the transmission facility is free of undetected transmission errors
2. Regulates the transmission rates to match the receiver's capabilities
3. Ensures the design of the line such that when a '1' bit is sent, it is always received as '1' bit at receivers end

Select the correct answer.

(A) Only 1, 2

(B) Only 2, 3

(C) Only 1, 3

(D) 1, 2, 3

73. The Hamming distance between 001111 and 010011 is

(A) 1

(B) 2

(C) 3

(D) 4

74. What does a routing algorithm perform?

(A) Decides if incoming packet should be further corrected for transmission errors

(B) Adds checksum bits to packets

(C) Encrypts the packets

(D) Decides the output line on which the incoming packet should be transmitted

75. In selective flooding

(A) packets are sent in all outgoing lines

(B) packets are sent in only on those lines that are approximately in the right direction

(C) Both (A) and (B)

(D) None of the above

76. Which of the following specifies the correct sequence of steps to route packets to mobile hosts?

1. Sender is given foreign agent's address
2. Packet is sent to mobile host's home address
3. Packet is tunnelled to foreign agent
4. Subsequent packets are tunnelled to the foreign agent

Select the correct answer.

(A) 1, 2, 3, 4

(B) 2, 3, 4, 1

(C) 2, 3, 1, 4

(D) 3, 4, 1, 2

77. If a TCP connection is transferring a file of 5000 bytes, the first byte is numbered 1001. What are the sequence numbers for each segment if data is sent in five segments, each carrying 1000 bytes?

(A) 1001, 2001, 3001, 4001, 5001

(B) 1000, 2000, 3000, 4000, 5000

(C) 5000, 6000, 7000, 8000, 9000

(D) 5001, 6001, 7001, 8001, 9001

78. Numbers of bytes for header in UDP segment and TCP segment are

(A) 8 bytes, 20 bytes

(B) 16 bytes, 16 bytes

(C) 32 bits, 20 bits

(D) None of the above

79. Standard protocols like HTTP, SMTP, NNTP are part of

(A) presentation layer

(B) application layer

(C) session layer

(D) network layer

80. In Go-Back-N Automatic Repeat Request (ARQ), if frames 4, 5, 6 are received successfully, the receiver will send which ACK number to the sender?

(A) 5

(B) 6

(C) 7

(D) 4

81. Testing method that is normally used as the acceptance test for a software system is

(A) regression testing

(B) integration testing

(C) unit testing

(D) alpha testing

82. In the context of modular software design, which one of the following combinations is desirable?

(A) High cohesion and high coupling

(B) High cohesion and low coupling

(C) Low cohesion and high coupling

(D) Low cohesion and low coupling

83. The data flow model of an application mainly shows

(A) the underlying data and the relationship among them

(B) processing requirement and the flow of data

(C) decision and control information

(D) communication network structure

84. A context diagram

(A) is a DFD which gives an overview of the system

(B) is a DFD that gives details of the system

(C) is a DFD that gives highest level of details of the system

(D) is not a part of DFDs

85. Which of the following statements is/are true?

1. A data flow cannot connect two processes.
2. A data flow cannot connect two distinct data stores.
3. Data stores cannot communicate with a process.
4. Data flow cannot connect two distinct external entities.

Select the correct answer.

(A) Only 2

(B) 2 and 4

(C) 2 and 3

(D) 1 and 4

86. Which of the following is ***not*** an estimation metric for project size?

(A) LOC

(B) Function point

(C) Feature point

(D) None of the above

87. For a COCOMO model, organic projects are

(A) projects having small teams with good experience, working with less than rigid requirements

(B) projects having medium teams with mixed experience, working with more rigid requirements

(C) projects developed with a set of tight constraints with large and highly experienced teams

(D) None of the above

88. The type of coupling where one module controls the flow of another module is

(A) content coupling

(B) common coupling

(C) control coupling

(D) flow coupling

89. If elements of a module are related, then this is known as

(A) logical cohesion

(B) temporal cohesion

(C) communicational cohesion

(D) procedural cohesion

90. Which of the following statements is/are true regarding the spiral model of software development?

(A) Risks associated with a proposed solution are identified in the spiral model

(B) A prototype of the best solution is developed in the spiral model

(C) Using the spiral model, software is developed in a series of evolutionary releases

(D) All of the above

91. For the program segment given below, if input is given as 10, what will be the output?

```
main()
{
int n;
printf("%d", scanf("%d", & n));
}
```

(A) 10

(B) 1

(C) 2

(D) 0

92. What is the output of the code segment given below?

```
int a;
printf("%d", a);
```

(A) 0

(B) 2

(C) Garbage value

(D) 3

93. Which of the following operators in C does not have associativity from the right to left?

(A) =

(B) + =

(C) postfix++

(D) >

94. What will be the value of count after executing the below program?

```
main() {
int count=10, digit=0;
while (digit<=9) {
printf("%d\n", ++count);
++digit;
}
}
```

(A) 10

(B) 11

(C) 20

(D) 21

95. Which of the following is an exit controlled loop?

(A) For

(B) While

(C) Do-while

(D) Switch

96. An external variable

(A) is globally accessible by all functions

(B) has a declaration "extern" associated with it when declared within a function

(C) will be initialized to 0, if not initialized

(D) All of the above

97. In the recursive function given below, if get (6) function is being called in main(), then how many times will the get() function be invoked before returning to the main()?

```
void get(int n)
{
if (n<1) return;
get(n–1);
get(n–3);
printf("%d", n);
}
```

(A) 15

(B) 25

(C) 35

(D) 45

98. What is the output of the following program?

```
main()
{
const int x=10;
int *ptrx;
ptrx=&x;
*ptrx=20;
printf("%d", x);
}
```

(A) 5

(B) 10

(C) Error

(D) 20

99. An $m \times n$ matrix is stored in column major form. The expression which accesses the (ij)th entry of the same matrix is

(A) $n \times (j-1) + i$

(B) $m \times (j-1) + i$

(C) $n \times (m-1) + i \times j$

(D) $m \times (n-1) + j$

100. Consider the following program in C language :

```
# include<stdio.h>
main()
{
int i;
int *pi=&i;
scanf("%d", pi);
printf("%d\n", i+5);
}
```

Which one of the following is true?

(A) Compilation error

(B) Run-time error

(C) The output is 5 more than the address of variable i

(D) The output is 5 more than the integer value entered as input

101. The five items *P*, *Q*, *R*, *S* and *T* are pushed in a stack, one after another starting from *P*. The stack is popped four times, and each element is inserted in a queue. The two elements are deleted from the queue and pushed back on the stack. The contents of the stack is (in the order of bottom to top)

(A) *PTS*

(B) *PST*

(C) *TRQ*

(D) *TQR*

102. When a new element is inserted in the middle of linked list, then the references of which node/nodes are to be adjusted/updated?

(A) All nodes that appear after the new node

(B) All nodes that appear before the new node

(C) Head and tail nodes

(D) The node that appears after the new node

103. In a priority queue, the element to be deleted first is the element

(A) with highest priority

(B) with lowest priority

(C) at the beginning of the queue

(D) at the end of the queue

104. The average case time complexity of heap sort is

(A) $O(\log n)$

(B) $O(n \log n)$

(C) $O(n^2)$

(D) $O(n)$

105. The result of evaluating the postfix expression 10 5 + 60 6 /* 8 – is

(A) 96

(B) 104

(C) 98

(D) 12

106. What is the maximum height of any AVL tree with 7 nodes assuming that the height of a tree with a single node is 0?

(A) 2

(B) 3

(C) 4

(D) 5

107. A full binary tree with n internal nodes contains

(A) $2n$ nodes

(B) $\log n$ (base 2) nodes

(C) $n+1$ nodes

(D) $2n+1$ nodes

108. The postfix form of the expression $(A+B)*(C-D)/E$ is

(A) $AB+CD-*E/$

(B) $AB+CD-E*/$

(C) $CD-AB+*E/$

(D) $AB-CD-*E/$

109. Arrange the following orders of growth in ascending order.

(A) $O(1) > O(\log n) > O(n) > O(n^2)$

(B) $O(n) > O(1) > O(\log n) > O(n^2)$

(C) $O(\log n) > O(n) > O(1) > O(n^2)$

(D) $O(n^2) > O(n) > O(\log n) > O(1)$

110. Which one of the following sorting algorithms requires the minimum number of swapping operations?

(A) Quicksort

(B) Insertion sort

(C) Selection sort

(D) Heapsort

111. The example of derived attribute is

(A) name if age is given as other attribute

(B) age if date_of_birth is given as other attribute

(C) Both (A) and (B)

(D) None of the above

112. In entity relationship diagram, double lines indicate

(A) cardinality

(B) relationship

(C) partial participation

(D) total participation

113. Which of the following is true?

(A) Primary key $\subset$ Super key $\subset$ Candidate key

(B) Candidate key $\subset$ Super key $\subset$ Primary key

(C) Primary key $\subset$ Candidate key $\subset$ Super key

(D) Super key $\subset$ Primary key $\subset$ Candidate key

114. Given the tables, Table_A and Table_B with the following values :

Table_A	
X	Y
a1	b1
a2	b1
a1	b2
a2	b2

Table_B	
Y	
b1	
b2	

The result of Table_A÷Table_B is

(A) (a1,a2)

(B) a1

(C) a2

(D) ϕ

115. Consider the join of a relation A with a relation B. If A has m tuples and B has n tuples, then the maximum and minimum sizes of the join respectively are

(A) mn and $m+n$

(B) $m+n$ and $(m-n)$

(C) mn and m

(D) mn and 0

116. Consider the given relation $R(A, B, C, D)$ and functional dependencies :

$FD = \{AB \rightarrow C,\ C \rightarrow B,\ C \rightarrow D\}$

Determine the key, prime attributes and non-prime attributes.

(A) $\{A\}, \{AB\}, \{CDE\}$

(B) $\{AB, AC\}, \{ABC\}, \{D\}$

(C) $\{AB, BC\}, \{ABC\}, \{D\}$

(D) $\{AB, AC\}, \{AB\}, \{D\}$

117. Integrity constraints ensure that changes made to the database by authorized users do not result in

(A) loss of FDs

(B) loss of keys

(C) loss of tables

(D) loss of data consistency

118. If a relation is in 2NF, then it can be in 3NF by removing

(A) repeating groups

(B) partial dependencies

(C) transitive dependencies

(D) overlapping dependencies

119. Which one of the following is conflict operation?

(A) Reads and writes from the same transaction

(B) Reads and writes from different transactions

(C) Reads and writes from different transactions on different data items

(D) Reads and writes from different transactions on same data

120. The schedule $S: R_1(x), R_2(x), W_1(x), W_2(x)$ is

(A) conflict serializable

(B) view serializable

(C) Both (A) and (B)

(D) Neither (A) nor (B)

121. If 4 bits are used to represent sequence numbers for flow control, what are sender and receiver window sizes in Go-Back-N?

(A) 16, 1

(B) 15, 1

(C) 15, 2

(D) 16, 8

122. Which of the following represents the polynomial $x^5 + x^4 + x^0$ using the CRC?

(A) 110000

(B) 110001

(C) 110010

(D) 110101

123. The tag used for creating a row in an HTML table is

(A) <TR>

(B) <TD>

(C) <Table row>

(D) <TH>

124. Consider the regular expression $R = 10 + (0 + 11)0^* 1$. The minimum number of states in any DFA accepting this regular expression is

(A) 5

(B) 4

(C) 3

(D) 6

125. The language L that is generated over $\Sigma = \{0, 1\}$ for regular expression $L(r) = (0 + 10)^* 1(1 + 10)^*$ represents

(A) any string whose number of 1's length is greater than or equal to 3

(B) any string that has no substring 110

(C) any string that has no substring 00 after first 11

(D) any string that has only one occurrence of substring 010

126. The grammar $G1$ is defined with productions $S \rightarrow 0A|1B$, $A \rightarrow 0AA|1S|1$, $B \rightarrow 1BB|0S|0$. The grammar $G2$ is defined with productions $S \rightarrow AB|aaB$, $A \rightarrow A|Aa$, $B \rightarrow b$. Which grammar is/are ambiguous?

(A) Only $G1$

(B) Only $G2$

(C) Both $G1$ and $G2$

(D) Both $G1$ and $G2$ are unambiguous

127. The context-free languages are closed under

1. Intersection
2. Union
3. Complementation
4. Kleene star

Select the correct answer using the codes given below.

(A) 1 and 4

(B) 1 and 2

(C) 2 and 4

(D) 3 and 4

128. The language accepted by a pushdown automata is

(A) type 0

(B) type 1

(C) type 2

(D) type 3

129. A context-free grammar is recognized by

(A) regular expression

(B) finite-state automata

(C) pushdown automata

(D) None of the above

130. The pumping lemma is used to prove that

(A) a language is regular

(B) a language is not regular

(C) a language is context free

(D) a language is context sensitive

131. Consider the grammar :

$S \rightarrow a$

$S \rightarrow ab$

The given grammar is

(A) $LR(1)$ only

(B) $LL(1)$ only

(C) Both $LR(1)$ and $LL(1)$

(D) $LR(1)$ but not $LL(1)$

132. The First and Follow sets for the grammar $S \rightarrow SS+|SS^*|a$ are

(A) First $(S) = \{a\}$ and Follow $(S) = \{+, *, \$\}$

(B) First $(S) = \{+\}$ and Follow $(S) = \{+, *, \$\}$

(C) First $(S) = \{a\}$ and Follow $(S) = \{+, *\}$

(D) First $(S) = \{+, *\}$ and Follow $(S) = \{+, *, \$\}$

133. The action of parsing the source program into the proper syntactic classes is known as

(A) lexical analysis

(B) syntax analysis

(C) interpretation analysis

(D) parsing

134. Which of the following is ***not*** a bottom-up parser?

(A) LALR

(B) Predictive parser

(C) CLR

(D) SLR

135. Resolution of externally defined symbols is performed by a/an

(A) linker

(B) loader

(C) compiler

(D) interpreter

136. Which of the following statements about parser is/are correct?

1. Canonical LR is more powerful than SLR.
2. SLR is more powerful than LALR.
3. SLR is more powerful than Canonical LR.

Select the correct answer using the codes given below.

(A) 1 only

(B) 2

(C) 3 only

(D) 1 and 3

137. Match List–I with List–II and select the correct answer using the codes given below the Lists :

List–I	*List–II*
a. Lexical analysis	1. Leftmost derivation
b. Top-down parsing	2. Type checking
c. Semantic analysis	3. Regular expressions
d. Runtime environments	4. Activation records

Codes :

	a	b	c	d
(A)	1	2	4	3
(B)	3	1	2	4
(C)	2	3	1	4
(D)	4	1	2	3

138. A top-down parser uses

(A) leftmost derivation

(B) leftmost derivation in reverse

(C) rightmost derivation

(D) rightmost derivation in reverse

139. The value of an inherited attribute is computed from the values of attributes at the

(A) sibling nodes

(B) parent of the node

(C) children node

(D) Both (A) and (B)

140. Live variable analysis is used as a technique for

(A) code generation

(B) code optimization

(C) type checking

(D) runtime management

141. If the OS is pre-empting a running process because a higher priority process on blocked/suspend queue has just become unblocked, then the running process is moved to which queue?

(A) Suspend

(B) Ready/Suspend

(C) Blocked

(D) Blocked/Suspend

142. Which one of the following provides the ability to query information from the database and to insert tuples into delete tuples from and modify tuples in the database?

(A) DML (Data Manipulation Language)

(B) DDL (Data Definition Language)

(C) ER Model

(D) Relational Schema

143. The number of bits in an IPv6 address is

(A) 64

(B) 128

(C) 32

(D) 256

144. Which of the following is ***not*** a component of an expert system?

(A) Inference engine

(B) User interface

(C) Knowledge base

(D) Image processing engine

145. In alpha-beta pruning, _____ is used to cut off the search at maximizing level only and _____ is used to cut off the search at minimizing level only.

(A) alpha, beta

(B) alpha, alpha

(C) beta, alpha

(D) beta, beta

146. In Boolean algebra

$$x + xy = ?$$

(A) x

(B) y

(C) 0

(D) 1

147. _____ is the process by which two methods of the same class can have the same name but different number of arguments in Java.

(A) Method overloading

(B) Method overriding

(C) Operator overloading

(D) Constructor

148. In Java, a _____ data member has only a single copy which is shared among all instances of that class.

(A) final

(B) static

(C) private

(D) public

149. Which of the following is ***not*** a bitwise operator in Java?

(A) &

(B) |

(C) &&

(D) =>

150. Project scheduling will fall under which programming approach?

(A) Greedy programming approach

(B) Dynamic programming approach

(C) Divide and conquer approach

(D) Backtracking approach