1. Which of the following statements is a tautology?

   (A) $(P \rightarrow Q) \wedge (Q \rightarrow P)$ (B) $(P \vee Q) \leftrightarrow (Q \vee P)$

   (C) $(P \wedge Q) \rightarrow (Q \wedge P)$ (D) $(P \leftrightarrow Q) \rightarrow (Q \leftrightarrow P)$

2. If A = {1, 2, 3, 4} and B = {3, 4, 5, 6}, what is the intersection of sets A and B?

   (A) {3, 4} (B) {1, 2}

   (C) {5, 6} (D) {1, 2, 3, 4, 5, 6}

3. Which of the following relations is NOT a function?

   (A) {(1, 2), (2, 3), (3, 4)} (B) {(2, 3), (3, 4), (4, 5), (4, 6)}

   (C) {(1, 2), (2, 3), (3, 2)} (D) {(1, 2), (2, 3), (1, 3)}

4. English: What is the negation of the statement: "If it is raining, then the ground is wet"?

   (A) It is raining and the ground is wet

   (B) It is not raining and the ground is wet

   (C) It is raining and the ground is not wet

   (D) It is not raining and the ground is not wet

5. If the universal set is $U=\{a,b,c,d,e\}$ and $A=\{a,b\}$, $B=\{c,d\}$, and $C=\{a,c,e\}$, what is $(A \cup B) \cap C$?

   (A) $\{a,b,c,e\}$ (B) $\{a,c\}$

   (C) $\{c\}$ (D) $\{a,b,c,d,e\}$

6. The octal number 326.4 is equivalent to

   (A) $(214.2)_{10}$ and $(D6.8)_{16}$ (B) $(212.5)_{10}$ and $(D6.8)_{16}$

   (C) $(214.5)_{10}$ and $(D6.8)_{16}$ (D) $(214.5)_{10}$ and $(D6.4)_{16}$

7. Which of the following is the most efficient to perform arithmetic operations on the numbers?

   (A) Sign-magnitude (B) 1's complement

   (C) 2's complement (D) 9's complement

8. The Karnaugh map for a Boolean function is given as

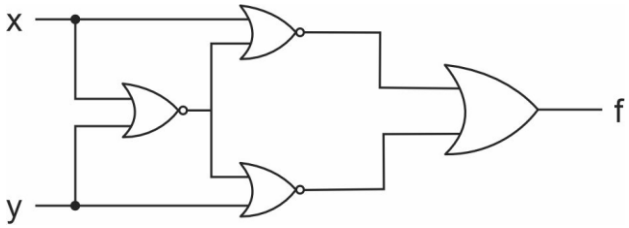
	$\bar{C}\,\bar{D}$	$\bar{C}\,D$	$C\,D$	$C\,\bar{D}$
$\bar{A}\bar{B}$	0	0	0	0
$\bar{A}B$	0	0	1	0
AB	1	1	1	1
$A\bar{B}$	0	1	1	1

The simplified Boolean equation for the above Karnaugh Map is

(A) AB + CD + AB' + AD (B) AB + AC + AD + BCD

(C) AB + AD + BC + ACD (D) AB + AC + BC + BCD

9. Which of the following logic operations is performed by the following given combinational circuit?



(A) EXCLUSIVE-OR (B) EXCLUSIVE-NOR

(C) NAND (D) NOR

10. Match the following:

List – I	**List – II**
(a) Controlled Inverter	(i) a circuit that can add 3 bits
(b) Full adder	(ii) a circuit that can add two binary numbers
(c) Half adder	(iii) a circuit that transmits a binary word or its 1's complement
(d) Binary adder	(iv) a logic circuit that adds 2 bits

Codes :

	(a)	(b)	(c)	(d)
(A)	(iii)	(ii)	(iv)	(i)
(B)	(ii)	(iv)	(i)	(iii)
(C)	(iii)	(iv)	(i)	(ii)
(D)	(iii)	(i)	(iv)	(ii)

11. 'ptrdata' is a pointer to a data type. The expression *ptrdata++ is evaluated as (in C++):

(A) *(ptrdata++) (B) (*ptrdata++)

(C) *(ptrdata)++ (D) Depends on compiler

12. The associativity of which of the following operators is Left to Right, in C++?

(A) Unary Operator (B) Logical not

(C) Array element access (D) addressof

13. A member function can always access the data in ————————, (in C++).

(A) the class of which it is member (B) the object of which it is a member

(C) the public part of its class (D) the private part of its class

14. Which of the following relations is a partial order?

(A) {(1, 2), (2, 3), (1, 3)} (B) {(2, 2), (1, 2), (1, 1)}

(C) {(1, 2), (2, 1), (2, 2)} (D) {(1, 1), (2, 2), (3, 3)}

15. The product of a square matrix and its transpose results in a matrix that is:

(A) Symmetric (B) Diagonal

(C) Identity (D) Skew-Symmetric

16. Which of the following is NOT a field?

(A) Real numbers (B) Complex numbers

(C) Rational numbers (D) Integer numbers

17. In algebra, what is the multiplicative identity element for real numbers?

(A) 0 (B) –1

(C) 1 (D) π

18. The commutative law for multiplication holds true for which algebraic structure?

(A) Ring (B) Field

(C) Group (D) Monoid

19. What is the derivative of the function $f(x) = 3x^2 + 2x - 5$ with respect to x?

(A) $6x + 2$ (B) $6x - 2$

(C) $6x + 1$ (D) $3x^2 + 2x$

20. What is the integral of the function $\int (2x + 3)\, dx$?

(A) $x^2 + 3x + C$ (B) $x^2 + 3x$

(C) $x^2 + C$ (D) $2x + 3 + C$

21. What is the derivative of the function $f(x) = 5e^{(2x)}$ with respect to x?

(A) $5e^{(2x)}$ (B) $10e^{(2x)}$

(C) $2e^{(2x)}$ (D) $5e^{(2x)} \ln(2)$

22. What is the integral of the function $\int (4 + 2x)\, dx$?

(A) $4x + x^2 + C$ (B) $4x + C$

(C) $2x^2 + 4x + C$ (D) $2x + C$

23. What is the derivative of the function x in $f(x) = \ln(x^2 + 1)$?

(A) $2x/(x^2 + 1)$ (B) $2x$

(C) $1/(x^2 + 1)$ (D) $2/(x^2 + 1)$

24. What is the decimal equivalent of the binary number 10101?

(A) 21 (B) 25

(C) 29 (D) 31

25. What is the binary representation of the decimal number 42?

(A) 101010 (B) 101011

(C) 101100 (D) 101101

26. What is the hexadecimal equivalent of the octal number 57?

(A) 9F (B) 5F

(C) AF (D) 6F

27. What is the octal representation of the hexadecimal number B4?

(A) 266 (B) 134

(C) 546 (D) 226

28. What is the decimal equivalent of the octal number 753?

(A) 345 (B) 491
(C) 487 (D) 593

29. What is the hexadecimal representation of the decimal number 255?

(A) FF (B) 1A
(C) EE (D) DD

30. What is the octal equivalent of the hexadecimal number 1E7?

(A) 737 (B) 667
(C) 351 (D) 475

31. What is the ASCII code for the capital letter 'A'?

(A) 65 (B) 66
(C) 67 (D) 68

32. Which ASCII code represents the digit '3'?

(A) 50 (B) 51
(C) 52 (D) 53

33. What is the ASCII code for the lowercase letter 'm'?

(A) 107 (B) 108
(C) 109 (D) 110

34. Which ASCII code represents the symbol '@'?

(A) 62 (B) 64
(C) 66 (D) 68

35. What is the ASCII code for the digit '9'?

(A) 57 (B) 58
(C) 59 (D) 60

36. What is the Excess-3 code for the decimal number 8?

(A) 1001 (B) 1010
(C) 1100 (D) 1101

37. What is the Gray code for the decimal number 6?

(A) 0101 (B) 1010
(C) 1100 (D) 1111

38. In Excess-3 code, what is the binary representation for the decimal number 12?

(A) 1001 (B) 1010
(C) 1100 (D) 1101

39. What is the Gray code for the decimal number 5?

(A) 0010 (B) 0101
(C) 0110 (D) 1001

40. In Excess-3 code, what is the decimal representation of the binary number 1100?

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

41. What is the result of the binary addition : 1011 + 1101?

(A) 10110 (B) 11100
(C) 11010 (D) 10011

42. What is the result of the binary subtraction : 10101 – 1101?

(A) 1010 (B) 10000
(C) 1100 (D) 11000

43. What is the result of the binary multiplication: 110 * 101?

(A) 11100 (B) 1100
(C) 11110 (D) 10110

44. What is the result of the binary division: 1001 ÷ 11?

(A) 101 (B) 100
(C) 11 (D) 110

45. What is the result of the binary multiplication: 111 * 10?

(A) 1101 (B) 1010
(C) 1110 (D) 1001

46. What is the result of the logical AND operation for inputs A = 1 and B = 0?

(A) 0 (B) 1
(C) AND (D) OR

47. What is the truth value of NOT(1)?

(A) 0 (B) 1
(C) NOT (D) AND

48. Which logic gate produces an output of 1 only if all inputs are 1?

(A) AND gate (B) OR gate
(C) NOT gate (D) NAND gate

49. What is the output of the XOR gate for inputs A = 1 and B = 1?

(A) AND (B) 1
(C) XOR (D) 0

50. Which logic gate gives the complement of the input?

(A) AND gate (B) OR gate
(C) NOT gate (D) NAND gate

51. What is the output of the NAND gate for inputs A = 0 and B = 0?

(A) 0 (B) 1
(C) AND (D) NAND

52. Which logic gate produces an output of 1 if at least one input is 1?

(A) AND gate (B) OR gate

(C) NOT gate (D) XOR gate

53. A Parity bit can usually detect

(A) 1-bit error (B) 2-bit error

(C) 8-bit error (D) Any bit error

54. What is the primary purpose of a parity generator in digital communication?

(A) Detect errors in data transmission

(B) Correct errors in data transmission

(C) Generate random parity bits

(D) Encode data for secure transmission

55. What is the purpose of a parity checker in digital systems?

(A) Generate parity bits for data (B) Detect errors in received data

(C) Correct errors in received data (D) Encrypt data for transmission

56. Simplify $Y = AB' + (A' + B)\ C$

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

(C) $A'B + AC'$ (D) $AB + A$

57. The expression $Y = AB + BC + AC$ shows the ———— operation.

(A) EX-OR (B) SOP

(C) POS (D) NOR

58. One of De Morgan's theorems states that. Simply stated, this means that logically there is no difference between:

(A) a NOR and an AND gate with inverted inputs

(B) a NAND and an OR gate with inverted inputs

(C) an AND and a NOR gate with inverted inputs

(D) a NOR and a NAND gate with inverted inputs

59. Which of the following best describes an SOP (Sum Of Products) expression?

(A) An expression where variables are combined using AND gates and then ORed together

(B) An expression where variables are combined using OR gates and then ANDed together

(C) An expression where variables are combined using XOR gates and then ORed together

(D) An expression where variables are combined using NOR gates and then ANDed together

60. Which expression represents a POS (Product Of Sums) expression?

(A) $(A+B)\cdot(C+D)$ (B) $(A\cdot B)+(C\cdot D)$

(C) $(A+B)+(C+D)$ (D) $(A\cdot B)\cdot(C\cdot D)$

61. Which expression is in the SOP (Sum of Products) form?

(A) $A+(B\cdot C)$ (B) $A\cdot(B+C)$

(C) $(A+B)\cdot C$ (D) $(A\cdot B)+C$

62. What is the primary purpose of using Karnaugh Maps in digital logic design?

(A) To visualize complex logic circuits

(B) To draw circuit schematics

(C) To simulate software algorithms

(D) To create audio waveforms

63. Which type of Boolean expressions can be simplified effectively using Karnaugh Maps?

(A) Expressions with only one variable (B) Linear expressions

(C) Complex algebraic expressions (D) Expressions with only constants

64. The Duality Theorem in Boolean algebra states that:

(A) Any Boolean expression is dual to another expression

(B) A Boolean expression remains the same when inverted twice

(C) The dual of a dual expression is the original expression

(D) A Boolean expression and its complement have the same truth table

65. The Duality Theorem is commonly applied to:

(A) Digital clock circuits

(B) Analog signal processing

(C) Both combinational and sequential logic circuits

(D) Quantum computing algorithms

66. Which gate must be interposed between the cascaded stages of a parallel binary adder comprising full adders for transmission purpose of carry C_{11} or C_{22} to the next stage?

(A) OR gate (B) AND gate

(C) EX-OR gate (D) NAND gate

67. How does an arithmetic operation take place in binary adders?

(A) By addition of two bits corresponding to 2^n digit

(B) By addition of resultant to carry from 2^{n-1} digit

(C) both (A) and (B)

(D) none of the above

68. What is the purpose of a BCD (Binary Coded Decimal) adder?

(A) To perform addition of binary numbers

(B) To perform addition of decimal numbers

(C) To convert binary numbers to BCD format

(D) To convert BCD numbers to binary format

69. Which type of logic gates are commonly used in BCD adders?

(A) NAND gates (B) AND gates

(C) XOR gates (D) OR gates

70. What is the significance of using BCD adders in digital systems?

(A) They enable faster binary addition operations

(B) They simplify decimal-to-binary conversions

(C) They facilitate direct manipulation of BCD numbers

(D) They are used for complex mathematical calculations

71. Which is the major functioning responsibility of the multiplexing combinational circuit?

(A) Decoding the binary information
(B) Generation of all minterms in an output function with OR-gate
(C) Generation of selected path between multiple sources and a single destination
(D) Encoding of binary information

72. In a multiplexer, the selection of a particular input line is controlled by
(A) Data controller
(B) Selected lines
(C) Logic gates
(D) Both data controller and selected lines

73. In 1-to-4 demultiplexer, how many select lines are required?
(A) 2 (B) 3
(C) 4 (D) 5

74. How many NOT gates are required for the construction of a 4-to-1 multiplexer?
(A) 3 (B) 4
(C) 2 (D) 5

75. Most demultiplexers facilitate which type of conversion?
(A) Decimal-to-hexadecimal (B) Single input, multiple outputs
(C) AC to DC (D) Odd parity to even parity

76. What is the primary function of an Encoder?
(A) To convert digital signals into analog signals
(B) To convert analog signals into digital signals
(C) To compress data for efficient storage
(D) To decode encrypted messages

77. Which of the following is a common application of a Decoder in computer systems?
(A) Video signal processing (B) Audio playback
(C) Error correction in memory (D) Data encryption

78. In computer memory, a Decoder is commonly used for:
(A) Video rendering (B) Data encryption
(C) Error correction (D) Audio synthesis

79. Which type of operating system allows only one user to interact with the computer at a time and executes tasks sequentially?

(A) Single-user, single-tasking (B) Single-user, multi-tasking

(C) Multi-user, single-tasking (D) Multi-user, multi-tasking

80. Which type of operating system allows multiple users to interact with the computer simultaneously and run multiple tasks concurrently?

(A) Single-user, single-tasking (B) Single-user, multi-tasking

(C) Multi-user, single-tasking (D) Multi-user, multi-tasking

81. Which scheduling algorithm aims to provide equal CPU time to all processes in the system?

(A) First-Come, First-Served (FCFS) (B) Round Robin

(C) Shortest Job Next (SJN) (D) Priority Scheduling

82. What is the purpose of the "paging" memory management technique?

(A) To divide memory into fixed-size partitions

(B) To divide memory into variable-sized segments

(C) To eliminate external fragmentation

(D) To support virtual memory

83. What does CPU clock speed refer to?

(A) The number of CPU cores in a system

(B) The speed at which data moves between CPU and memory

(C) The time taken by the CPU to execute a single instruction

(D) The number of instructions a CPU can execute per second

84. Which scheduling algorithm selects the process with the smallest estimated total execution time first?

(A) Shortest Job Next (SJN) (B) First-Come, First-Served (FCFS)

(C) Priority Scheduling (D) Round Robin

85. What is the main purpose of a Memory Management Unit (MMU)?

(A) To manage the input/output devices of the computer

(B) To provide a virtual memory space for applications

(C) To control the execution of processes in the CPU

(D) To translate virtual addresses to physical addresses in memory

86. What is the main advantage of dynamic partitioning over fixed partitioning in memory management?

(A) Reduced external fragmentation (B) Better CPU utilization

(C) Simplicity of implementation (D) Faster memory access

87. What is the primary advantage of the paging memory management technique?

(A) Elimination of internal fragmentation (B) Efficient utilization of memory

(C) Faster access to memory (D) Simplified memory allocation

88. Which memory management technique allows the physical memory to be divided into fixed-size blocks, while the logical memory is divided into fixed-size pages?

(A) Dynamic partitioning (B) Fixed partitioning

(C) Paging (D) Swapping

89. What is the main purpose of the segmentation memory management technique?

(A) To reduce external fragmentation

(B) To provide a virtual memory space for applications

(C) To divide memory into fixed-size blocks

(D) To improve CPU utilization

90. What is the primary benefit of virtual memory in computer systems?

(A) Reduced CPU utilization

(B) Increased physical memory size

(C) Improved memory access time

(D) Effective utilization of limited physical memory

91. In virtual memory systems, which component is responsible for translating virtual addresses to physical addresses?

(A) Memory Management Unit (MMU) (B) Central Processing Unit (CPU)

(C) Input/Output (I/O) Controller (D) Disk Storage Unit

92. Which of the following is NOT a valid C data type?

(A) int (B) real

(C) char (D) float

93. What will be the output of the following C code snippet?

```
#include <stdio.h>
intmain()
{
int x = 10, y = 3;
printf("%d", x / y);
return 0;
}
```

(A) 3.33 (B) 3
(C) 3.3 (D) 3.30

94. In C++, which keyword is used to allocate memory for an object on the heap?

(A) new (B) malloc
(C) allocate (D) heap_alloc

95. What is the output of the following C++ code snippet?

```cpp
#include <iostream>
using namespace std;
int main() {
    int arr[5] = {1, 2, 3, 4, 5};
    cout << arr[7];
    return 0;
}
```

(A) 7 (B) 0
(C) Garbage Value (D) Compilation Error

96. Which C++ access specifier is used to declare members that can be accessed outside the class through the class object?

(A) public (B) private

(C) protected (D) internal

97. Which protocol is used to transfer data between a web browser and a web server?

(A) FTP (B) HTTP
(C) TCP (D) SMTP

98. Which markup language is used to structure content on the web?

(A) XML (B) HTML
(C) CSS (D) JavaScript

99. Which technology is used to store and retrieve data in a structured format, often used for web applications?

(A) SQL (B) JSON
(C) HTML (D) XML

100. Which technology allows web pages to be visually styled and presented to users?

(A) HTML (B) JavaScript
(C) CSS (D) XML

101. Which term refers to the psychological discomfort experienced when an individual's behavior contradicts their beliefs or values?

(A) Cognitive dissonance (B) Groupthink
(C) Conformity (D) Self-efficacy

102. Which theory suggests that an individual's behavior is influenced by the interaction of personal, behavioral, and environmental factors?

(A) Contingency theory (B) Trait theory
(C) Social learning theory (D) Maslow's hierarchy of needs

103. What is the term for a situation in which a group makes faulty decisions due to group pressures and dynamics?

(A) Groupthink (B) Norming
(C) Conformity (D) Diversity

104. The tendency of group members to go along with the group's decisions to avoid conflict or disagreement is known as:

(A) Social loafing (B) Norming
(C) Conformity (D) Diversity

105. If we want to resize a 1024 × 768 pixels image to one that is 640 pixels wide with the same aspect ratio, what would be the height of the resized image?

(A) 420 Pixels (B) 460 Pixels
(C) 480 Pixels (D) 540 Pixels

106. In ————, each packet of a message follows the same path from sender to receiver.

(A) circuit switching
(B) message switching
(C) virtual approach to packet switching
(D) datagram approach to packet switching

107. Consider a raster system with resolution 640 by 480. What size is frame buffer (in bytes) for this system to store 12 bits per pixel?

(A) 450 kilobytes (B) 500 kilobytes
(C) 350 kilobytes (D) 400 kilobytes

108. Maximum font size of MS Word is?

(A) 72 (B) 1638
(C) 512 (D) 1024

109. Microsoft Word shortcut key CTRL+W is used for:

(A) open the print dialog box (B) update the current web page
(C) close the current window (D) none of these

110. Multimedia is also used for ———— communications and presentations.

(A) Corporate (B) Company
(C) Communal (D) Commercial

111. The minimum zoom size in MS PowerPoint is

(A) 0 (B) 10
(C) 30 (D) 100

112. Which key on the keyboard can be used to view slide show?

(A) F1 (B) F2

(C) F5 (D) F10

113. The best way to insert a new slide in a presentation is to use the

(A) Normal view (B) Special view

(C) Slide show view (D) Slide sorter view

114. In Audio and Video Compression, voice is sampled at 8000 samples per second with

(A) 8 bits per sample (B) 5 bits per sample

(C) 7 bits per sample (D) 6 bits per sample

115. Moving Picture Experts Group (MPEG-2), was designed for high-quality DVD with a data rate of

(A) 6 to 6 mbps (B) 4 to 6 mbps

(C) 3 to 6 mbps (D) 5 to 6 mbps

116. The use of ———— in multimedia material makes it easier to search and view related content.

(A) Linkage (B) Hyperlink

(C) Link (D) Connection

117. Adding ———— to objects on your slides not only controls the flow of information, but adds interest to your presentation.

(A) Background (B) Transition

(C) Animation (D) None of the above

118. A ———— can be added to your presentation and then used to go to a variety of locations for example, a web address, an e-mail address, a custom show or document, just to name a few.

(A) Menulink (B) Hyperlink

(C) Toollink (D) Slidelink

119. The main tasks of an AI agent are

(A) Input and Output

(B) Moment and Humanly Actions

(C) Perceiving, thinking, and acting on the environment

(D) None of the above

120. A human order taker can be bypassed when using a(n)

(A) automation system (B) management information system
(C) transaction processing system (D) decision support system

121. An intranet that is accessible by outside workers.

(A) firewall (B) extranet
(C) management information system (D) p2pn

122. Which of the following information systems are used in the daily running of the business?

(A) transaction processing systems (tps) (B) operational planning systems
(C) office automation systems (oas) (D) all of the above

123. Materials Requirements Planning (MRP) software is an example of an information systems application in which of the following areas?

(A) office automation systems (B) operations management
(C) marketing (D) human resource management

124. Which of these is a cost/efficiency driver of e-commerce?

(A) improving the range and quality of services offered
(B) avoid losing market share to businesses already using e-commerce
(C) increasing speed with which supplies can be obtain
(D) none of the above

125. Which category of computer-based information systems is concerned with improving efficiency by applying information technology to common administrative tasks, such as creating business documents?

(A) expert systems (B) office automation systems
(C) business information systems (D) strategic information systems

126. Tracking employee training, skills, and performance appraisals is an example of a human resource information system operating at the:

(A) operational level (B) management level
(C) knowledge level (D) strategic level

127. Information systems can facilitate supply chain management by:

(A) tracking the status of orders
(B) rapidly communicating orders
(C) providing product specifications
(D) doing all of the above

128. The layer is responsible for process delivery

(A) network layer
(B) transport layer
(C) session layer
(D) data link layer

129. The ———— layer uses data compression to reduce the number of bits to be transmitted.

(A) presentation
(B) network
(C) data link
(D) application

130. Transmission data rate is decided by

(A) network layer
(B) physical layer
(C) data link layer
(D) transport layer

131. Which of the following is designed to control the operations of a computer?

(A) System Software
(B) Utility Software
(C) Application Software
(D) User

132. Which of the following is not a feature of compiler?

(A) Execution time is more
(B) When all the syntax errors are removed execution takes place
(C) Scans the entire program first and then translate it into machine code
(D) Slow for debugging

133. Which type of software is used to create interactive multimedia applications without requiring extensive programming knowledge?

(A) Video editing software
(B) Animation software
(C) Multimedia authoring tool
(D) Graphic design software

134. Which multimedia authoring tool is widely used for creating interactive and multimedia-rich presentations?

(A) Adobe Photoshop
(B) Microsoft Word
(C) PowerPoint
(D) Audacity

135. Which type of animation tool allows the creation of frame-by-frame animations?

(A) 3D modeling software
(B) Stop-motion software
(C) Multimedia authoring tool
(D) Video editing software

136. Which animation tool is often used for creating 3D animations and visual effects in movies and video games?

(A) Adobe Flash
(B) Blender
(C) PowerPoint
(D) Audacity

137. Which multimedia authoring tool is widely used for creating interactive web-based multimedia content?

(A) Adobe Photoshop
(B) Microsoft Word
(C) Dreamweaver
(D) Final Cut Pro

138. What is the primary purpose of a Management Information System (MIS)?

(A) To process transactions
(B) To automate tasks
(C) To provide information for decision-making
(D) To create marketing campaigns

139. Which of the following is an example of a strategic-level information system?

(A) Payroll System
(B) Customer Relationship Management (CRM) System
(C) Enterprise Resource Planning (ERP) System
(D) Executive Dashboard

140. What role does a Transaction Processing System (TPS) play in an organization?

(A) Provides summarized reports for top management
(B) Automates routine tasks and activities
(C) Helps in long-term strategic planning
(D) Analyzes market trends

141. Which of the following is NOT a characteristic of a good information system?

(A) Accuracy
(B) Timeliness
(C) Complexity
(D) Relevance

142. Which component of an information system is responsible for converting raw data into meaningful information?

(A) Hardware
(B) Software
(C) Data
(D) People

143. When using an Information System to solve a complex business problem, what is the role of data analytics?

(A) Data analytics is not relevant for solving problems with Information Systems
(B) Data analytics helps in creating a user-friendly interface
(C) Data analytics provides insights and patterns from data for informed decision-making
(D) Data analytics only helps in data storage

144. Which phase of the problem-solving process involves identifying the root causes of issues and designing potential solutions using an Information System?

(A) Implementation
(B) Evaluation
(C) Analysis
(D) Planning

145. Which of the following best describes the concept of competitive advantage through information systems?

(A) Using information systems to imitate competitors' strategies
(B) Gaining a unique market position and outperforming competitors through information systems
(C) Eliminating the need for human resources in an organization
(D) Reducing the overall efficiency of business processes

146. Which of the following is an example of a strategic application of information technology in an organization?

(A) Email communication for day-to-day operations
(B) Using spreadsheets for basic financial calculations
(C) Implementing a customer relationship management (CRM) system to enhance customer engagement and satisfaction
(D) Installing antivirus software on company computers

147. Which of the following is a potential ethical issue related to information technology?

(A) Efficient data backup procedures
(B) Implementing faster network connections
(C) Invasion of user privacy through data tracking without consent
(D) Upgrading software for improved performance

148. Which of the following is an example of a business application of Information Technology (IT)?

(A) Cooking a meal at home
(B) Sending a text message to a friend
(C) Developing a sales forecasting system for a retail company
(D) Taking a walk in the park

149. What does IT Governance refer to?

(A) Designing creative advertisements
(B) Managing the financial aspects of a business
(C) Aligning IT strategies with business goals and ensuring their effective implementation
(D) Organizing company parties and events

150. What is the purpose of IT Asset Management?

(A) Organizing team-building activities
(B) Managing financial investments in the stock market
(C) Tracking and optimizing an organization's IT resources
(D) Designing product packaging

151. In C++, a class can be considered as:

(A) A function that returns a value
(B) A data type that defines the properties and behaviors of objects
(C) A reserved keyword used to define variables
(D) A standard library function

152. Inheritance in C++ allows a class to:

(A) Store multiple values of different data types
(B) Access private members of another class
(C) Create multiple instances of the same object
(D) Inherit properties and behaviors from another class

153. Reusability in C++ refers to:

(A) Recycling used memory to optimize program performance
(B) Writing code that is easy to understand
(C) Creating classes that can be used in multiple programs or projects
(D) Minimizing the size of the compiled executable file

154. A class derived from another class is called:

(A) Child class (B) Base class

(C) Derived class (D) Main class

155. What is polymorphism in C++?

(A) A concept that allows a class to inherit from multiple base classes

(B) A technique to create objects of a class

(C) A mechanism that allows objects of different classes to be treated as objects of a common base class

(D) A way to define multiple functions with the same name but different parameters

156. What is function overloading in C++?

(A) The ability of a derived class to override a base class function

(B) The process of using the same function name to create multiple functions with different implementations

(C) The capability of a class to have multiple constructors

(D) The practice of converting objects to different data types

157. Which of the following best describes E-commerce?

(A) A physical marketplace for buying and selling goods

(B) Conducting business activities using electronic communication and transactions over the internet

(C) A traditional brick-and-mortar store

(D) A type of social media platform

158. What is the primary purpose of an Information System in business operations?

(A) To create complex mathematical models

(B) To automate all manual tasks

(C) To efficiently gather, process and distribute information to support decision-making and operations

(D) To replace human employees with machines

159. Which of the following is a potential benefit of E-commerce for businesses?

(A) Limited reach to customers

(B) Higher operational costs

(C) Reduced geographical limitations, allowing access to a global market

(D) Inefficient communication with customers

160. What is the role of Information Systems in Managerial Decision Support?

(A) Information Systems automate all managerial decisions

(B) Information Systems eliminate the need for managerial decisions

(C) Information Systems provide relevant data and tools to assist managers in making informed decisions

(D) Information Systems create a rigid decision-making process

161. Which of the following best describes the concept of "Data Mining" in Managerial Decision Support?

(A) Collecting information from various sources to create managerial reports

(B) Extracting valuable patterns and insights from large datasets to support decision-making

(C) Deleting irrelevant data to streamline the decision-making process

(D) Using data for financial calculations

162. How can Artificial Intelligence benefit businesses?

(A) By eliminating the need for human employees

(B) By making all business decisions without human intervention

(C) By analyzing large datasets to generate insights and predictions

(D) By replacing traditional marketing strategies

163. What is the role of AI in customer service for businesses?

(A) AI completely replaces human customer service agents

(B) AI helps in gathering customer feedback through surveys

(C) AI assists in providing personalized recommendations and resolving queries

(D) AI focuses solely on sales and marketing

164. What is a key aspect of information security in an organization?

(A) Openly sharing sensitive information with all employees

(B) Restricting access to authorized personnel and implementing safeguards against unauthorized access

(C) Storing all information in public databases

(D) Allowing unsecured Wi-Fi access to external parties

165. What does "authentication" refer to in information security?

(A) Sharing passwords openly with colleagues
(B) The process of verifying the identity of a user, system, or device
(C) Encrypting all data to make it unreadable
(D) Making information accessible without any restrictions

166. What is a "firewall" in the context of information security?

(A) A physical barrier around the office building
(B) A security guard responsible for checking identification
(C) A software or hardware system that prevents unauthorized access to or from a private network
(D) A tool for encrypting email messages

167. What does the term "digital divide" refer to?

(A) The gap between generations in understanding technology.
(B) The division between urban and rural areas in terms of technology access and skills
(C) The distinction between software and hardware in IT
(D) The disagreement among tech companies on industry standards

168. What is "privacy invasion" in the context of Information Technology?

(A) A type of computer virus
(B) Unauthorized access to computer networks
(C) Unauthorized disclosure of personal information
(D) The process of collecting software updates

169. What is the primary purpose of Information Systems for Managerial Decision Support (MDS)?

(A) To automate all managerial decisions
(B) To replace human decision-makers
(C) To provide relevant information and tools to assist managers in making informed decisions
(D) To eliminate the need for managers in the decision-making process

170. What is the role of data analysis in Information Systems for Managerial Decision Support?

(A) Data analysis is not relevant to managerial decision support
(B) Data analysis helps in making decisions without human intervention
(C) Data analysis assists in generating insights from data to support managerial decision - making
(D) Data analysis only focuses on financial calculations

171. What is the primary purpose of a computer network?

(A) Playing video games
(B) Sharing resources and information
(C) Generating computer viruses
(D) Running antivirus scans

172. Why is scalability an important factor in networking?

(A) It increases the cost of infrastructure
(B) It limits the number of users on the network
(C) It allows for expansion and growth of the network
(D) It makes the network less efficient

173. Which protocol is commonly used for secure data communication over the internet?

(A) HTTP
(B) FTP
(C) SMTP
(D) HTTPS

174. Which of the following is an example of a guided transmission medium?

(A) Fiber optic cable
(B) Bluetooth
(C) Infrared
(D) Radio waves

175. A network that spans a large geographical area, such as a country or continent, is known as:

(A) Local Area Network (LAN)
(B) Metropolitan Area Network (MAN)
(C) Personal Area Network (PAN)
(D) Wide Area Network (WAN)

176. Which type of transmission medium is typically used for short-range wireless communication between devices like smartphones and laptops?

(A) Coaxial cable
(B) Fiber optic cable
(C) Bluetooth
(D) Ethernet cable

177. Which type of switching creates a dedicated communication path between the source and destination for the duration of the transmission?

(A) Circuit Switching
(B) Packet Switching
(C) Message Switching
(D) Frame Switching

178. Which routing algorithm uses a distance vector approach and exchanges routing tables with neighboring routers?

(A) OSPF (Open Shortest Path First)
(B) RIP (Routing Information Protocol)
(C) BGP (Border Gateway Protocol)
(D) EIGRP (Enhanced Interior Gateway Routing Protocol)

179. In computer networking, a Layer 3 switch combines the features of which two network devices?

(A) Hub and Bridge
(B) Router and Bridge
(C) Router and Switch
(D) Switch and Firewall

180. What is the primary purpose of multiplexing in networking?

(A) Reducing network complexity
(B) Increasing data security
(C) Combining multiple data streams into one transmission medium
(D) Enhancing wireless communication

181. What is the purpose of a concentrator in networking?

(A) To connect devices in different networks
(B) To filter and block incoming network traffic
(C) To manage routing and switching functions
(D) To provide a central point for connecting multiple devices to a network

182. Which component of a computer network is responsible for directing data packets between devices on different networks?

(A) Switch (B) Hub

(C) Router (D) Bridge

183. Which layer of the OSI model is responsible for translating data from the Application layer into a format suitable for transmission over the network?

(A) Transport Layer (B) Network Layer

(C) Data Link Layer (D) Presentation Layer

184. Which layer of the OSI model is responsible for providing communication services directly to the user, including network services like email, file transfer and remote access?

(A) Presentation Layer (B) Session Layer

(C) Application Layer (D) Transport Layer

185. Which layer of the OSI model is responsible for establishing, maintaining and terminating connections between devices?

(A) Data Link Layer (B) Transport Layer

(C) Network Layer (D) Session Layer

186. Which term refers to the unique identifier for each record in a database table?

(A) Field (B) Column

(C) Row (D) Primary Key

187. Which component of a database management system is responsible for processing user queries and managing data retrieval?

(A) Data Definition Language (DDL) (B) Data Manipulation Language (DML)

(C) Query Processor (D) Data Dictionary

188. Which type of data model represents data at a high level of abstraction and focuses on defining the overall structure and relationships of the data?

(A) Physical Data Model
(B) Logical Data Model
(C) Conceptual Data Model
(D) Hierarchical Data Model

189. What does ER stand for in the context of the ER model?

(A) Entity-Relationship
(B) Extended-Relational
(C) Entity-Restriction
(D) Essential-Requirement

190. Which data model represents data as a collection of records connected through pointers?

(A) Entity-Relationship Model
(B) Hierarchical Model
(C) Network Data Model
(D) Relational Model

191. Which data model presents data as a record collection connected through a pointer?

(A) Entity-relationship model
(B) Hierarchical model
(C) Network data model
(D) Relational model

192. In the hierarchical model, which of the following represents a one-to-many relationship between records?

(A) Links
(B) Nodes
(C) Edges
(D) Tuples

193. What does a semantic data model emphasize on?

(A) Data Storage Efficiency
(B) Data Access Speed
(C) Data Relationships and Meanings
(D) Data Security Mechanisms

194. Which aspect of data storage does file organization primarily deal with?

(A) Data Processing
(B) Data Retrieval
(C) Data Input
(D) Data Visualization

195. In a sequential file organization, how are records stored in the file?

(A) Randomly
(B) According to a Specific Order

(C) Based on Hashing (D) Using Binary Representation

196. What is the purpose of an index in indexed sequential file organization?

(A) To Determine Record Order (B) To Provide Data Encryption

(C) To Enable Faster Retrieval (D) To Minimize Storage Space

197. What is the key advantage of using hashing for data storage?

(A) Guaranteed Data Security (B) Efficient Key Generation

(C) Minimal Data Retrieval Time (D) Unlimited Storage Capacity

198. The relational model is based on the mathematical concept of:

(A) Sets (B) Graphs

(C) Trees (D) Matrices

199. In the relational model, data is organized into:

(A) Tables or Relations (B) Trees or Hierarchies

(C) Graphs or Networks (D) Arrays or Matrices

200. In the relational model, a column is referred to as:

(A) Row (B) Field

(C) Record (D) Entity

ROUGH WORK

ROUGH WORK