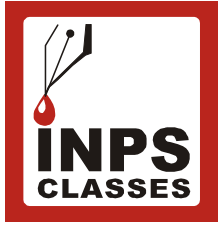




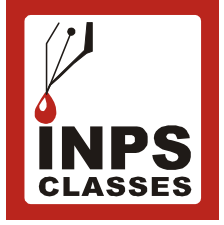
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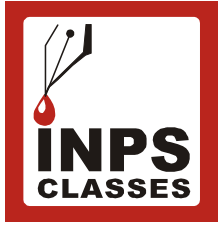
01. If $f : \mathbb{R} \rightarrow \mathbb{R}$ such that $f(x) = 3x$ then what type of a function is f ?
 (A) one-one onto (B) many one onto (C) one-one into (D) many-one into
02. $A = \{1, 2, 3\}$ which of the following function $f : A \rightarrow A$ does not have an inverse function
 (A) $\{(1, 1), (2, 2), (3, 3)\}$ (B) $\{(1, 2), (2, 1), (3, 1)\}$
 (C) $\{(1, 3), (3, 2), (2, 1)\}$ (D) $\{(1, 2), (2, 3), (3, 1)\}$
03. The maximum number of equivalence relations on the set $A = \{1, 2, 3\}$ are
 (A) 1 (B) 2 (C) 3 (D) 5
04. A relation R in a set A is called _____, if $(a_1, a_2) \in R$ implies $(a_2, a_1) \in R$, for all $a_1, a_2 \in A$
 (A) symmetric (B) transitive (C) equivalence (D) non-symmetric
05. If a relation R on the set $\{1, 2, 3\}$ be defined by $R = \{(1, 2)\}$, then R is
 (A) reflexive (B) transitive (C) symmetric (D) None of these
06. Let $A = \{1, 2, 3\}$ and consider the relation $R = \{(1, 1), (2, 2), (3, 3), (1, 2), (2, 3), (1, 3)\}$. Then R is
 (A) reflexive but not symmetric (B) reflexive but not transitive
 (C) symmetric and transitive (D) neither symmetric, nor transitive
07. Let $f : \mathbb{R} \rightarrow \mathbb{R}$ be defined by $f(x) = \frac{1}{x} \forall x \in \mathbb{R}$. Then f is
 (A) one-one (B) onto (C) bijective (D) not defined
08. If $x^2 + ax + b = 0$ and $x^2 + bx + a = 0$ ($a \neq b$) have exactly 1 common root then what is the value of $(a + b)$?
 (A) 1 (B) 0 (C) -1 (D) 3
09. If $|Z_1| = 4$, $|Z_2| = 3$, then what is the value of $|Z_1 + Z_2 + 3 + 4i|$?
 (A) Less than 2 (B) Less than 5 (C) Less than 7 (D) Less than 12
10. The coefficient of the middle term in the expansion of $(2 + 3x)^4$ is:
 (A) $5!$ (B) 6 (C) 216 (D) $8!$
11. $\sin(\tan^{-1} x)$, where $|x| < 1$, is equal to:
 (A) $\frac{x}{\sqrt{(1-x^2)}}$ (B) $\frac{1}{\sqrt{(1-x^2)}}$ (C) $\frac{1}{\sqrt{(1+x^2)}}$ (D) $\frac{x}{\sqrt{(1+x^2)}}$
12. Simplified form of $\cos^{-1}(4x^3 - 3x)$
 (A) $3\sin^{-1} x$ (B) $3\cos^{-1} x$ (C) $\pi - 3\sin^{-1} x$ (D) None of these
13. $\tan^{-1}(1/2) + \tan^{-1}(1/3) =$
 (A) $\pi/4$ (B) $\pi/2$ (C) $\pi/3$ (D) π



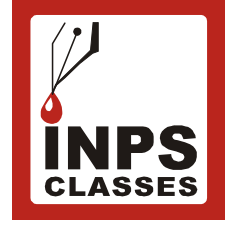
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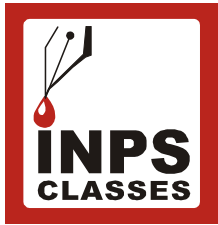
14. If A is square matrix such that $A^2 = A$, then $(I - A)^3 + A$ is equal to
(A) I (B) 0 (C) $I - A$ (D) $I + A$
15. If A and B are symmetric matrices of the same order, then $(AB - BA)$ is a
(A) Null matrix (B) Symmetric matrix (C) Skew symmetric matrix (D) None of the above
16. A matrix $A = [a_{ij}]_{m \times n}$ is said to be symmetric if
(A) $a_{ij} = 0$ (B) $a_{ij} = a_{ji}$ (C) $a_{ij} = -a_{ij}$ (D) $a_{ij} = 1$
17. Let A be a non-singular matrix of the order 2×2 then $|A^{-1}| =$
(A) $|A|$ (B) $1/|A|$ (C) 0 (D) 1
18. A square matrix $A = [a_{ij}]_{n \times n}$ is called a lower triangular matrix if $a_{ij} = 0$ for
(A) $i = j$ (B) $i > j$ (C) $i < j$ (D) None of these
19. What is the value of $\lim_{x \rightarrow 0} \left(\frac{x \tan x}{\cot x} \right)$?
(A) 0 (B) 1 (C) 2 (D) 12
20. If $\sec\left(\frac{(x-y)}{(x+y)}\right) = a$ then $\frac{dy}{dx} =$
(A) $-y/x$ (B) x/y (C) $-x/y$ (D) y/x
21. If $x^y \cdot y^x = 16$, then $\frac{dy}{dx}$ at $(2, 2)$ is
(A) 0 (B) 1 (C) -1 (D) None of these
22. The function $f(x) = x + \cos x$ is
(A) always increasing (B) always decreasing (C) increasing for certain range of x (D) None of these
23. $\int x^2 \sin x^3 dx =$
(A) $\frac{1}{3} \cos x^3 + c$ (B) $-\frac{1}{3} \cos x + c$ (C) $-\frac{1}{3} \cos x^3 + c$ (D) $\frac{1}{2} \sin x^3 + c$
24. Objective function of linear programming problem is
(A) a constraint (B) function to be optimized
(C) A relation between the variable (D) None of these
25. Region represented by $x \geq 0, y \geq 0$ is:
(A) first quadrant (B) second quadrant (C) third quadrant (D) fourth quadrant
26. If $P(A) = 0.4, P(B) = 0.7$ and $P(B|A) = 0.6$ then $P(A \cup B)$ is equal to
(A) 0.24 (B) 0.3 (C) 0.48 (D) 0.86



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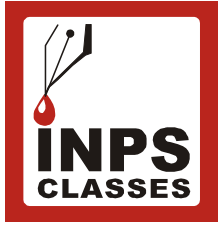
27. An urn contains 10 black and 5 white balls. Two balls are drawn from the urn one after the other without replacement. What is the probability that both drawn balls are black?
 (A) $3/7$ (B) $7/3$ (C) $1/7$ (D) $1/3$
28. The absolute maximum value of $y = x^3 - 3x + 2$ in $0 \leq x \leq 2$ is
 (A) 0 (B) 2 (C) 4 (D) 6
29. $\int_0^\pi \sin^2 x dx =$
 (A) $\pi/2$ (B) $\pi/4$ (C) 2π (D) 4π
30. The area bounded by the curves $y^2 = 4x$ and $y = x$ is equal to
 (A) $1/3$ sq. units (B) $8/3$ sq. units (C) $35/6$ sq. units (D) None of these
31. What is the order of differential equation $y'' + 5y' + 6 = 0$?
 (A) 0 (B) 1 (C) 2 (D) 3
32. The scalar product of $5i + j - 3k$ and $3i - 4j + 7k$ is:
 (A) 15 (B) -15 (C) 10 (D) -10
33. If $a_n = 4n + 6$, find 15th term of the sequence
 (A) 6 (B) 10 (C) 60 (D) 66
34. If A.M. of two numbers is $15/2$ and their G.M. is 6, then find the two numbers.
 (A) 6 and 8 (B) 12 and 3 (C) 24 and 6 (D) 27 and 3
35. The compound statement with 'And' is false if _____ of its component statements are _____.
 (A) all, true (B) any, true (C) any, false (D) None of the above
36. If ${}^n P_3 = 4 * {}^n P_2$. Find n.
 (A) 3 (B) 2 (C) 6 (D) 5
37. ${}^n P_r = {}^n C_r * \underline{\hspace{2cm}}$
 (A) $r!$ (B) $1/r!$ (C) $n!$ (D) $1/n!$
38. Find the variance of the observation values taken in the lab given below.
 4.2 4.3 4 4.1
 (A) 0.27 (B) 0.28 (C) 0.3 (D) 0.31
39. If the coefficient of variation is 100 the mean of the data is 25, then find the standard deviation.
 (A) 5 (B) 10 (C) 15 (D) 25
40. The side of an equilateral triangle is increasing at the rate of 2 cm/s. The rate at which area increases when the side is 10 cm be
 (A) $10\text{cm}^2 / \text{s}$ (B) $10/3\text{cm}^2 / \text{s}$ (C) $\sqrt{3}\text{cm}^2 / \text{s}$ (D) $10\sqrt{3}\text{cm}^2 / \text{s}$



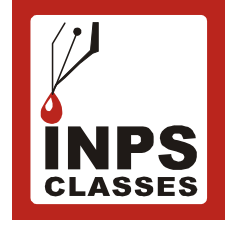
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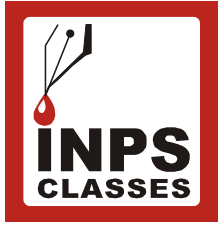
41. One Gigabyte is approximately equal to
(A) 1000, 000 bytes (B) 1000, 000, 000 bytes
(C) 1000, 000, 000, 000 bytes (D) None of these
42. In Computer world, Trojan Horse refers to
(A) Virus (B) Malware (C) Wrom (D) Spyware
43. A collection of program that controls how your computer system runs and processes information is called?
(A) Operating system (B) Computer (C) Office (D) Compiler
44. _____ is the application of the investigation and analysis techniques to gather and preserve evidence from a particular computing device in a way that is suitable for presentation in cour of law.
(A) Robotics (B) Animation (C) Simulation (D) Computer Forensics
45. What is the full form of W3C?
(A) World Wide Web Consortium (B) World Wide Web Company
(C) World Wide Web Center (D) World Wide Web Command
46. One nibble is equal to how many bits?
(A) 4 bits (B) 8 bits (C) 12 bits (D) 16 bits
47. What is the term used for verification of a login name and password in computer terminology?
(A) Configuration (B) Authentication (C) Accessibility (D) Logging
48. A technique used by codes to convert an analog signal into a digital bit stream is known as
(A) Pulse code modulation (B) Pulse stretcher
(C) Query processing (D) Queue management
49. Which of the following is an anti-virus software
(A) Dreamweaer (B) McAfee (C) Flash (D) Oracle
50. What is e-commerce?
(A) Buying and selling computer products (B) Buying and selling products and services not found in stores
(C) Buying and selling international goods (D) Buying and selling products and services over the internet
51. Computer resoluution measures?
(A) Size of screen (B) Shape of screen (C) Number of pixels (D) Number of colours it support
52. In networking terminology UTP means
(A) Uniquitious Teflon Port (B) Unshielded Twisted Pair
(C) Uniformly Terminating Port (D) Unshielded T-connector Port
53. What is a Firewall in Computer Network?
(A) The physical boundary of Network (B) An operating System of Computer Network
(C) A system designed to prevent unauthorized access (D) A web browsing Software
54. Which of the following is the numerical computing software for scientists and mathematicians?
(A) EDGE (B) Excel (C) MATLAB (D) Ada



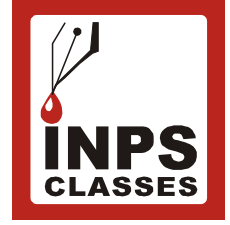
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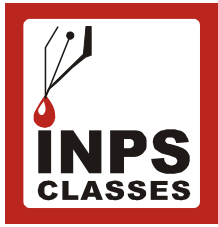
55. A wireless technology built in electronic gadgets used for exchanging data over short distances is?
(A) Bluetooth (B) Wifi (C) Modem (D) USB
56. Full form of URL is?
(A) Uniform Resource Locator (B) Uniform Resource Link
(C) Uniform Registered Link (D) Unified Resource Link
57. Who is also known as Father of Computer?
(A) Vint Cerf (B) Tim Berner Lee (C) Charles Babbage (D) Steve Jobs
58. What is used to make computer chips?
(A) Copper (B) Steel (C) Silicon (D) Iron
59. An electronic path, that sends signals from one part of computer to another is?
(A) Logic Gate (B) Bus (C) Modem (D) Serial Port
60. A device used for video games, flight simulators, training simulators and for controlling industrial robots
(A) Mouse (B) Light pen (C) Joystick (D) Keyboard
61. Total number of function keys on a computer keyboard is
(A) 10 (B) 12 (C) 14 (D) 8
62. Which Technology company has launched a new initiative called 'Startup School'?
(A) Microsoft (B) Google (C) Amazon (D) Apple
63. Mac operating system is developed by which company?
(A) Microsoft (B) IBM (C) Samsung (D) Apple
64. Which term is related to database?
(A) PHP (B) Oracle (C) Java (D) Assembly
65. The 2's complement of 5 is _____
(A) 1011 (B) 0101 (C) 1010 (D) 0011
66. The octal equivalent of the binary number $(0010010100)_2$ is
(A) 422 (B) 242 (C) 224 (D) 226
67. The 10's complement of 455 is _____
(A) 543 (B) 544 (C) 545 (D) 546
68. The decimal equivalent of $(0.101)_2$ will be _____
(A) 0.5 (B) 0.625 (C) 0.25 (D) 0.875
69. Which of the following is false?
(A) $x + y = y + x$ (B) $x \cdot y = y \cdot x$ (C) $x \cdot x' = 1$ (D) $x + x' = 1$
70. The Boolean expression $A + BC$ is the reduced form of _____
(A) $AB + BC$ (B) $(A + B)(A + C)$ (C) $(A + C)B$ (D) $(A + B)C$
71. The expression of an XOR gate is _____
(A) $A'B + AB'$ (B) $AB + A'B'$ (C) $A + A.B$ (D) $A' + B'$



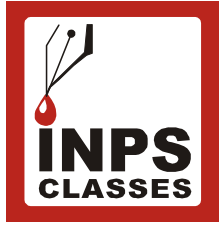
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72. What is the high speed memory between the main memory and the CPU called?
(A) Register Memory (B) Cache Memory (C) Storage Memory (D) Virtual Memory
73. If M denotes that number of memory locations and N denotes the word size, then an expression that denotes the storage capacity is _____
(A) $M * N$ (B) $M + N$ (C) $2M + N$ (D) $2M - N$
74. Which of the following error can a compiler check?
(A) Syntax Error (B) Logical Error
(C) Both Logical and Syntax Error (D) Compiler cannot check errors
75. Which feature of OOP indicates code reusability?
(A) Abstraction (B) Polymorphism (C) Encapsulation (D) Inheritance
76. Internet work on _____
(A) packet switching (B) circuit switching
(C) both packet switching and circuit switching (D) data switching
77. What will be values for a and c after execution of the following code if a is 10, b is 5 and c is 10?
if ((a > b) && (a <= c))
a = a + 1;
else
c = c + 1;
(A) a = 10, c = 10 (B) a = 10, c = 11 (C) a = 11, c = 10 (D) a = 11, c = 11
78. Which of the following statement is correct about the array?
(A) In the array, users can only allocate the memory at the run time.
(B) In the array, users can only allocate the memory at the compile time.
(C) The array is a primitive and non-linear data structure that only stores a similar data type.
(D) All of these
79. The size of a union determined by the size of the _____
(A) First member in the union (B) Last member in the union
(C) Largest member in the union (D) Sum of the sizes of all members
80. What is meant by 'a' in the following C file operation?
fp = fopen("Random.txt", "a");
(A) Attach (B) Append (C) Apprehend (D) Add
- Direction For Q. No. 81 – 83: In the following questions, out of the four alternatives, choose the one which can be substituted for the given words / sentence.**
81. An emolument over and above fixed income or salary
(A) Honorarium (B) Sinecure (C) Perquisite (D) Prerogative
82. A disease that spreads by contact
(A) Incurable (B) Infectious (C) Contagious (D) Fatal



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83. To take secretly in small quantities
 (A) Robbery (B) Theft (C) Defalcation (D) Pilferage

Direction For Q. No. 84 – 85: In the following questions, groups of four words are given. In each group, one word is correctly spelt. Find the correctly spelt word.

84. (A) Parapharnelia (B) Parsimonious (C) Peccadilo (D) Peadiatrics
 85. (A) Measureble (B) Managable (C) Marriageable (D) Manoevrable

Direction For Q. No. 86 – 87: In the following questions, out of the four alternatives, choose the one which best expresses the meaning of the given word.

86. FOSTERING
 (A) Nurturing (B) Safeguarding (C) Guiding (D) Caring
 87. DEFER
 (A) Differ (B) Defy (C) Postpone (D) Indifferent

Direction For Q. No. 88 – 90: Fill in the blank with the most suitable choice.

88. Many countries have sent medicine for _____ of the latest fighting.
 (A) injured (B) wounded (C) victims (D) culprits
 89. A light breeze _____ the forest fire and made it more gangerous.
 (A) extinguished (B) lit (C) fanned (D) blew
 90. As he got older his belief in these principles did not _____.
 (A) wither (B) shake (C) waver (D) dither

91. Look closely at the letter pattern and choose the series from the options given that will correctly fill the blank at the end of the series.

FAG, GAF, HAI, IAH, _____

- (A) JAK (B) HAL (C) HAK (D) JAI
 92. Arrange the words given below in a meaningful sequence.
 (1) Word (2) Paragraph (3) Sentence (4) Letters (5) Phrase
 (A) 3, 1, 2, 4, 5 (B) 1, 2, 4, 3, 5 (C) 5, 4, 3, 2, 1 (D) 4, 1, 5, 3, 2

93. In the series 2, 6, 18, 54, what will be the 8th term?
 (A) 4370 (B) 4374 (C) 7443 (D) 7434

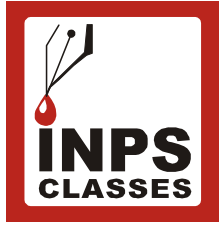
94. If LONDON is coded as MPOEPO. What code is needed for DELHI?
 (A) DEHLI (B) EFIMJ (C) HLDEI (D) EFMIJ

Direction for Q. No. 95 & 96: Three of the words will be in the same classification, the remaining one will not be. Your answer will be the one word that does NOT belong in the same classification as the others.

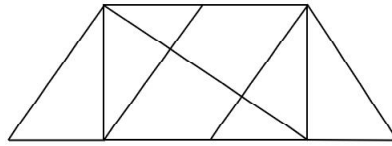
95. Which word does NOT belong with the others?
 (A) Lungs (B) Caner (C) Pancreas (D) Heart
 96. Which word does NOT belong with the others?
 (A) Ghee (B) Milk (C) Butter (D) Curd



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97. Play is to actor as concert is to
 (A) symphony (B) musician (C) piano (D) percussion
98. A and B are brother. C and D are sister. A's son is D's brother. How is B related to C?
 (A) Father (B) Brother (C) Uncle (D) Grandfather
99. Find the number of triangles in the figure given below:



- (A) 8 (B) 10 (C) 12 (D) 14
100. A man walks 5 km toward south and then turns to the right. After walking 3 km he turns to the left and walks 5 km. Now in which direction is he from the starting place?
 (A) West (B) South (C) North - East (D) South - West

Answer Key

- | | | | | | | | | | |
|---------|---------|---------|---------|---------|---------|---------|---------|---------|----------|
| 01. (A) | 02. (B) | 03. (D) | 04. (A) | 05. (B) | 06. (A) | 07. (A) | 08. (C) | 09. (D) | 10. (C) |
| 11. (D) | 12. (B) | 13. (A) | 14. (A) | 15. (C) | 16. (B) | 17. (B) | 18. (C) | 19. (A) | 20. (D) |
| 21. (C) | 22. (A) | 23. (C) | 24. (B) | 25. (A) | 26. (D) | 27. (A) | 28. (C) | 29. (A) | 30. (B) |
| 31. (C) | 32. (D) | 33. (D) | 34. (B) | 35. (C) | 36. (C) | 37. (A) | 38. (B) | 39. (D) | 40. (D) |
| 41. (B) | 42. (B) | 43. (A) | 44. (D) | 45. (A) | 46. (A) | 47. (B) | 48. (A) | 49. (B) | 50. (D) |
| 51. (C) | 52. (B) | 53. (C) | 54. (C) | 55. (A) | 56. (A) | 57. (C) | 58. (C) | 59. (B) | 60. (C) |
| 61. (B) | 62. (B) | 63. (D) | 64. (B) | 65. (B) | 66. (C) | 67. (C) | 68. (B) | 69. (C) | 70. (B) |
| 71. (A) | 72. (B) | 73. (A) | 74. (A) | 75. (D) | 76. (A) | 77. (C) | 78. (D) | 79. (C) | 80. (B) |
| 81. (A) | 82. (C) | 83. (D) | 84. (B) | 85. (C) | 86. (A) | 87. (C) | 88. (C) | 89. (C) | 90. (C) |
| 91. (A) | 92. (D) | 93. (B) | 94. (D) | 95. (B) | 96. (B) | 97. (D) | 98. (C) | 99. (C) | 100. (D) |