Select the nearest Antonym.

1. **Piqued**
   (A) Upset (B) Craze (C) Pleased (D) None of these
2. **Viable**
   (A) Impossible (B) Feasible (C) Credible (D) None of these
3. **Insuperable**
   (A) Impossible (B) Resistance (C) Easy (D) None of these
4. **Pusillanimous**
   (A) Worried (B) Brave (C) Shaky (D) None of these
5. **Sentient**
   (A) Aware (B) Unconscious (C) Attentive (D) None of these

Select the nearest Synonym.

6. **Stentorian**
   (A) Infuriated (B) Dictatorial (C) Loud (D) None of these
7. **Hortatory**
   (A) Leading (B) Threatening (C) Urging (D) None of these
8. **Impromptu**
   (A) Anxious (B) Late (C) Off-hand (D) None of these
9. **Minion**
   (A) Hanger-on (B) Power (C) Wing (D) None of these
10. **Apprise**
    (A) To esteem (B) Seize (C) Inform (D) None of these

Fill in the blanks with most appropriate choice.

11. **The members swore _____the Constitution to uphold the integrity of the country.**
    (A) on (B) at (C) by (D) None of these
12. **We have instructions from the headquarters_____any new car this year.**
    (A) not to purchase (B) that not purchase (C) not purchasing (D) None of these
13. **I had given him a lot of money, but he _____ it in a couple of weeks.**
    (A) ran into (B) ran down (C) ran through (D) None of these
14. **I would have waited for you at the station if I _____ that you would come.**
    (A) had known (B) known (C) was knowing (D) None of these
15. **_____ he left the house, it has not ceased raining.**
    (A) Ever before (B) Ever since (C) Until (D) None of these

What is the underlined part of the sentence?

16. **These are flowers.**
    (A) personal pronoun (B) indefinite pronoun (C) demonstrative pronoun (D) None of these
17. **Shooting stars are beautiful.**
    (A) participle (B) gerund (C) complement (D) None of these
18. ***We were told to save electricity.***
    (A) clause (B) adjective phrase (C) noun phrase (D) None of these
19. **The person to call is Joan.**
    (A) subject (B) gerund (C) infinitive (D) None of these
20. **William threw the flowers to Alexander.**
    (A) linking verb (B) direct object (C) indirect object (D) None of these

PART-II (SUBJECT)

21. **Evaluate** $\lim_{x\to 0} \frac{1-\cos x}{x^2}$
    (A) $\frac{1}{2}$ (B) 0 (C) 2 (D) None of these
22. **Which of the following is the slope of the line tangent to curve** $y = x^3 - 2x + 1$ **at** $x = 1$**?**
    (A) $\frac{1}{2}$ (B) 1 (C) $-\frac{1}{2}$ (D) None of these

23. Find the value of the definite integral

$$\int_{-\frac{\pi}{2}}^{\frac{\pi}{2}} \frac{sin2x}{1+cosx}\,dx$$

(A) 0 (B) $-2(ln2)^2$ (C) $(ln2)^2$ (D) None of these

24 The function $y = \sqrt{x-1}$ is:
(A) Explicit (B) Even (C) Implicit (D) None of these

25. If $\sin(xy) = x$ then $\frac{dx}{dy} =$
(A) $\frac{sec(xy)}{x}$ (B) $\frac{sec(xy)-y}{x}$ (C) $\frac{sec(xy)+1}{x}$ (D) None of these

26. Determine the distance from the origin to the plane $2x + 3y - 6z = 14$.
(A) 14 (B) 2 (C) $\frac{1}{2}$ (D) None of these

27. If $f(x) = x^{lnx}$ then what is $f'(x)$?
(A) $\frac{2lnx}{x}$ (B) $\frac{e^{(lnx)^2}lnx}{2x}$ (C) $\frac{e^{(lnx)^2}2lnx}{x}$ (D) None of these

28. Which of the following are the critical points for the curve $2 + 12x - x^3$?
(A) (2,18) & (2,-14) (B) (-2,-18) & (2,14) (C) (-2,18) & (2,-14) (D) None of these

29. A function f should be .....on [a,b] according to Rolle's theorem.
(A) Continuous (B) Integral (C) Differentiable (D) None of these

30. Another form of Rolle's theorem for the differential condition is:
(A) f is differentiable on (a,ah) (B) f is differentiable on (a,a-h)
(C) f is differentiable on (a,a+h) (D) None of these

31. For mean value theorem f(b)=f(a) =(b-a) $f'(x_1)$; $a < b$ if f(x)=1/x then x_1 =
(A) (a+b)/2 (B) $\sqrt{ab}$ (C) 2ab/a+b (D) None of these

32. Which of the following is the volume of a hemisphere whose radius is r?
(A) $\frac{4}{3}\pi r^3$ (B) $\frac{3}{2}\pi r^3$ (C) $\frac{2}{3}\pi r^3$ (D) None of these

33. The radii of two cylinders are in the ratio of 2:3 and their heights are in the ratio of 5:3 then the ratio of their volumes is:
(A) 10:27 (B) 20:17 (C) 17:27 (D) None of these

34. If a covered wooden box has the inner measures as 115cm, 75cm and 35cm and the thickness of wood is 2.5cm, then the volume of the wood is:
(A) 85,000 cu cm (B) 82,150 cu cm (C) 82,125 cu cm (D) None of these

35. For which of the following does the center of mass lie outside the body?
(A) Bangle (B) Dice (C) Pen (D) None of these

36. Three bodies of masses 1kg, 2kg and 3kg lie in XY plane at (1,2), (0,-1) and (2,-3) respectively then calculate the coordinates of center of mass of the system.
(A) $(-\frac{7}{6}, -\frac{3}{2})$ (B) $(-\frac{7}{6}, \frac{3}{2})$ (C) $(\frac{7}{6}, \frac{3}{2})$ (D) None of these

37. Suppose a hall is 15m long and 12m broad. If the sum of the areas of the floor and the ceiling is equal to the sum of the areas of four walls then the volume of hall is:
(A) $1200m^3$ (B) $900m^3$ (C) $925m^3$ (D) None of these

38. If we cut a cone in two parts by a plane parallel to the base then the bottom part left over is the:
(A) Sphere (B) Cone (C) Frustrum of cone (D) None of these

39. Which of the following is the volume of a hemisphere whose radius is r?
(A) $\frac{4}{3}\pi r^3$ (B) $\frac{3}{2}\pi r^3$ (C) $\frac{2}{3}\pi r^3$ (D) None of these

40. If we change the shape of an object from a sphere to cylinder then the volume of cylinder will:
(A) Increase (B) Remain unchanged (C) Decrease (D) None of these

41. Which of the following is used to compute percent change over a given number of periods?
(A) pct_change (B) Percent_change (C) per_change (D) None of these

42. Which of the following method produces a data ranking with ties being assigned the mean of the ranks for the group?
(A) dense_rank (B) rank (C) partition_rank (D) None of these

43. All MATLAB computations are done in:
(A) Single precision (B) Double precision (C) Multi level precision (D) None of these

44. What will be the output of following code?
$Z=(2 + 3i/i^{99})$
(A) Z conjugate (B) -3+2i (C) -1 (D) None of these

45. The teacher has given the assignment to find the sum of 2 numbers. But the code should not contain the '+' operator. What is to be done?
(A) Add the values and print the sum directly (B) Use a function
(C) Use an expression (D) None of these

46. Which of the following is required to perform a Chi-square test?
(A) Data be measured on nominal scale (B) Each cell has an equal number of frequencies
(C) Both (A) & (B) (D) None of these

47. The runs scored by a batsman in 5 ODIs are 31,97,112,63 and 12. The standard deviation is:
(A) 24.79 (B) 23.79 (C) 26.79 (D) None of these

48. If the probability of hitting an object is 0.8 find the variance.
(A) 0.18 (B) 0.16 (C) 0.14 (D) None of these

49. Calculate the coefficient of the given data sets 7,2,8,11,6,13,16
(A) 42.34 (B) 43.34 (C) 48.64 (D) None of these

50. If the mean of a frequency distribution is 100 and the coefficient of variation is 45% then what is the value of the variance?
(A) 2025 (B) 450 (C) 45 (D) None of these

51. The number of accidents in a city during 2010 is:
(A) Discrete variable (B) Qualitative variable
(C) Continuous variable (D) None of these

52. The runs scored by a batsman in 5 ODIs are 31,97,112,63 and 12. The standard deviation is:
(A) 24.79 (B) 23.79 (C) 26.79 (D) None of these

53. Which of the following is not a vector space?
(A) R(R) (B) R(Q) (C) R(C) (D) None of these

54. If U and W are distinct spaces and dim U=4 and dim W=4 then dim $(U \cap W)$
(A) 4,5 (B) 2,3 (C) 6 (D) None of these

55. In n-dimensional vector space any set of n+1 vectors is:
(A) Linearly dependent (B) Linearly independent
(C) Both (A) & (B) (D) None of these

56. If a vector space V has a basis of n vectors then every basis of V must consist of exactly:
(A) n-1 vectors (B) 2n vectors (C) n+1 vectors (D) None of these

57. Let V be a five-dimensional vector space and let S be a subset of V which spans V then S.
(A) Must consist of at least five elements (B) Must be linearly independent
(C) Must have exactly five elements (D) None of these

58. {x: x is a real number between 1 and 2} is a(n):
(A) Finite set (B) Infinite set (C) Empty set (D) None of these

59. The metric space M is a topological space is the union of :
(A) Open rectangles (B) Open intervals (C) Closed intervals (D) None of these

60. The space (R^n, d) is:
(A) Real metric space (B) n-dimensional real space
(C) n-dimensional Euclidean space (D) None of these

61. A complete and totally bounded metric space is said to be:
(A) Compact (B) Discrete (C) Complete (D) None of these

62. Which of the following are not topologically equal?
(A) A circle and a square (B) A triangle and a rectangle
(C) Both (A) & (B) (D) None of these

63. Let X=R with usual topology and A= (0, 3). The limit point of A is:
(A) 2 (B) 1.7 (C) 1.5 (D) None of these

64. The solution obtained from the general solution by giving a particular value to the arbitrary constant or constants is called:
(A) Particular solution (B) Singular solution (C) General solution (D) None of these

65. The differential equation $\frac{dy}{dx} = xy, y(1) = 1$ has:
(A) Infinite number of solutions (B) Only two solution
(C) Unique solution (D) None of these

66. If $Pdx + xsin(y)dy = 0$ is exact differential equation, then P is:
(A) $-sin(y)$ (B) $x^2 - cos(y)$ (C) $cos(y)$ (D) None of these

67. The solution of the given differential equation $(x^2 + 1)\frac{dy}{dx} + (y^2 + 1) = 0$ is:
(A) $y = 2 + x^2$ (B) $y = \frac{1+x}{1-x}$ (C) $y = \frac{1-x}{1+x}$ (D) None of these

68. The solution of the differential equation $x\sqrt{1+y^2}dx + y\sqrt{1+x^2}dy = 0$ is:
(A) $\sin^{-1}x + \sin^{-1}y = c$ (B) $\sqrt{1+x^2} + \sqrt{1+y^2} = c\tan^{-1}x + \tan^{-1}y = c$
(C) None of these

69. Which of the following is correct form of $y_p(x)$ for the following differential equation?
$2y'' - 16y' + 32y = -e^{4x}$
(A) Ax^2e^{4x} (B) Axe^{4x} (C) Ae^{4x} (D) None of these

70. The solution of $\frac{dy}{dx} + y = e^{-x}, y(0) = 0$ is:
(A) $y = xe^{-x}$ (B) $y = xe^{x}$ (C) $y = xe^{-x} + 1$ (D) None of these

PART-III (PROFESSIONAL)

71. What kind of direct method of teaching is?
(A) Low-tech (B) High-tech (C) Mixed-tech (D) None of these

72. In inductive method of teaching students is a(n):
(A) Passive participant (B) Dormant participant (C) Active participant (D) None of these

73. The kinesthetic learning model, in which students perform hands-on physical activities is a ___ method of teaching.
(A) High-tech (B) Mixed-tech (C) Multiple-tech (D) None of these

74. Theapproaches used by teachers to achieve the goals and objectives of the lessons are called:
(A) Teaching methods (B) Technique of dialogue (C) Teaching styles (D) None of these

75. Differential instruction is a _____ method of teaching.
(A) High-tech (B) Mixed-tech (C) Multiple-tech (D) None of these

76. Flipped classroom is a ____ method of teaching.
(A) High-tech (B) Mixed-tech (C) Multiple-tech (D) None of these

77. The general principles, pedagogy and management strategies used for classroom instruction are called:
(A) Teaching strategies (B) Technique of dialogue (C) Teaching styles (D) None of these

78. _____instruction is tailored to meet students' individual needs.
(A) High-tech

79. **All of the following are characteristics of authoritative style of teaching EXCEPT:**
(A) Sharing (B) Rudeness (C) Suppression of the subordinates (D) None of these

80. **Teacher uses a variety of skills and techniques to ensure classroom runs smoothly, without disruptive behavior from students is known as classroom:**
(A) Rules (B) Management (C) Policies (D) None of these

81. **A group of two teachers divided a class into two groups and each teacher teaches the same information at the same time is known as:**
(A) Alternative teaching (B) Parallel teaching (C) Station teaching (D) None of these

82. **All of the following strategies are used in the classrooms to provide attention to problematic students EXCEPT:**
(A) Constant watch (B) Specialized courses (C) Liaison with parents (D) None of these

83. **An intimidation technique used by the teacher to control misbehavior in classroom is known as:**
(A) Psychological coercion (B) Disapproval (C) Sarcasm (D) None of these

84. **Which one of the following components is important to determine the student-teacher ratio?**
(A) Classroom size (B) School size (C) Number of staff (D) None of these

85. **A classroom emphasizes active student involvement, promote a sense of belonging, and foster self-discipline, it is known as:**
(A) Autocratic (B) Democratic (C) Authoritative (D) None of these

86. **Coordinating, stimulating, and directing the growth of teacher is the purpose of:**
(A) Administration (B) Management (C) Inspection (D) None of these

87. **The personality is best judged by:**
(A) Speaking (B) Dancing (C) Attitude (D) None of these

88. **Student performance is best known to his:**
(A) Parents (B) Teacher (C) Both (A)&(B) (D) None of these

89. **Objective type questions are:**
(A) Easy to prepare (B) Easy to solve (C) Easy to mark (D) None of these

90. **The student's performance is compared with other students in:**
(A) Essay type test (B) Comprehension (C) Quiz (D) None of these

91. **The answer of $\sqrt{9} \times \sqrt{1} + 21 \div \frac{3}{5}$ is:**
(A) 30 (B) 38 (C) 23 (D) None of these

92. **The square root of 361 is:**
(A) 19 (B) 12 (C) 21 (D) None of these

93. $\sqrt[3]{8}$ =
(A) 2 (B) 1 (C) 24 (D) None of these

94. **The main focus of the cognitive domain is on the:**
(A) Physical skills (B) Intellectual skills (C) Motor Skills (D) None of these

95. **In cognitive domain "Synthesis" comes after:**
(A) Application (B) Evaluation (C) Analysis (D) None of these

96. **Which of the domains of Bloom's taxonomy is concerned with attitudes and behaviour?**
(A) Cognitive (B) Affective (C) Psychomotor (D) None of these

97. **Which level of the cognitive domain involves applying knowledge to a new situation?**
(A) Knowledge (B) Comprehension (C) Application (D) None of these

98. **Which level of cognitive domain involves generating new ideas?**
(A) Knowledge (B) Comprehension (C) Analysis (D) None of these

99. **Which level of cognitive domain involves breaking down complex ideas into smaller parts?**
(A) Knowledge (B) Evaluation (C) Analysis (D) None of these

100. **Which level of the cognitive domain makes judgments based on criteria and standards?**
(A) Knowledge (B) Comprehension (C) Evaluation (D) None of these