1. $\int 3^{3^{3^x}} 3^{3^x} 3^x \, dx$ is equal to
   (a) $\frac{3^{3^x} 3^x}{(\log 3)^3} + c$
   (b) $\frac{3^x}{(\log 3)^3} + c$
   (c) $\frac{3^{3^x}}{(\log 3)^3} + c$
   (d) $\frac{3^{3^{3^x}}}{(\log 3)^3} + c$

2. If $y = \tan^{-1}\left(\frac{3x-x^3}{1-3x^3}\right), -\frac{1}{\sqrt{3}} < x < \frac{1}{\sqrt{3}}$, then $\frac{dy}{dx}$
   (a) $-\frac{1}{1+x^2}$
   (b) $\frac{3}{1+x^2}$
   (c) $\frac{3}{\sqrt{1+x^2}}$
   (d) $\frac{1}{\sqrt{1+x^2}}$

3. A polygon has 44 diagonals. Then number of sides are
   (a) 9
   (b) 10
   (c) 11
   (d) 12

4. If $A = \{1,2,3,4,\}$ and $B = \{3,4,5\}$, then the number of elements in (A ∪ B) X (A ∩ B) X (AΔB) is
   (a) 18
   (b) 20
   (c) 24
   (d) 30

5. The value of $\tan 9° - \tan 27° - \tan 63° + \tan 81°$ is equal to
   (a) 5
   (b) 3
   (c) 4
   (d) 6

6. If a variable takes values 0, 1, 2, ..., 50 with frequencies 1, $^{50}C_1$, $^{50}C_2$, ..., $^{50}C_{50}$, then the A.M. is
   (a) 50
   (b) 25
   (c) $\frac{2^{50}}{50}$
   (d) 51

7. In a triangle, if the sum of two sides is x and their product is y such that $(x + z)(x - z) = y$, where z is the third side of the triangle, then the triangle is
   (a) Equilateral
   (b) Right angled
   (c) Isosceles
   (d) Obtuse angled

8. If the vectors $a\vec{i} + \vec{j} + \vec{k}, \vec{i} + b\vec{j} + \vec{k}, \vec{i} + \vec{j} + c\vec{k}, (a, b, c \neq 1)$ are coplanar, then $\frac{1}{1-a} + \frac{1}{1-b} + \frac{1}{1-c} =$
   (a) 0
   (b) 1
   (c) 2
   (d) 3

9. If in a triangle ABC $a \cos^2\frac{C}{2} + c \cos^2\frac{A}{2} = \frac{3b}{2}$, then the sides of the triangle are in
   (a) A.P.
   (b) G.P.
   (c) H.P.
   (d) None of the above

10. If the position vector of A and B relative to O be $\vec{i} - 4\vec{j} + 3\vec{k}$ and $-\vec{i} + 2\vec{j} - \vec{k}$, respectively, then the median through O of ΔABC is:
    (a) $-2\vec{j} + 2\vec{k}$
    (b) $-\vec{j} + \vec{k}$
    (c) $-\vec{i} - \vec{j} + \vec{k}$
    (d) $-\vec{j} - \vec{j} - \vec{k}$

11. If $|k| = 5$ and $0° \leq 360°$, then the number of different solutions of $3 \cos\theta + 4 \sin\theta = k$ is
    (a) 0
    (b) 1
    (c) 2
    (d) Infinite

12. If $P(1,2), Q(4,6), R(5,7)$ and $S(a, b)$ are the vertices of a parallelogram PQRS, then
    (a) $a = 2, b = 3$
    (b) $a = 3, b = 4$
    (c) $a = 2, b = 4$
    (d) $a = 3, b = 5$

13. If the system of equations $3x - y + 4z = 3, x + 2y - 3z = -2, 6x + 5y + \lambda z = -3$ has atleast one solution, then $\lambda =$
    (a) -5
    (b) 3
    (c) 5
    (d) 6

14. Let $\vec{a} = 2\hat{i} + \hat{j} + 2\hat{k}, \vec{b} = \hat{i} - \hat{j} + 2\hat{k}$ and $\vec{c} = \hat{i} + \hat{j} - 2\hat{k}$ are three vectors. Then, a vector in the plane of $\vec{a}$ and $\vec{c}$ whose projection on $\vec{b}$ is of magnitude $\frac{1}{\sqrt{6}}$ is
    (a) $3\hat{i} - 2\hat{j}$
    (b) $3\hat{i} + 2\hat{j}$
    (c) $2\hat{i} + 3\hat{j} - \hat{k}$
    (d) $3\hat{i} + 2\hat{j} + \hat{k}$

15. The lines $px + qy = 1$ and $qx + py = 1$ are respectively the sides AB, AC of the triangle ABC and the base BC is bisected at (p, q). Equation of the median of the triangle through the vertex A is
    (a) $(2pq - 1)(qx + py - 1) - (p^2 + q^2 - 1)(px + qy - 1) = 0$
    $(2pq - 1)(px + qy - 1) + (p^2 + q^2 - 1)(qx + py - 1) = 0$
    (c) $(2pq - 1)(px + qy - 1) - (p^2 + q^2 - 1)(qx + py - 1) = 0$
    (d) $(2pq - 1)(qx + py - 1) + (p^2 + q^2 - 1)(px + qy - 1) = 0$

16. If $y = \sin^{-1}\left(\frac{x^2+1}{\sqrt{1+3x^2+x^4}}\right) (x > 0)$, then $\frac{dy}{dx} =$
    (a) $\frac{x^2-1}{x^4+3x^2+1}$
    (b) $\frac{x^2+1}{x^4+3x^2+1}$
    (c) $\frac{x^2-1}{x^4-3x^2+1}$
    (d) $\frac{x^2+1}{x^4-3x^2+1}$

17. The four geometric means between 2 and 64 are
    (a) $\frac{1}{4}, \frac{1}{8}, \frac{1}{16}, \frac{1}{32}$
    (b) 4, 8, 16, 32
    (c) $4\sqrt{2}, 8, 16\sqrt{2}, 32$
    (d) None of the above

18. The general value of θ, satisfying the equation, $\sin\theta = -\frac{1}{2}, \tan\theta = \frac{1}{\sqrt{3}}$ is:
    (a) $n\pi + \frac{\pi}{6}, n \in I$
    (b) $n\pi + (-1)^n\left(\frac{7\pi}{6}\right), n \in I$
    (c) $2n\pi \pm \frac{7\pi}{6}, n \in I$
    (d) $2n\pi + \frac{11\pi}{6}, n \in I$

19. There are 50 questions in a paper. Find the number of ways in which a student can attempt one or more questions:
    (a) $2^{50} - 1$
    (b) $2^{50} + 1$
    (c) $2^{50} - 2$
    (d) $2^{50} + 2$

20. The probability of occurrence of two events E and F are 0.25 and 0.50, respectively. The probability of their simultaneous occurrence is 0.14. The probability that neither E nor F occurs is
    (a) 0.61
    (b) 0.11
    (c) 0.39
    (d) 0.89

21. If θ is the acute angle between the pair of lines $x^2 - 7xy + 12y^2 = 0$, then $\frac{2\cos\theta + 3\sin\theta}{4\sin\theta + 5\cos\theta} =$
    (a) $\frac{29}{69}$
    (b) $\frac{61}{39}$
    (c) $\frac{39}{61}$
    (d) $\frac{69}{29}$

22. If $F(\theta) = \begin{bmatrix} \cos\theta & -\sin\theta & 0 \\ \sin\theta & \cos\theta & 0 \\ 0 & 0 & 1 \end{bmatrix}$, then $F(\theta)F(\alpha)$ is equal to

    (a) $F(\theta\alpha)$ (b) $F\left(\frac{\theta}{\alpha}\right)$
    (c) $F(\theta + \alpha)$ (d) $F(\theta - \alpha)$

23. Angle between $\vec{a}$ and $\vec{b}$ is $120°$. If $|\vec{b}| = 2|\vec{a}|$ and the vectors $\vec{a} + x\vec{b}, \vec{a} - \vec{b}$ are at right angles, then $x =$

    (a) $\frac{1}{3}$ (b) $\frac{1}{5}$
    (c) $\frac{2}{3}$ (d) $\frac{2}{5}$

24. The standard deviation of 20 numbers is 30. If each of the numbers is increased by 4, then the new standard deviation will be
    (a) 24   (b) 34
    (c) 30   (d) 20

25. The number of common tangent to the circles $x^2 + y^2 = 4$ and $x^2 + y^2 - 6x - 8y = 24$ is
    (a) 0   (b) 1
    (c) 3   (d) 4

26. $\lim_{x\to\infty} \left(\frac{x+7}{x+2}\right)^{x+5}$ equal to
    (a) e^5 (b) e^{-5}
    (c) e^2 (d) e^{-2}

27. The probability that a man who is x years old will die in a year is p. Then, amongst n persons $A_1, A_2, \dots\dots, A_n$ each x years old now, the probability that A_1, will die in one year is
    (a) $\frac{1}{n^2}$ (b) $1 - (1-p)^n$
    (c) $\frac{1}{n^2}[1 - (1-p)^n]$ (d) $\frac{1}{n}[1 - (1-p)^n]$

28. Consider the following frequency distribution table.

Class Interval	10-20	20-30	30-40	40-50	50-60	60-70	70-80
Frequency	180	f_1	34	180	135	f_2	50

    If the total frequency is 686 and the median is 42.6, then the value of f_1 and f_2 are
    (a) 81, 25   (b) 82, 24
    (c) 83, 23   (d) 84, 22

29. The function $f(x) = \frac{x}{1+x\tan x}, 0 \le x \le \frac{\pi}{2}$ is maximum when
    (a) $x = \sec x$ (b) $x = \tan x$
    (c) $x = \cos x$ (d) None of the above

30. If $a\cos\theta + b\sin\theta = 2$ and $a\sin\theta - b\cos\theta = 3$, then $a^2 + b^2 =$
    (a) 6   (b) 5
    (c) 13   (d) 10

31. If $\frac{n!}{2!(n-2)!}$ and $\frac{n!}{4!(n-4)!}$ are in the ratio 2 : 1, then the value of n is
    (a) 0   (b) 2
    (c) 4   (d) 5

32. If $\log(1 - x + x^2) = a_1 x + a_2 x^2 + a_3 x^3 + \cdots$. Then $a_3 + a_6 + a_9 + \cdots$ is equal to
    (a) $\log 2$ (b) $\frac{2}{3}\log 2$
    (c) $\frac{1}{3}\log 2$ (d) $2\log 2$

33. If n is an integer between 0 to 21, then find a value of n for which the value of $n! \, (21-n)!$ is minimum.
    (a) 9   (b) 10
    (c) 12   (d) 21

34. For what value of p, the polynomial $x^4 - 3x^3 + 2px^2 - 6$ is exactly divisible by $(x - 1)$
    (a) 2   (b) 4
    (c) 6   (d) 8

35. If $32\tan^8\theta = 2\cos^2\alpha - 3\cos\alpha$ and $3\cos 2\theta = 1$, then the general value of α for $n \in Z$ is
    (a) $n\pi \pm \frac{\pi}{3}$ (b) $2n\pi \pm \frac{2\pi}{3}$
    (c) $2n\pi \pm \frac{\pi}{3}$ (d) $n\pi \pm \frac{2\pi}{3}$

36. The area of the triangle formed by the vertices whose position vectors are $3\hat{\imath} + \hat{\jmath}, 5\hat{\imath} + 2\hat{\jmath} + \hat{k}, \hat{\imath} - 2\hat{\jmath} + 3\hat{k}$ is
    (a) $\sqrt{21}$sq.units   (b) $\sqrt{23}$sq.units
    (c) $\sqrt{33}$sq.units   (d) $\sqrt{29}$sq.units

37. If $\vec{e}_1 = (1,1,1)$ and $\vec{e}_2 = (1,1,-1)$ and $\vec{a}$ and $\vec{b}$ are two vectors such that $\vec{e}_1 = 2\vec{a} + \vec{b}$ and $\vec{e}_2 = \vec{a} + 2\vec{b}$, then the angle between $\vec{a}$ and $\vec{b}$ is
    (a) $\cos^{-1}\left(-\frac{7}{11}\right)$ (b) $\cos^{-1}\left(\frac{7}{11}\right)$
    (c) $\cos^{-1}\left(\frac{7}{9}\right)$ (d) $\cos^{-1}\left(\frac{6\sqrt{2}}{11}\right)$

38. In a $\triangle ABC$, if $\tan^2\frac{A}{2} + \tan^2\frac{B}{2} + \tan^2\frac{C}{2} = k$, then k is always
    (a) >1 (b) ≥ 1
    (c) $= 2$ (d) $= 1$

39. If X and Y are two sets, then $X \cap Y' \cap (X \cup Y)'$ is
    (a) X' (b) Y'
    (c) ϕ (d) None of the above

40. In three throws of three dice, the probability of throwing triplets not more than twice is
    (a) $1 - \frac{1}{6^2}$ (b) $1 - \frac{1}{6^3}$
    (c) $1 - \frac{1}{36^2}$ (d) $1 - \frac{1}{36^3}$

41. The eccentric angles of the extremities of latus rectum of the ellipse $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$ are given by
    (a) $\tan^{-1}\left(\pm\frac{ae}{b}\right)$ (b) $\tan^{-1}\left(\pm\frac{be}{a}\right)$
    (c) $\tan^{-1}\left(\pm\frac{b}{ae}\right)$ (d) $\tan^{-1}\left(\pm\frac{a}{be}\right)$

42. If $f: R \to R$ is defined by
    $$f(x) = \begin{cases} \frac{x+2}{x^2+3x+2} & if & x \in R - \{-1,-2\} \\ -1 & if & x = -2 \\ 0 & if & x = -1 \end{cases}$$
    then $f(x)$ is continuous on the set
    (a) R   (b) $R - \{-2\}$
    (c) $R - \{-1\}$ (d) $R - \{-1, -2\}$

43. Let $\vec{a} = \hat{\imath} + \hat{\jmath}$ and $\vec{b} = 2\hat{\imath} - \hat{k}$. Then, the point of intersection of the lines $\vec{r} \times \vec{a} = \vec{b} \times \vec{a}$ and $\vec{r} \times \vec{b} = \vec{a} \times \vec{b}$ is
   (a) $-\hat{\imath} + \hat{\jmath} + \hat{k}$ (b) $3\hat{\imath} - \hat{\jmath} + \hat{k}$
   (c) $\hat{\imath} - \hat{\jmath} - \hat{k}$ (d) $3\hat{\imath} + \hat{\jmath} - \hat{k}$

44. $\int e^x(\sinh x + \cosh x)dx =$?
   (a) $e^x \operatorname{sech} x + C$ (b) $e^x \cosh x + C$
   (c) $\sinh 2x + C$ (d) $\cosh 2x + C$

45. If $\alpha \neq \text{ß}$ and $\alpha^2 = 5\alpha - 3, \text{ß}^2 = 5\text{ß} - 3$, then the equation whose roots are $\frac{\alpha}{\text{ß}}$ and $\frac{\text{ß}}{\alpha}$ is
   (a) $3x^2 - 25x + 3 = 0$
   (b) $3x^2 + 5x + 3 = 0$
   (c) $3x^2 - 5x + 3 = 0$
   (d) $3x^2 - 19x + 3 = 0$

46. The locus of the point of intersection of tangents to the ellipse $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$ which meet at right angle is
   (a) a circle   (b) a parabola
   (c) an ellipse   (d) a hyperbola

47. If $H_1, H_2, \dots, H_n$ are n harmonic means between a and $b(\neq a)$, then $\frac{H_1 + a}{H_1 - a} + \frac{H_n + b}{H_n - b} =$
   (a) $2n$ (b) $n + 1$
   (c) $n - 1$ (d) $2n + 1$

48. The area of the region bounded by the $X - axis$ and the curves defined by $y = \tan x$, $-\frac{\pi}{3} \leq x \leq \frac{\pi}{3}$ and $y = \cot x$, $\frac{\pi}{6} \leq x \leq \frac{3\pi}{2}$ is
   (a) $-\frac{1}{2}\log 2$ (b) $\frac{1}{2}\log 2$
   (c) $\log 2$ (d) None of the above

49. Suppose that $A_1, A_2, \dots, A_{30}$ are 30 sets each having 5 elements and $B_1, B_2, \dots, B_n$ are n sets such that $\bigcup_{i=1}^{30} A_i = \bigcup_{j=1}^{n} B_j = s$. If each element of S belongs to exactly ten of the $A_i's$ and exactly nine of the $B_j's$, then $n =$
   (a) 15   (b) 45
   (c) 75   (d) 90

50. If a number x is selected from natural numbers 1, 2, ..., 100, then the probability for $x + \frac{100}{x} > 29$ is
   (a) $\frac{37}{50}$ (b) $\frac{39}{50}$
   (c) $\frac{41}{50}$ (d) $\frac{43}{50}$

51. Choose the odd one:
   (a) Zebra   (b) Hyena
   (c) Rhinoceros   (d) Giraffe

Insert the missing number:
52. 16, 33, 65, 131, 261, ?
   (a) 523   (b) 521
   (c) 613   (d) 721

53. 8, 7, 11, 12, 14, 17, 17, 22, ?
   (a) 27   (b) 20
   (c) 22   (d) 24

Read the information given below and answer the following question:
I. In a family of six persons A, B, C, D, E and F, there are two married couples.
II. D is grandmother of A and mother of B.
III. C is wife of B and mother of F.
IV. F is the granddaughter of E.

54. Who among the following is one of the couples?
   (a) CD   (b) DE
   (c) EB   (d) None of these

55. What is C to A?
   (a) Daughter   (b) Grandmother
   (c) Mother   (d) Cannot be determined

56. Which of the following is true?
   (a) A is brother of F.
   (b) A is sister of F.
   (c) D has two grandsons.
   (d) None of these

57. How many male members are there in the family?
   (a) Three
   (b) Two
   (c) Cannot be determined
   (d) None of these

Study the following table carefully and answer the following question.

Subjects (Full marks 50)	40 and above	30 and above	20 and above	10 and above	0 and above
Physics	9	32	80	92	100
Chemistry	4	21	66	81	100
Aggregate average	7	27	73	87	100

58. If it is known that at least 3 students were eligible for a Symposium on Chemistry, the minimum qualifying marks in Chemistry for eligibility to Symposium would lie in the range:
   (a) 30 - 40   (b) 20 - 30
   (c) Below 20   (d) Cannot be determined

59. What is the difference between the number of students passed with 30 as cut-off marks in Chemistry and those passed with 30 as cut-off marks in aggregate?
   (a) 3   (b) 4
   (c) 5   (d) 6

60. If at least 60% marks in Physics are required for pursuing higher studies in Physics, how many students will be eligible to pursue higher studies in physics?
   (a) 27   (b) 32
   (c) 34   (d) 41

61. The number of students scoring less than 40% marks in aggregate is:
   (a) 13   (b) 19
   (c) 20   (d) 27

Choose the missing term:
62. BTCX : DWEV :: FUGT : ?
   (a) EHIJ   (b) GHIJ
   (c) HSIR   (d) SRHS

63. Q1F, S2E, U6D, W21C, ?
    (a) Y66B   (b) Y44B
    (c) Y88B   (d) Z88B

64. 7 : 56 :: 9 : ?
    (a) 63   (b) 81
    (c) 90   (d) 99

65. If 'A3T15R' stands for 'ACTOR' and 'D1T5' stands for DATE, how will you code 'ROTATE'
    (a) R16T1T5   (b) R15T1T5
    (c) R15T1T16   (d) R15C1&7

66. COUNSEL is to BITIRAK, so also GUIDANCE is to _____?
    (a) EOHYZKBB   (b) FOHYZJBB
    (c) FPHZZKAB   (d) HOHYBJBA

A company produces five different products. The sales of these five products (in lakh number of packs) during 2005 and 2010 are shown in the following bar-graph. Question is based on this graph.
Sales (in lakh number of packs) of five different products of a company during 2005-2010
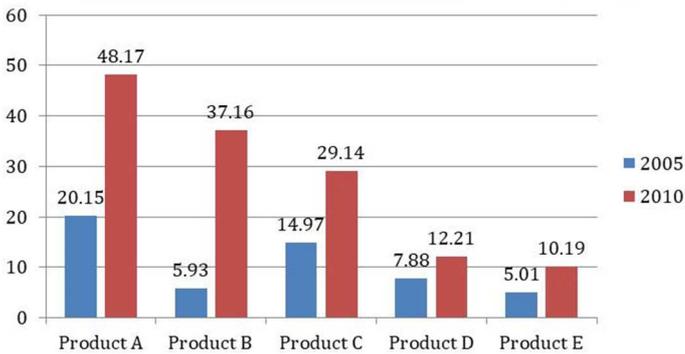
67. The sales have increased by nearly 55% from 2005 to 2010 in case of:
    (a) Product A   (b) Product B
    (c) Product C   (d) Product D

68. The sales of Product A in 2010 was by what percent more than the sales of Product B in 2010? (rounded off to the nearest integer)
    (a) 33%   (b) 31%
    (c) 28%   (d) 22%

69. During the period 2005-2010, the minimum rate of increase in sales in the case of:
    (a) Product A   (b) Product B
    (c) Product D   (d) Product E

70. Choose the pair of number that comes next:
    1 10 7 20 13 30 19
    (a) 25 22   (b) 26 24
    (c) 26 23   (d) 25 23

71. In this series looking at the letter pattern fill the blank in the middle of the series:
    ELFS, GLHA, ILJA, _____, MLNA
    (a) OLPA   (b) KLMA
    (c) LLMA   (d) KLLA

Read the following information carefully and then answer the following question:
I. P ψ Q means P is mother of Q
II. P ∈ Q means P is sister of Q
III. P $ Q means P is father of Q
IV. P # Q means P is brother of Q

72. Which of the following means R is brother of T?
    (a) R ψ S # U $ T   (b) U ψ R # S # T
    (c) U ψ R ∈ S ψ T   (d) T # S $ Q ∈ R

73. Which of the following means N is definitely daughter of K?
    (a) K $ L # M # N   (b) M ψ K $ N ∈ L
    (c) K ψ M # L ∈ N   (d) L ψ K $ N # M

74. If K ψ L ∈ M # N, then how K is related with N?
    (a) Mother   (b) Aunt
    (c) Great Aunt   (d) Grandmother

75. Choose the word that is a necessary part of the underlined word: harvest
    (a) autumn   (b) crop
    (c) stockpile   (d) tractor

76. There are six members in a family. A is the father of D, E is the grandfather of D. B is the daughter-in-law of C. F is the uncle of D. What is the relationship of C with F?
    (a) Sister   (b) Mother-in-law
    (c) Nephew   (d) Data inadequate

77. Find the matching term for music : Guitar : Performer.
    (a) Dance : Tune : Instrument
    (b) Food : Recipe : Cook
    (c) Patient : Medicine : doctor
    (d) Trick : Rope : Acrobat

78. If it is Saturday on January 1, 2000, then January 1, 2001 would have been
    (a) Monday   (b) Sunday
    (c) Tuesday   (d) Friday

79. Choose the word which has the same relationship among the given three words: Yellow, Blue, Red
    (a) Black   (b) Orange
    (c) White   (d) Paint

80. Choose the correct option for the remainder when X = 1! + 2! + 3! + ... + 100! is divided by 24
    (a) 9   (b) 11
    (c) 152   (d) 13

81. Which word does NOT belong with the others?
    (a) wing   (b) fin
    (c) beak   (d) rudder

82. If $9 \times 3 + 8 = 24$, $10 \times 2 + 7 = 35$ and $80 \times 40 + 3 = 6$, then find the value of $12 \times 4 + 3 = ?$
    (a) 7   (b) 9
    (c) 12   (d) 16

83. How many times in a day are the hands of a clock pointing opposite to each other?
    (a) 4   (b) 20
    (c) 22   (d) 24

84. Choose the number pair or group that is different from others?
(a) 15 : 46   (b) 12 : 37
(c) 9 : 28   (d) 8 : 33

85. Choose the pair that best represents a similar relationship to the one expressed in the original pair of words: PULSATE : THROB
(a) walk : run
(b) tired : sleep
(c) examine : scrutinize
(d) ballet : dancer

86. In a certain code language, "do re me" means "he is late"; "fa me la" means "she is early" and "so ti do" means "he leaves soon". Which word in the language means 'late'?
(a) la   (b) do
(c) me   (d) re

87. In a class of 50 students, Raghu's rank is twice that of Paul. There are 10 students who have ranked worse than that of Raghu. Paul's rank in the class is:
(a) 5th   (b) 10th
(c) 15th   (d) 20th

88. Choose the pair that best represents a similar relationship to the one expressed in the original pair of words: WAITRESS : RESTAURANT
(a) doctor : diagnosis
(b) actor : role
(c) driver : truck
(d) teacher : school

89. Radha is twice as old as Rita was 2 years ago. If difference between their ages is 2 years, how old is Radha today?
(a) 6   (b) 8
(c) 10   (d) 12

90. If Z = 52 and ACT = 48, then BAT will be equal to
(a) 46   (b) 39
(c) 44   (d) 41

DIRECTIONS:
It is said with truth that the function of a university is to prepare the young to take their place in human society. It must provide its members with the knowledge and skill necessary to make them efficient citizens. But is the whole duty of man exhausted by the acquisition of knowledge and professional training? Is a university only an institution for higher learning, a factory which churns out clerks and technicians able to run the machinery of the State? Mere knowledge which gratifies curiosity is different from culture which refines personality. Culture is not remembering a mass of serious details about the dates of birth of the great heroes of the world or the interesting names of the fastest ships which cross the Atlantic or entertaining odds and ends gathered from the latest who's who. A well-known institution of this country has for its motto savidyayavimuchyate: that is, knowledge which is designed for salvation, for the development of the soul, is the best. Such an idea is not merely an Indian idiosyncrasy. Plato said long ago that the culture of soul is "the first and fairest thing that the best of men can ever have. According to Goethe, the object of education is to form tastes and not simply to communicate knowledge. A man's culture is not judged by the amount of tabulated information which he has at his command, but by the quality of mind which he brings to bear on the facts of life. Education is not cramming the mind with a host of technical details, putting sight, as it were, into blind eyes. The eye of the soul is never blind, only its gaze may be turned to the false and the fleeting. Too often the vision may be dragged downwards by the "leaden weights" of pride and prejudice, of passion and desire. The function of the teacher is not to add to the "leaden weights" but remove them and liberate the soul from the encumbrance so that it may follow its native impulse to soar upwards. The student at a university does not merely learn something, but becomes something by being exposed, in the most elastic period of his life, to transforming influences, such as the constant clash of mind with mind, the interchange of ideas, the testing of opinions, and the growth of knowledge of human nature.

91. What is a man's culture judged by?
(a) By the quality of mind which he brings to bear on the facts of life.
(b) By man's social skill.
(c) By the variety of books he reads.
(d) By money and influence.

92. What are the hindering factors in the liberation and development of the soul?
(a) Power and wealth
(b) Passion and desire, pride and prejudice
(c) Money and influence
(d) Greed and envy

93. What is the function of education according to the ancient Indian philosophers?
(a) Education is the development of mind.
(b) Education brings about salvation and development of the soul.
(c) Education is the cultivation of culture.
(d) Education aims at the inculcation of generosity.

94. What is the object of education according to Goathe?
(a) It teaches social manners.
(b) It teaches courtesy.
(c) It communicates knowledge.
(d) It forms taste.

95. What is meant by "leaden weights"?
(a) Weights made of leaden
(b) Cold scientific knowledge
(c) Hindering factors, of pride and prejudice, passion and desire, in the liberation of the soul.
(d) Social and family responsibilities.

96. The function of university is:
(a) To enable the young to gather facts about the world.
(b) To learn to do his job.
(c) To prepare the young to take their place in society.
(d) To enable them to learn to talk with others.

97. Mere knowledge and culture may be distinguished from each other in that:
    (a) The former widens the mental horizon, the latter enlarges the heart.
    (b) The former gratifies curiosity, the latter refines personality.
    (c) The former is concerned with facts, the latter with fiction.
    (d) The former adds to power, the latter adds to prestige.

98. According to the passage, the function of the teacher is:
    (a) To remove leaden weights of pride and prejudice, passion, and desire to liberate the soul.
    (b) To instill facts into the minds of the students.
    (c) To teach humanity.
    (d) To foster brotherhood.

Fill in the blank with the most appropriate word given in the options:

99. The _____ with which he is able to wield the paint brush is really remarkable.
    (a) ease   (b) practice
    (c) sweep   (d) gait

100. The State Transportation Corporation has _____ a loss of 5 crore INR this year.
    (a) derived   (b) incurred
    (c) performed   (d) formulated

101. The tall prefers rooms with _____ ceilings.
    (a) tall   (b) long
    (c) higher   (d) high

102. I cannot _____ it to you right now; tomorrow we will discuss about it.
    (a) demand   (b) disturb
    (c) explain   (d) expect

103. The car driver was arrested for rash driving and his license was _____ by the police.
    (a) impounded   (b) flown
    (c) penalized   (d) banned

Write one word for the following:

104. An uncivilized/primitive person.
    (a) barbarian   (b) ascetic
    (c) bourgeois   (d) altrust

105. One who does not save for future.
    (a) incorporeal   (b) inedible
    (c) improvident   (d) implacable

Choose the most suitable antonym of the given word:

106. NEGLIGENCE
    (a) diligence   (b) meticulousness
    (c) integrity   (d) honesty

107. ERUDITE
    (a) scholarly   (b) unfamiliar
    (c) illiterate   (d) arrogant

Choose the most suitable synonym of the given word:

108. RECUPERATE
    (a) recapture   (b) reclaim
    (c) recover   (d) recur

109. SCINTILLATING
    (a) touching   (b) nagging
    (c) glittering   (d) warning

110. BLAND
    (a) pleasant   (b) harsh
    (c) irritating   (d) tasteless

111. Consider a computer system with speed of 10^6 instructions per second. A program P, having $2n^2$ steps is run on this system, where n is the input size. If n = 10000, what is the execution time for P?
    (a) 2 seconds   (b) 20 seconds
    (c) 100 seconds   (d) 200 seconds

112. To fetch data from the secondary memory which one of the following register is used
    (a) MAR   (b) PC
    (c) IR   (d) MBR

113. One TeraByte (TB) = _____ GB and One ExaByte(EB) = _____ GB
    (a) 2^{10} GB, 2^{16} GB   (b) 2^{10} GB, 2^{20} GB
    (c) 2^{10}Gb, 2^{24} GB   (d) 2^{10} GB, 2^{30} GB

114. The cache memory is more effective because of
    (a) Memory localization
    (b) Locality of reference
    (c) Memory size
    (d) None of the mentioned

115. To access the I/O devices the status flags is continuously checked in
    (a) Program controlled I/O
    (b) Memory mapped I/O
    (c) I/O mapped
    (d) None of the above

116. Which of the following is the fastest means of memory access for CPU?
    (a) Registers   (b) Cache
    (c) Main memory   (d) Stack

117. The process when processor fetch or decode another instruction during the execution of current instruction is called
    (a) Supercomputing (b) Pipelining
    (c) Cloud computing (d) Grid computing

118. Which of the following is used by ALU to store the intermediate results?
    (a) Stack   (b) Heap
    (c) Registers   (d) Accumulators

119. The number $(2217)_8$ is equivalent to
    (a) $(608)_{16}$ (b) $(028F)_{16}$
    (c) $(048F)_{16}$ (d) $(2297)_{10}$

120. The binary multiplication 00*11 will give
    (a) 11   (b) 00
    (c) 01   (d) 10

impetus

The Catalyst of Your Ambition

NIMCET-2021

ANSWER KEY: NIMCET-2021-ACTUAL PAPER

No.	Ans	No.	Ans	No.	Ans	No.	Ans	No.	Ans	No.	Ans	No.	Ans	No.	Ans	No.	Ans	No.	Ans
1.	d	2.	b	3.	c	4.	d	5.	c	6.	b	7.	d	8.	b	9.	a	10.	b
11.	c	12.	a	13.	a	14.	b	15.	c	16.	a	17.	b	18.	c	19.	a	20.	c
21.	a	22.	c	23.	d	24.	c	25.	b	26.	a	27.	d	28.	b	29.	c	30.	c
31.	d	32.	b	33.	b	34.	b	35.	b	36.	d	37.	a	38.	b	39.	c	40.	d
41.	c	42.	c	43.	d	44.	b	45.	d	46.	a	47.	a	48.	c	49.	b	50.	b
51.	b	52.	a	53.	b	54.	b	55.	c	56.	d	57.	c	58.	b	59.	d	60.	b
61.	d	62.	c	63.	c	64.	c	65.	b	66.	b	67.	d	68.	c	69.	c	70.	c
71.	d	72.	b	73.	b	74.	a	75.	b	76.	d	77.	d	78.	a	79.	b	80.	a
81.	c	82.	b	83.	c	84.	d	85.	c	86.	d	87.	d	88.	d	89.	b	90.	a
91.	a	92.	b	93.	b	94.	d	95.	c	96.	c	97.	b	98.	a	99.	a	100.	b
101.	d	102.	c	103.	a	104.	a	105.	c	106.	b	107.	c	108.	c	109.	c	110.	d
111.	d	112.	a	113.	d	114.	b	115.	a	116.	a	117.	b	118.	d	119.	c	120.	b