NIMCET 2020 Question Paper

Mathematics

1. If $\binom{15}{8}+\binom{15}{7}=\binom{n}{r}$, then the values of n and r are:
   (A) 16 and 7 (B) 16 and 8
   (C) 16 and 9 (D) 30 and 15
2. In a class of 50 students, it was found that 30 students read ``Hitavad", 35 students read ``Hindustan" and 10 read neither. How many students read both: ``Hitavad" and ``Hindustan" newspapers?
   (A) 25 (B) 20 (C) 15 (D) 30
3. If $A=\{4^x-3x-1: x \in \mathbb{N}\}$ and $B=\{9(x-1): x \in \mathbb{N}\}$, where $\mathbb{N}$ is the set of natural numbers, then
   (A) A $\subset$ ***B*** (B) A$\subseteq$ ***B***
   (C) A $\supset$ ***B*** (D) A $\supseteq$ B
4. If $A=\{x,y,z\}$, then the number of subsets in powerset of A is
   (A) 6 (B) 8 (C) 7 (D) 9
5. How many words can be formed starting with letter D taking all letters from word DELHI so that the letters are not repeated:
   (A) 4 (B) 12 (C) 24 (D) 120
6. Naresh has 10 friends, and he wants to invite 6 of them to a party. How many times will 3 particular friends never attend the party?
   (A) 8 (B) 7 (C) 720 (D) 35
7. There is a young boy's birthday party in which 3 friends have attended. The mother has arranged 10 games where a prize is awarded for a winning game. The prizes are identical. If each of the 4 children receives at least one prize, then how many distributions of prizes are possible?
   (A) 80 (B) 84 (C) 70 (D) 72
8. Three cities A, B, C are equidistant from each other. A motorist travels from A to B at 30km/hour, from B to C at 40km/hour and from C to A at 50km/hour. Then the average speed is
   (A) 39km/hour (B) 40km/hour
   (C) 38.3km/hour (D) 37.6km/hour
9. A problem in Mathematics is given to 3 students A, B and C. If the probability of A solving the problem is $\frac{1}{2}$ and B not solving it is $\frac{1}{4}$. The whole probability of the problem being solved is $\frac{63}{64}$, then what is the probability of solving it by C?
   (A) $\frac{1}{8}$ (B) $\frac{1}{64}$ (C) $\frac{7}{8}$ (D) $\frac{1}{2}$
10. A and B play a game where each is asked to select a number from 1 to 25. If the two numbers match, both win a prize. The probability that they will not win a prize in a single trial is
    (A) $\frac{1}{25}$ (B) $\frac{24}{25}$ (C) $\frac{2}{25}$ (D) $\frac{3}{25}$
11. A, B, C are three sets of values of x:
    A: 2,3,7,1,3,2,3
    B: 7,5,9,12,5,3,8
    C: 4,4,11,7,2,3,4
    Select the correct statement among the following:
    (A) Mean of A is equal to Mode of C.
    (B) Mean of C is equal to Median of B.
    (C) Median of B is equal to Mode of A.
    (D) Mean, Median and Mode of A are same.
12. Standard deviation for the following distribution is

Size of item:	6	7	8	9	10	11	12
Frequency:	3	6	9	13	8	5	4

    (A) 1.607 (B) 9.0
    (C) 5.0 (D) 1.88
13. If $A=\begin{bmatrix}\cos\alpha & \sin\alpha\\ -\sin\alpha & \cos\alpha\end{bmatrix}$, then for any positive integer n, A^n is
    (A) $\begin{bmatrix}\sin n\alpha & \cos n\alpha\\ \cos n\alpha & -\sin n\alpha\end{bmatrix}$
    (B) $\begin{bmatrix}\cos n\alpha & \sin n\alpha\\ \sin n\alpha & \cos n\alpha\end{bmatrix}$
    (C) $\begin{bmatrix}\cos n\alpha & \sin n\alpha\\ \sin n\alpha & -\cos n\alpha\end{bmatrix}$
    (D) $\begin{bmatrix}\cos n\alpha & \sin n\alpha\\ -\sin n\alpha & \cos n\alpha\end{bmatrix}$
14. Roots of equation $ax^2-2bx+c=0$ are n and m, then the value of $\frac{b}{an^2+c}+\frac{b}{am^2+c}$ is
    (A) $\frac{c}{a}$ (B) $\frac{b}{a}$ (C) $\frac{a}{c}$ (d) $\frac{b}{c}$
15. The number of values of k for which the linear equations
    $4x+ky+z=0$
    $kx+4y+z=0$
    $2x+2y+z=0$

posses a non-zero solution is
(A) 2 (B) 1 (C) 0 (D) 3

16. Let $A = (a_{ij})$ and $B = (b_{ij})$ be two square matrices of order n and det(A) denotes the determinant of A. Then, which of the following is not correct.
(A) If A is a diagonal matrix, then $det(A) = a_{11}a_{22} \dots a_{nn}$.
(B) det(AB) = det(A) det(B)
(C) det(cA) = cdet(A)
(D) det(A) = det(AT), where AT denotes the transpose of the matrix A

17. The tangent to an ellipse $x^2 + 16y^2 = 16$ and making angel 60° with X-axis is:
(A) $x - \sqrt{3}y + 7 = 0$ (B) $\sqrt{3}x - y + 8 = 0$
(C) $\sqrt{3}x - y + 7 = 0$ (D) $x + \sqrt{3}y - 7 = 0$

18. Find the number of point(s) of intersection of the ellipse $\frac{x^2}{4} + \frac{(y-1)^2}{9} = 1$ and the circle $x^2 + y^2 = 4$
(A) 4 (B) 3 (C) 2 (D) 1

19. An arithmetic progression has 3 as its first term. Also, the sum of the first 8 terms is twice the sum of the first 5 terms. Then what is the common difference?
(A) 3/4 (B) 1/2 (C) 1/4 (D) 4/3

20. If $a + b + c = 0$, then the value of $\frac{a^2}{bc} + \frac{b^2}{ca} + \frac{c^2}{ac}$ is:
(A) 1 (B) 0 (C) 3 (D) -1

21. Find $\lim_{x\to 0} x^2 e^{\sin\left(\frac{1}{x}\right)}$
(A) 1 (B) limit does not exist
(C) infinity (D) None of these

22. If $f(x) = \begin{cases} x^2, & x \le 0 \\ 2\sin x, & x > 0 \end{cases}$, then $x = 0$ is
(A) Point of minima
(B) Point of maxima
(C) Point of discontinuity
(D) None of these

23. If $g(x) = \begin{cases} (x^2 - x)/2x, & x \neq 0 \\ k, & x = 0 \end{cases}$ is a continuous function at $x = 0$, then the value of k is
(A) 2 (B) 1/2
(C) 1 (D) None of these

24. Find the interval(s) on which the graph $y = 2x^3 e^x$ is increasing:
(A) $(-3, 0)$ and $(0, \infty)$ (B) $\left(-\frac{3}{2}, 0\right)$ and $(0, \infty)$
(C) $(-3, \infty)$ only (D) None of these

25. If $\int \sec^2 x \, cosec^4 x \, dx = -\frac{1}{3}\cot^3 x + k \tan x - 2\cot x$ + C, the value of k is
(A) 1 (B) 2 (C) 3 (D) 4

26. Evaluate $\int e^x \left(\frac{1+\sin x \cos x}{\cos^2 x}\right) dx$
(A) $e^x \cos x + C$ (B) $e^x sex\, x \tan x + C$
(C) $e^x \tan x + C$ (D) $e^x \cos^2 x - 1 + C$

27. If $I_n = \int_0^a (a^2 - x^2)^n dx$ where n is a positive integer, then the relation between I_n and I_{n-1} is
(A) $I_n = \frac{2na^2}{2n+1} I_{n-1}$ (B) $I_n = \frac{2n^2a^2}{2n+1} I_{n-1}$
(C) $I_n = \frac{2na^2}{2n-1} I_{n-1}$ (D) $I_n = \frac{2n^2a^2}{2n-1} I_{n-1}$

28. The value of $\int_{-2}^{2} (ax^5 + bx^3 + c)dx$ depends on the
(A) Value of b (B) Value of c
(C) Value of a (D) Value of a and b

29. Find the area bounded by the line $y = 3 - x$, the parabola $y = x^2 - 9$ and $x \ge -1, y \ge 0$.
(A) 7/2 (B) 11/2
(C) 9/2 (D) None of these

30. If $\vec{a}, \vec{b}, \vec{c}$ are three non-coplanar vectors, then $(\vec{a} + \vec{b} + \vec{c}).[(\vec{a} + \vec{b}) \times (\vec{a} + \vec{c})]$
(A) 0 (B) $[\vec{a}\ \ \vec{b}\ \ \vec{c}]$
(C) $2[\vec{a}\ \ \vec{b}\ \ \vec{c}]$ (D) $-[\vec{a}\ \ \vec{b}\ \ \vec{c}]$

31. Two forces F_1 and F_2 are used to pull a car, which met an accident. The angle between the two forces is $\boldsymbol{\theta}$. Find the values of $\boldsymbol{\theta}$ for which the resultant force is equal to $\sqrt{\{F_1^2 + F_2^2\}}$.
(A) $\boldsymbol{\theta} = \mathbf{0}$ (B) $\boldsymbol{\theta} = \mathbf{45}$
(C) $\boldsymbol{\theta} = \mathbf{90}$ (D) $\boldsymbol{\theta} = \mathbf{135}$

32. If $\vec{a}$, $\vec{b}$, $\vec{c}, \vec{d}$ are four vectors such that $\vec{a} + \vec{b} + \vec{c}$, isd collinear with $\vec{d}$ and $\vec{b} + \vec{c} + \vec{d}$ is collinear with $\vec{a}$, then $\vec{a} + \vec{b} + \vec{c} + \vec{d}$ is
(A) $\vec{o}$
(B) collinear with $\vec{a} + \vec{d}$
(C) collinear with $\vec{a} - \vec{d}$
(D) collinear with $\vec{b} - \vec{c}$

33. Forces of magnitude 5, 3, 1 units act in the directions $6i + 2j + 3k$, $3i - 2j + 6k$, $2i - 3j - 6k$ respectively on a particle which is displaced from the point $(2, -1, -3)$ to $(5, -1, 1)$. The total work done by the force is
(A) 21 units (B) 5 units
(C) 33 units (D) 105 units

34. The position vectors of points A and B are $\vec{a}$ and $\vec{b}$. Then the position vector of point p dividing AB in the ratio $m:n$ is

(A) $\frac{n\vec{a}+m\vec{b}}{m+n}$ (B) $\frac{n\vec{a}+m\vec{b}}{m-n}$
(C) $\frac{n\vec{a}-m\vec{b}}{m+n}$ (D) None of these

35. If $\vec{a}, \vec{b}, \vec{c}$ are three non-zero vectors with no two of which are collinear, $\vec{a}+2\vec{b}$ is collinear with $\vec{c}$ and $\vec{b}+3\vec{c}$ is collinear with $\vec{a}$, then $|\vec{a}+2\vec{b}+6\vec{c}|$ will be equal to
(A) Zero (B) 9
(C) 1 (D) None of the above

36. Vertices of the vectors $i-2j+2k$, $2i+j-k$ and $3i-j+2k$ form a triangle. This triangle is
(A) Equilateral triangle
(B) Right angle triangle
(C) Two sides are equal in length
(D) None of the above

37. If the volume of a parallelepiped whose adjacent edges are
$\vec{a} = 2i + 3j + 4k$,
$\vec{b} = i + \alpha j + 2k$,
$\vec{c} = i + 2j + \alpha k$
is 15, then $\alpha =$
(A) 1 (B) 5/2 (C) 9/2 (D) 0

38. Solve the equation $\sin^2 x - \sin x - 2 = 0$ for x on the interval $0 \le x < 2\pi$:
(A) $x = -\frac{\pi}{2}$ only (B) $x = \frac{\pi}{4}$ and $\frac{2\pi}{7}$
(C) $x = \frac{2\pi}{3}$ and $\frac{2\pi}{5}$ (D) None of these

39. If $\frac{\tan x}{2} = \frac{\tan y}{3} = \frac{\tan z}{5}$ and $x+y+z = \pi$, then the value of $\tan^2 x + \tan^2 y + \tan^2 z$ is
(A) 38/3 (B) 38
(C) 114 (D) None of these

40. Find the value of sin 12°sin 48°sin 54°:
(A) 1/8 (B) 1/6 (C) 1/2 (D) 1/4

41. If $\cos x = \tan y, \cot y = \tan z$ and $\cot z = \tan x$, then $\sin x =$:
(A) $\frac{\sqrt{5}-1}{2}$ (B) $\frac{\sqrt{5}+1}{2}$
(C) $\frac{\sqrt{5}+1}{4}$ (D) $\frac{\sqrt{5}-1}{4}$

42. The value of $\tan\left(45+\frac{\theta}{2}\right)$ is
(A) $\tan\boldsymbol{\theta} - \boldsymbol{\sec\theta}$ (B) $\tan\boldsymbol{\theta} + \boldsymbol{\sec\theta}$
(C) $\cot\boldsymbol{\theta} - \boldsymbol{\sec\theta}$ (D) $\cot\boldsymbol{\theta} + \boldsymbol{\sec\theta}$

43. The value of sin 10°sin 50°sin 70° is :
(A) 1/4 (B) 1/2 (C) 3/4 (D) 1/8

44. The expression $\frac{\tan A}{1-\cot A} + \frac{\cot A}{1-\tan A}$ can be written as
(A) sinAcosA+1 (B) secAcosecA+1
(C) tanA+cotA (D) secA+cosecA

45. Angle of elevation of the top of the tower from 3 points (collinear) A, B and C on a road leading to the foot of the tower are 30°, 45° and 60°, respectively. The ratio of AB and BC is
(A) $\sqrt{3}:1$ (B) $\sqrt{3}:2$
(C) 1 : 2 (D) $2:\sqrt{3}$

46. The area enclosed between the curves $y^2 = x$ and $y = |x|$ is
(A) 2/3 sq. unit (B) 1 sq. unit
(C) 1/6 sq. unit (D) 1/3 sq. unit

47. Test the continuity of the function at $x = 2$
$$f(x) = \begin{cases} \frac{5}{2} - x, & x < 2 \\ 1, & x = 2 \\ x - \frac{3}{2}, & x > 2 \end{cases}$$
(A) Continuous at x=2
(B) Discontinuous at x=2
(C) Semicontinuous at x=2
(D) None of the above

48. The value of
$2\tan^{-1}[cosec(\tan^{-1} x) - \tan(\cot^{-1} x)]$ is
(A) tan x (B) cot x
(C) $\tan^{-1} x$ (D) $cosec^{-1} x$

49. If $3\sin x + 4\cos x = 5$, then $6\tan\frac{x}{2} - 9\tan^2\frac{x}{2} =$
(A) 1 (B) 3 (C) 4 (D) 6

50. If A is a subset of B and B is a subset of C, then cardinality of A∪ B ∪ C is equal to
(A) Cardinality of C (B) Cardinality of B
(C) Cardinality of A (D) None of the above

Logical Reasoning and Aptitude

51. A set of consecutive positive integers beginning with 1 is written on the blackboard. A student came along and erased one number. The average of the remaining numbers is $35\frac{7}{15}$. What was the number erased?
(A) 7 (B) 8
(C) 9 (D) None of the above

52. Four friends A, B, C and D need to cross a bridge in the night. A maximum of 2 people can cross at a time. They have only one lamp. A takes one minute to cross the bridge. B takes 2 minutes, C takes 8 minutes and D takes 11 minutes to cross the bridge respectively. A pair must walk together at the speed of the person who walks slowly. What is the minimum time required to cross the bridge by all the

four people?
(A) 23 minutes (B) 20 minutes
(C) 18 minutes (D) 16 minutes

53. In a city, 40.1% of the adults are illiterate while 85.1% of the children are literate. If the ratio of the adults to that of the children is 2:3, then what percent of the population is literate?
(A) 20% (B) 25%
(C) 50% (D) 75%

54. A runs $1\frac{2}{3}$ times as fast as B. If A gives B a start of 80m, how far must the winning post be so that A and B might reach it at the same time?
(A) 200 m (B) 400 m
(C) 300 m (D) 160 m

55. A person's present age is two fifth of the age of his mother. After 8 years, he will be one-half of the age of his mother. What is the present age of his mother?
(A) 60 years (B) 50 years
(C) 40 years (D) 30 years

56. . Mr. Kumar drives to work at an average speed of 48 Km/hr. The time taken to cover the first 60% of the distance is 10 minutes more than the time taken to cover the remaining distance. How far is his office?
(A) 30 Kms (B) 40 Kms
(C) 45 Kms (D) 48 Kms

57. Two pipes A and B can fill the cistern in 37.5 minutes and 45 minutes respectively. Both pipes are opened. The cistern will be filled in just half an hour, if the B is turned off after:
(A) 5 minutes (B) 9 minutes
(C) 10 minutes (D) 15 minutes

58. In a certain code, DOES is written as 5$3% and SITE is written as %4#3. How is EDIT written in that code?
(A) 3#4$ (B) %3#5
(C) 354# (D) 4#5$

59. In a shower, 5 cm of rain falls. The volume of water that falls on 1.5 hectares of ground is:
(A) 75 cubic meter (B) 750 cubic meter
(C) 7500 cubic meter (D) 75000 cubic meter

60. Eight friends A through H, are sitting around a circular table, playing a game of cards. They belong to two different teams X and Y. No two persons of the same team sit in adjacent seats.
• A sits neither opposite to D nor to H but is sitting in between C and G.
• B sits neither opposite to A nor to G but is sitting in between F and D
• B and H belong to team X and D sits opposite to E

Who are the members of team X?
(A) A, D, F and E (B) B, H, C and E
(C) B, D, H and G (D) B, H, C and G

61. Eight friends A through H, are sitting around a circular table, playing a game of cards. They belong to two different teams X and Y. No two persons of the same team sit in adjacent seats.
• A sits neither opposite to D nor to H but is sitting in between C and G.
• B sits neither opposite to A nor to G but is sitting in between F and D
• B and H belong to team X and D sits opposite to E

Who are sitting adjacent to E?
(A) B and H (B) B and G
(C) H and G (D) H and C

62. Four students A, B, C and D distributed 30 marbles among themselves. No two students got equal number of marbles. No student got more than 10 marbles. No student got less than 5 marbles. A and C got odd number of marbles. B and D got even number of marbles. A got more marbles than B, C got more marbles than D, B got more marbles than D.

What is the number of marbles with A?
(A) 6 (B) 7 (C) 8 (D) 9

63. Four students A, B, C and D distributed 30 marbles among themselves. No two students got equal number of marbles. No student got more than 10 marbles. No student got less than 5 marbles. A and C got odd number of marbles. B and D got even number of marbles. A got more marbles than B, C got more marbles than D, B got more marbles than D.

Mean of number of marbles with B, C, D is:
(A) 6 (B) 7
(C) 8 (D) None of the above

64. Nine individuals - Z, Y, X, W, V, U, T, S and R - are the only candidates, who can serve on three committees—K1, K2 and K3, and each candidate should serve on exactly one of the committees. Committee K1 should consist of exactly one member more than committee K2. It is possible that there are no members in committee K3. Among Z, Y and X none can serve on committee K1. Among W, V and U none can serve on committee K2. Among T, S and

R none can serve on committee K3.

In case committee K2 is served by T and Z only, how many of the nine individuals should serve on committee K3?

(A) 3 (B) 4 (C) 5 (D) 6

65. Nine individuals - Z, Y, X, W, V, U, T, S and R - are the only candidates, who can serve on three committees—K1, K2 and K3, and each candidate should serve on exactly one of the committees. Committee K1 should consist of exactly one member more than committee K2. It is possible that there are no members in committee K3. Among Z, Y and X none can serve on committee K1. Among W, V and U none can serve on committee K2. Among T, S and R none can serve on committee K3.

Of the nine individuals, the largest number that can serve together on committee K3 is:

(A) 8 (B) 7 (C) 6 (D) 5

66. Fill in the blank in the series: ELFA, GLHA, ILJA, _____, MLNA:

(A) OLPA (B) KLMA
(C) LLMA (D) KLLA

67. Pointing to a gentleman, Mohan said, 'His only brother is the father of my daughter's father'. The gentleman is Mohan's _____.

(A) Brother (B) Father
(C) Uncle (D) None of the above

68. It was 9.35 AM in Garvita's watch, which kept correct time, when Manya informed her that the last bus left the bus stop at 9.25 am. Manya's watch is 5 min fast. The frequency of the bus is every 20 min. For how long Garvita must wait to catch the next bus?

(A) 5 min (B) 10 min
(C) 15 min (D) 20 min

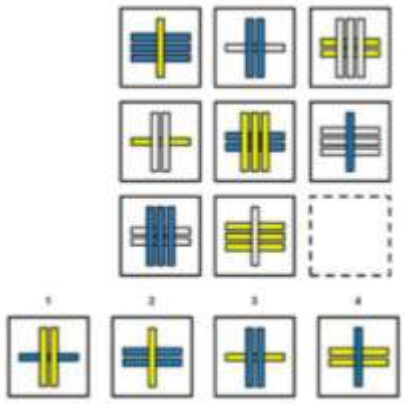
69. A total of 324 notes comprising of Rs. 20 and Rs. 50 denominations make a sum of Rs. 12450. The number of Rs. 20 notes is

(A) 200 (B) 144
(C) 125 (D) 110

70. Rishabh stops after going 10 Km towards west from his office. Then he goes 8 Km turning to his left. After this he goes 4 Km turning to his left. How far is he from the fixed point?

(A) 18 Km (B) 8 Km
(C) 10 Km (D) None of these

71. Which of the four options should fill the missing cell?



(A) 1 (B) 2 (C) 3 (D) 4

72. In the following questions, the symbols $, #, @, % and * illustrate the following meanings.

- P$Q – P is not smaller than Q
- P#Q – P is neither greater than nor equal to Q.
- P@Q – P is neither smaller than nor equal to Q.
- P%Q – P is not greater than Q
- P*Q – P is neither greater than nor smaller than Q.

Statements:

K # L, L % M, M * N, N # O

Conclusions:

I. K # M
II. K * M
III. L % O

(A) I only (B) Either I or II only
(C) III only (D) All I, II and III

73. Study the following arrangement carefully and answer the question given below:

W 1 R % 4 J E # 7 M T 2 I 9 B H 3 A $ 9 F Q 5 D G 6 U S P

Three of the following are alike in a certain way on the basis of above arrangement and hence form a group. Which one does not belong to that group?

(A) R W 4 (B) 9 Q A
(C) 3 B $ (D) 5 F G

74. If there are no dancers that aren't slim and no singers that aren't dancers, then which statements are always true? Choose the correct answer.

(A) There is not one slim person that isn't a dancer.
(B) All singers are slim.
(C) Anybody slim is also a singer.
(D) None of the above.

75. If in a certain language, ITNIETAM is the code for INTIMATE, which word has the code TREVNIETARBI?

(A) INVRETIBRATE (B) INVERTIBARTE
(C) INVERTIBRATE (D) INVERTIBRETA

76. Sum of ages of Anu and Bhanu is 10 years more than sum of ages of Bhanu, Chanu and Dhanu. Average age of Chanu and Dhanu is 19 years. Find the average age of Anu and Dhanu if Dhanu is 10 years elder than Chanu.
(A) 36 years (B) 30 years
(C) 25 years (D) 31 years

77. In a competitive examination in Maharashtra state 9% candidates got selected from the total appeared candidates. Tripura state had an equal number of candidates appeared and 12% candidates got selected with 102 more candidates got selected than Maharashtra state. What was the number of candidates appeared from each state?
(A) 3400 (B) 3000
(C) 2850 (D) 3200

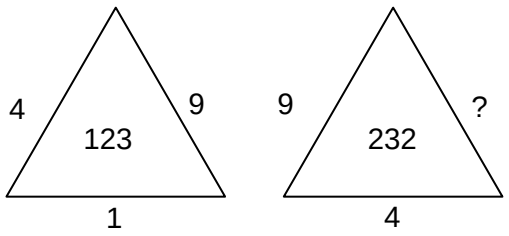
78. Shiva gave 40% of his monthly salary to his mother from the remaining he used 7% for electronic gadgets and 23% he kept aside for his monthly expenses. The remaining amount he transferred to his friend's account. The sum of the amount he gave to his mother and he transferred to his friend account was 41000. What was Shiva's monthly salary?
(A) 50500 (B) 49000
(C) 50000 (D) 45000

79. Read the information given below and answer the questions that follow:
i. A * B means -> A and B are of the same age
ii. A – B means -> B is younger than A
iii. A + B means -> A is younger than B
Sachin * Madan – Reena means?
(A) Reena is youngest
(B) Reena is oldest
(C) Madan is younger than Reena
(D) Madan is the youngest

80. Read the information given below and answer the questions that follows
i. A * B means -> A and B are of the same age
ii. A – B means -> B is younger than A
iii. A + B means -> A is younger than B
X + Y + Z is same as _____?
(A) Y – X – Z (B) Z – Y – X
(C) Z – X – Y (D) X – Y – Z

81. Find out the wrong number in the following number series:
56, 58, 62, 70, 84, 118, 182
(A) 58 (B) 62
(C) 84 (D) 118

82. . Find out the missing number:



(A) 2 (B) 6 (C) 4 (D) 16

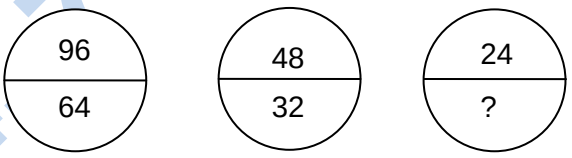
83. In an examination, 78% of the total students who appeared were successful. If the total number of failures was 176 and 34% got first class, then how many students got first class?
(A) 272 (B) 112 (C) 210 (D) 254

84. Which number should come in place of the question mark (?) in the following chart:

1	7	9
2	14	?
3	105	117

(A) 16 (B) 26 (C) 20 (D) 12

85. Find the missing number



(A) 21 (B) 16 (C) 10 (D) 8

86. How many minimum numbers of colours will be required to paint all the sides of a cube without the adjacent sides having the same colours?
(A) 3 (B) 4 (C) 5 (D) 6

87. If a man walks at the rate of 4 km/hr, he misses a train by only 6 minutes. However, if he walks at the rate of 5 km/hr, he reaches the station 6 minutes before the arrival of the train. The distance covered by him to reach the station is:
(A) 4 km (B) 7 km
(C) 9 km (D) 5 km

88. If the numerator of a fraction is increased by 25% and denominator decreased by 20%, the new value is 5/4. What is the original value?
(A) 3/5 (B) 4/5
(C) 7/8 (D) 3/7

89. Read the following information carefully and answer the questions given below:
i. Five friends Amar, Kapil, Sarvesh, Rohan and

Nagesh put on five shirts of different colours, i.e., Red, Yellow, Blue, White, and Green, while they were going to attend a party. These colours are not in the order.

ii. They have different hobbies as reading, playing, outing, singing and writing.

iii. Kapil, who likes singing, does not wear Yellow shirt. Sarvesh wears Red shirt and he does not like reading or writing. Nagesh likes playing and he does not wear Blue or Yellow shirt. Amar likes writing and Rohan does not wear Yellow or Green shirt.

What is the colour of Kapil's shirt?

(A) White (B) Green
(C) Blue (D) Insufficient data to answer

90. Read the following information carefully and answer the questions given below:

i. Five friends Amar, Kapil, Sarvesh, Rohan and Nagesh put on five shirts of different colours, i.e., Red, Yellow, Blue, White, and Green, while they were going to attend a party. These colours are not in the order.

ii. They have different hobbies as reading, playing, outing, singing and writing.

iii. Kapil, who likes singing, does not wear Yellow shirt. Sarvesh wears Red shirt and he does not like reading or writing. Nagesh likes playing and he does not wear Blue or Yellow shirt. Amar likes writing and Rohan does not wear Yellow or Green shirt.

Who likes writing?

(A) Rohan (B) Amar
(C) Kapil (D) Insufficient data to answer

Computer Awareness

91. Assume x' represents negation of x the Boolean function $x'y' + xy + x'y$ is equivalent to?

(A) $x' + y$ (B) $x + y$
(C) $x + y'$ (D) $x' + y'$

92. The memory unit which directly communicates with the CPU is known as

(A) Primary Memory (B) Secondary Memory
(C) Shared Memory (D) Auxiliary Memory

93. Dynamic RAM consumes……. Power and ……than Static RAM

(A) More, Faster (B) More, Slower
(C) Less, Slower (D) Less, Faster

94. The binary equivalent of $(234.125)_{10}$?

(A) $(11101010.101)_2$ (B) $(10101010.011)_2$
(C) $(11101010.001)_2$ (D) $(10101110.011)_2$

95. Determine the octal equivalent of $(432267)_{10}$?

(A) $(432267)_8$ (B) $(346731)_8$
(C) $(2164432)_8$ (D) None of the above

96. One Exabyte is equal to …

(A) 10^{18} Bytes
(B) 1 Zetta Bytes divided (/) by one thousand
(C) 1 Peta Bytes multiplied (×) by one thousand
(D) All of the above

97. Consider the following circuit.

How many minimum numbers of two input NAND gates are required to design the above circuit?

(A) 6 (B) 4 (C) 5 (D) 3

98. The time required for fetching and execution of one simple machine instruction is known as

(A) Delay time (B) CPU cycle
(C) Real Time (D) Seek Time

99. The equivalence of given expression $x + x'y$ with Boolean theorem is….

(A) x (B) $x + y$
(C) x' (D) 0

100. The logic XOR operation of $(4AC0)_{16}$ and $(B53F)_{16}$ results

(A) AACB (B) 0000
(C) FFFF (D) ABCD

General English

101. Choose the correct expression of approval:

(A) Super! (B) Rotten!
(C) Damn! (D) Hell!

102. Which of the following is a Noun?

(A) Carelessness (B) Careless
(C) Carelessly (D) Caring

103. Choose the word that accurately signifies a student who avoids attending classes.

(A) Diligent (B) Callous
(C) Morose (D) Truant

104. Identify the type of error in the following sentence: Some of the books, were destroyed.

(A) Syntactical error (B) Punctuation error
(C) Grammatical error (D) Conflicting error

105. Pick the word similar in meaning: ALLEVIATE

(A) Clear (B) Lessen

(C) Match (D) Incite

106. Pick the word opposite in meaning: ABSURD
(A) Cruel (B) Sensible
(C) Calm (D) Sturdy

107. Identify the meaning of the following:
It was all Greek to me…. .
(A) Difficult to speak
(B) Difficult to write
(C) Difficult to arrange
(D) Difficult to understand

108. "To Vouch for'' means
(A) To confirm (B) To degrade
(C) To follow (D) To supersede

109. "To hold your horses'' means
(A) To be ready (B) To be patient
(C) To be eager (D) To be impatient

110. Choose the right option.
Blessing in disguise is …….?
(A) Something good
(B) Something unrecognised
(C) Something known to all
(D) Something good but not recognised at first

111. He was accused ……. theft.
(A) on (B) about
(C) in (D) of

112. I never listen …… the radio.
(A) to (B) of
(C) about (D) in

113. I don't think I've ever ……on that sofa.
(A) been sitting (B) sat
(C) sit (D) sitting

114. Name the letter that is sent along with the CV (Curriculum Vitae).
(A) Formal letter (B) Covering letter
(C) Introductory letter (D) Business letter

115. What is not included in a resume´?
(A) Work experience (B) Education
(C) Projects (D) Family history

116. Choose the correct sentence of the following:
(A) I prefer coffee to tea.
(B) I prefer coffee for tea.
(C) I prefer coffee than tea.
(D) I prefer coffee by tea.

117. Read the following passage and answer the questions:
A Lichen is a composite organism that arises from algae living among filaments of multiple fungi in a symbiotic relationship. The combined lichen has properties different from those of its component organisms. Lichens come in many colours, sizes, and forms. The properties are sometimes plant like, but lichens are not plants. Lichens may have tiny leafless branches, flat leaflike structures or flakes that lie on the surface like peeling paint or other growth forms.

Lichens occur from sea level to high alpine elevations, in many environmental conditions and can grow on almost any surface. Different kinds of lichens have adopted to survive in some of the most extreme environment on earth such as Arctic, Tundra, hot dry deserts, rocky coasts, and toxic slag heaps. They can even live inside solid rocks, growing between the grains.

It is estimated that 6% of the earth's land surface is covered by lichens. Some of them are considered to be the oldest living things. They are among the first living things to grow on fresh rock exposed after an event such as a land slide. The long-life span and slow but regular growth rate of some lichens can be used to date events.

Question: The passage states all the following about Lichens EXCEPT:
(A) Lichen is an independent plant.
(B) Lichens have different properties.
(C) Lichens can grow in exotic conditions.
(D) Lichens can be used to date events.

118. Read the following passage and answer the questions:
A Lichen is a composite organism that arises from algae living among filaments of multiple fungi in a symbiotic relationship. The combined lichen has properties different from those of its component organisms. Lichens come in many colours, sizes, and forms. The properties are sometimes plant like, but lichens are not plants. Lichens may have tiny leafless branches, flat leaf like structures or flakes that lie on the surface like peeling paint or other growth forms.

Lichens occur from sea level to high alpine elevations, in many environmental conditions and can grow on almost any surface. Different kinds of lichens have adopted to survive in some of the most extreme environment on earth such as Arctic, Tundra, hot dry deserts, rocky coasts, and toxic slag heaps. They can even live inside solid rocks, growing between the grains.

It is estimated that 6% of the earth's land surface is covered by lichens. Some of them are considered to be the oldest living things. They are among the first living things to grow on fresh rock exposed after an event such as a land slide. The long-life span and slow but regular growth rate of some lichens can be used to date events.

Question: The passage aims at the view…….

(A) that Lichens are toxic in nature.
(B) that sharing of things help easy growth.
(C) that Lichens should be excluded from Botany.
(D) how plants use solar energy.

119. Read the following passage and answer the questions:

A Lichen is a composite organism that arises from algae living among filaments of multiple fungi in a symbiotic relationship. The combined lichen has properties different from those of its component organisms. Lichens come in many colours, sizes, and forms. The properties are sometimes plant like, but lichens are not plants. Lichens may have tiny leafless branches, flat leaf like structures or flakes that lie on the surface like peeling paint or other growth forms.

Lichens occur from sea level to high alpine elevations, in many environmental conditions and can grow on almost any surface. Different kinds of lichens have adopted to survive in some of the most extreme environment on earth such as Arctic, Tundra, hot dry deserts, rocky coasts, and toxic slag heaps. They can even live inside solid rocks, growing between the grains.

It is estimated that 6% of the earth's land surface is covered by lichens. Some of them are considered to be the oldest living things. They are among the first living things to grow on fresh rock exposed after an event such as a land slide. The long-life span and slow but regular growth rate of some lichens can be used to date events.

Question: Choose the one which best expresses the meaning of the word FLAKES:

(A) Peeling (B) Pip
(C) Loaf (D) Whole

120. Read the following passage and answer the questions:

A Lichen is a composite organism that arises from algae living among filaments of multiple fungi in a symbiotic relationship. The combined lichen has properties different from those of its component organisms. Lichens come in many colours, sizes, and forms. The properties are sometimes plant like, but lichens are not plants. Lichens may have tiny leafless branches, flat leaf like structures or flakes that lie on the surface like peeling paint or other growth forms.

Lichens occur from sea level to high alpine elevations, in many environmental conditions and can grow on almost any surface. Different kinds of lichens have adopted to survive in some of the most extreme environment on earth such as Arctic, Tundra, hot dry deserts, rocky coasts, and toxic slag heaps. They can even live inside solid rocks, growing between the grains.

It is estimated that 6% of the earth's land surface is covered by lichens. Some of them are considered to be the oldest living things. They are among the first living things to grow on fresh rock exposed after an event such as a land slide. The long-life span and slow but regular growth rate of some lichens can be used to date events.

Question: Identify the one word opposite to SPAN in meaning:

(A) Stretch (B) Length
(C) Duration (D) Compress

NIMCET 2020 Answer Key

01.B	02.A	03.A	04.B	05.C	06.B	07.B	08.C	09.C	10.B
11.D	12.A	13.D	14.D	15.A	16.C	17.C	18.B	19.A	20.C
21.B	22.A	23.D	24.A	25.A	26.C	27.A	28.B	29.D	30.D
31.C	32.A	33.C	34.A	35.A	36.B	37.C	38.D	39.A	40.A
41.A	42.B	43.D	44.B	45.A	46.C	47.B	48.C	49.A	50.A
51.A	52.C	53.D	54.A	55.C	56.B	57.B	58.C	59.B	60.D
61.D	62.D	63.B	64.B	65.C	66.D	67.C	68.A	69.C	70.C
71.A	72.A	73.B	74.B	75.C	76.A	77.A	78.C	79.A	80.B
81.C	82.C	83.A	84.D	85.B	86.A	87.A	88.B	89.D	90.B
91.A	92.A	93.C	94.C	95.D	96.D	97.B	98.B	99.B	100.C
101.A	102.A	103.D	104.B	105.B	106.B	107.D	108.A	109.B	110.D
111.D	112.A	113.B	114.B	115.D	116.A	117.A	118.B	119.A	120.D