## NIMCET 2011 PAPER AND ANSWER KEY *(given at the last page)*
### MATHEMATICS

1. If the mean of the squares of first n natural numbers be 11, then n is equal to
   (1) $-\dfrac{13}{2}$      (2) 11      (3) 5      (4) 4

2. The probability of a razor blade to be defective is 0.002. the blades are in packet of 10. The number of packets containing no defective blades in a stock of 10000 packets is
   (1) 2000      (2) 9802      (3) 9950      (4) 8000

3. Two variable have least square regression lines $3x + 2y = 26$ and $6x + y = 31$, then correlation between x and y is
   (1) 0.5      (2) 0.7      (3) –0.7      (4) –0.5

4. A car completes the first half of its journey with a velocity $v_1$ and rest half with a velocity $v_2$. Then the average velocity of the car for the whole journey is
   (1) $\dfrac{v_1 + v_2}{2}$      (2) $\sqrt{v_1 v_2}$      (3) $\dfrac{2v_1 v_2}{v_1 + v_2}$      (4) none of these

5. The mean of first n natural numbers is equal to $\dfrac{n+7}{3}$, then 'n' is equal to
   (1) 9      (2) 10      (3) 11      (4) 12

6. The least integral value of K for which $(K–2) x^2 + K + 8x + 4 > 0$ for all $x \in R$, is
   (1) 5      (2) 4      (3) 3      (4) 6

7. If for $n \in N$, $\displaystyle\sum_{K=0}^{2n}(-1)^k\left[\binom{2n}{K}\right]^2 = A,$ then the value of $\displaystyle\sum(-1)^K(K-2n)\left[\binom{2n}{K}\right]^2$ is
   (1) nA      (2) –nA      (3) 0      (4) A

8. Solution set of inequality $\log_3(x+2)(x+4) + \log_{\frac{1}{3}}(x+2) < \dfrac{1}{2}\log_{\sqrt{3}}7$ is
   (1) $(-2, -1)$      (2) $(-2, 3)$      (3) $(-1, 3)$      (4) $(3, \infty)$

9. If three positive real number a, b, c $(c > a)$ are in H.P., then $\log(a + c) + \log(a – 2b + c)$ is
   (1) $2\log(c – b)$      (2) $2\log(a + c)$      (3) $2\log(c – a)$      (4) $\log a + \log b + \log c$

10. The area enclosed within the lines $|x| + |y| = 1$ is
    (1) 1      (2) 2      (3) 3      (4) 4

11. A polygon has 44 diagonals, the number of its sides is
    (1) 9      (2) 10      (3) 11      (4) 12

12. Let X be the universal set for sets A and B. If $n(A) = 200$, $n(B) = 300$ and $n(A \cap B) = 100$, then $n(A' \cap B')$ is equal to 300 provided in $n(X)$ is equal to
    (1) 600      (2) 700      (3) 800      (4) 900

13. In a college of 300 students, every student reads 5 news papers and every news paper is read by 60 students. The number of news paper is
    (1) atleast 30      (2) atmost 20      (3) exactly 25      (4) exactly 28

14. The number of ways of forming different nine digit numbers from the number 223355888 by rearranging its digit so that the odd digits occupy even positions is
    (1) 16      (2) 36      (3) 60      (4) 180

15. An anti-aircraft gun can take a maximum of four slots at an enemy plane moving away from it. The probability of hitting the plane at the first, second, third and fourth slots are 0.4, 0.3, 0.2 and 0.1 respectively. The probability that the gun hits the plane then is
    (1) 0.5      (2) 0.7235      (3) 0.6976      (4) 1.0

16. The minimum value of $px + qy$ when $xy = r^2$ is

(1) $2r\sqrt{pq}$       (2) $2pq\sqrt{3}$       (3) $-2r\sqrt{pq}$       (4) $\sqrt{pqr}$

**17.** If 'a' is a positive integer, then the number of values satisfying

$$\int_0^{\pi/2}\left\{a^2\left(\frac{\cos 3x}{4}+\frac{3}{4}\cos x\right)+a\sin x-20\cos x\right\}dx\le\frac{-a^2}{3}\text{ is}$$

(1) only one       (2) two       (3) three       (4) four

**18.** Find $\dfrac{d}{dx}\left(\sqrt{x}-\dfrac{5}{\sqrt{x}}\right)$

(1) $\dfrac{1}{2\sqrt{x}}+\dfrac{3}{2}x^{-3/2}$    (2) $2x-\dfrac{5}{2}x^{3/2}$    (3) $2x+\dfrac{5}{2}x^{-3/2}$    (4) none of these

**19.** $\underset{x\to\infty}{Lim}\sqrt{\dfrac{(x+\sin x)}{(x-\cos x)}}$ equals to

(1) 0       (2) 1       (3) –1       (4) none of these

**20.** If $f(x)=\int_0^x t\sin t\,dt,$ then f'(x) is

(1) $\cos x+x\sin x$    (2) $x\sin x$    (3) $x\cos x$    (4) $x^2\big/2$

**21.** The value of sin 30° cos 45° + cos 30° sin 45°

[*no correct answer was given in choices, correct answer should be* $\dfrac{\sqrt{3}+1}{2\sqrt{2}}$ ]

(1) $\dfrac{1-\sqrt{3}}{2}$    (2) $\dfrac{1-\sqrt{3}}{2\sqrt{2}}$    (3) $\dfrac{2}{\sqrt{3}}$    (4) $\dfrac{\sqrt{3}}{2}$

**22.** The solution of $\Delta ABC$ given that B = 45°, C = 105° and $c=\sqrt{2}$ is

(1) B = 30°, C = $\sqrt{3}-1$, b = $\sqrt{2}(\sqrt{3}-1)$      (2) B = 30°, C = $\sqrt{3}+1$, b = $\sqrt{2}(\sqrt{3}-1)$

(3) B = 30°, C = $1-\sqrt{3}$, b = $\sqrt{2}(\sqrt{3}+1)$      (4) B = 30°, C = $\sqrt{3}-1$, b = $\sqrt{2}(\sqrt{3}+1)$

**23.** If tan θ = $\dfrac{b}{a}$, then the value of a cos 2θ + b sin 2θ is

(1) b       (2) a       (3) $\dfrac{a}{b}$       (4) $\dfrac{a}{a+b}$

**24.** The general solution of $\sqrt{3}\cos x+\sin x=3$ is:

(1) $2n\pi\pm\dfrac{\pi}{6}$    (2) $2n\pi\pm\dfrac{\pi}{3}$    (3) No solution    (4) $n\pi\pm\dfrac{\pi}{6}$

**25.** The value of $\dfrac{1-\tan^2 15°}{1+\tan^2 15°}$ is

(1) 1       (2) $\sqrt{3}$       (3) $\dfrac{\sqrt{3}}{2}$       (4) 2

**26.** $\int_0^{1/2}\dfrac{dx}{\sqrt{x-x^2}}=$

[*no correct answer was given in choices, correct answer should be* $\pi/2$ ]

(1) $1\big/2$       (2) $\pi$       (3) $\pi\big/3$       (4) $\pi\big/4$

**27.** If the area bounded by $y = x^2$ and $y = x$ is A sq. units then the area bounded by $y = x^2$ and $y = 1$ is
(1) 2A + 1 sq. units
(2) 2A sq. units
(3) 2A + 2 sq. units
(4) A + 2 sq. units

**28.** If a, b and c are unit coplanar vectors, then the scalar triple product [2a – b, 2b – c, 2c – a] =
(1) 0
(2) 1
(3) $-\sqrt{3}$
(4) $\sqrt{3}$

**29.** Let $\vec{a} = x\vec{i} - 3\vec{j} - \vec{k}$ and $\vec{b} = 2x\vec{i} - x\vec{j} - \vec{k}$. Suppose that the angel between $\vec{a}$ and $\vec{b}$ is acute and the angle between $\vec{b}$ and the positive direction of the y-axis lies between $\frac{\pi}{2}$ and $\pi$, then the set of all possible values of x is
(1) {1, 2}
(2) {–2, –3}
(3) {x : x < 0}
(4) {x : x > 0}

**30.** Let $\vec{v} = 2\vec{i} + \vec{j} - \vec{k}$ and $\vec{w} = \vec{i} + 3\vec{k}$. If $\vec{u}$ is a unit vector, then the maximum value of the scalar triple product $[\vec{u}\,\vec{v}\,\vec{w}]$ is
(1) –1
(2) $-\sqrt{10} - \sqrt{6}$
(3) $\sqrt{59}$
(4) $\sqrt{10} + \sqrt{6}$

**31.** If 2x + 3y – 6 = 0 and 9x+ 6y – 18 = 0 cuts the axes in concyclic points, then the center of the circle is: [*no correct answer was given in choices, correct answer should be* (5/2, 5/2)]
(1) (2, 3)
(2) (3, 2)
(3) (5, 5)
(4) (5/5, 5/2)

**32.** The number of distinct solutions (x, y) of the system of equations $x^2 = y^2$ and $(x - a)^2 + y^2 = 1$ where 'a' is any real number, can only be
(1) 0, 1, 2, 3, 4 or 5
(2) 0, 1 or 3
(3) 0, 1, 2 or 4
(4) 0, 2, 3 or 4

**33.** The vertex of parabola $y^2 - 8y + 19 = 0$ is
(1) (3, 4)
(2) (4, 3)
(3) (1, 3)
(4) (3, 1)

**34.** The eccentricity of ellipse $9x^2 + 5y^2 - 30y = 0$ is
(1) $\frac{1}{3}$
(2) $\frac{2}{3}$
(3) $\frac{3}{4}$
(4) $\frac{1}{4}$

**35.** If the function f: $[1, \infty) \to [1, \infty)$ is defined by $f(x) = 2^{x(x-1)}$, then $f^{-1}(x)$ is
(1) $\left(\frac{1}{2}\right)^{x(x-1)}$
(2) $\frac{1}{2}\left\{1 + \sqrt{1 + 4\log_2 x}\right\}$
(3) $\frac{1}{2}\left\{1 - \sqrt{1 + 4\log_2 x}\right\}$
(4) not defined

**36.** A random variable X has the following probability distribution

| x | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|---|---|---|---|---|---|---|---|
| P(X=x) | a | 3a | 5a | 7a | 9a | 11a | 13a | 15a | 17a |

Then the value of 'a' is
(1) 1/81
(2) 2/82
(3) 5/81
(4) 7/81

**37.** The sum of $11^2 + 12^2 + \ldots + 30^2$
(1) 8070
(2) 9070
(3) 1080
(4) 9700

**38.** If A and B are two square matrices such that $B = -A^{-1}BA$, then $(A + B)^2 =$
(1) 0
(2) $A^2 + 2AB + B^2$
(3) $A^2 + B^2$
(4) A + B

**39.** Consider the system of linear equations
$3x_1 + 7x_2 + x_3 = 2$
$x_1 + 2x_2 + x_3 = 3$
$2x_1 + 3x_2 + 4x_3 = 13$

The system has
(1) infinitely many solutions
(2) exactly 3 solutions
(3) a unique solution
(4) no solution

**40**.  If $\alpha, \beta$ are the roots of the equation $x^2 - 2x + 4 = 0$ then the value of $\alpha^6 + \beta^6$ is
(1) 64            (2) 128            (3) 256            (4) 132

**41**.  If $\theta$ is the angle between **a** and **b** and $|a \times b| = |a.b|$, then $\theta$ is equal to:
(1) 0            (2) $\pi$            (3) $\pi/2$            (4) $\pi/4$

**42**.  ABCD is a parallelogram with AC and BD as diagonals. Then $\overrightarrow{AC} - \overrightarrow{BD}$ is equal to:
(1) $4\overrightarrow{AB}$            (2) $3\overrightarrow{AB}$            (3) $2\overrightarrow{AB}$            (4) $\overrightarrow{AB}$

**43**.  If sin x, cos x and tan x are in GP, then the value of $\cot^6 x - \cot^2 x$ is:
(1) 2            (2) $-1$            (3) 1            (4) 0

**44**.  The greatest angle of the triangle whose three sides are $x^2 + x + 1$, $2x + 1$ and $x^2 - 1$ is
(1) 150°            (2) 90°            (3) 135°            (4) 120°

**45**.  The general value of $\theta$ satisfying the equation $2\sin^2\theta - 3\sin\theta - 2 = 0$ is
(1) $n\pi + (-1)^n \dfrac{\pi}{6}$      (2) $n\pi + (-1)^n \dfrac{\pi}{2}$      (3) $n\pi + (-1)^n \dfrac{5\pi}{6}$      (4) $n\pi + (-1)^n \dfrac{7\pi}{6}$

## ANALYTICAL ABILITY AND LOGICAL REASONING

**46.** Correct the following equations by inter-changing two signs. $3 - 9\ 0 \times 27 + 9 \div 3 = 3$
(1) + and (2) × and + (3) × and ÷ (4) × and −

**47.** Pushpa is twice as old as Rita was two years age. If the difference between their ages be 2 years, how old is Pushpa today? *(Printing mistake it must be ago in place of age)*
(1) 6 years (2) 8 years (3) 10 years (4) 12 years

**48.** A clock is set right at 8 a.m. The clock gains 10 minutes in 24 Hrs. What will be the right time when the clock indicates 1 p.m. on the following day?
(1) 11.40p.m. (2) 12.48 p.m. (c) 12 noon (4) 10p.m.

**49.** Choose the best answer figure to substitute element 4 in die problem figures so that element 3 is related to element 4 in the same way as element 1 is related to element 2.   .
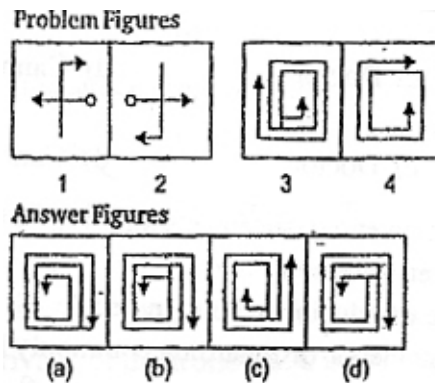


**Directions: Q. 50:** In the following question three statements are followed by a conclusion. Study the statements and the conclusion and point out which statement studied together will bring to the conclusion.

**50.** Statements:
i) Price rise is a natural phenomenon
ii) If production increases prices fall
iii) High prices affect the poor

Conclusion: If production rises the poor feel relieved. Answer choices:
(1) Only i and ii (2) Only i and iii (3) Only ii and iii (4) Data Insufficient

**51.** In how many different ways can the letters of the word "DETAIL" be arranged in such a way that the vowels occupy only the odd positions?
(1) 32 (2) 36 (3) 48 (4) 60

**52.** If from 4 co 55 me number which are divisible by 3 and the numbers which contain 3 as one of the digits, are removed, then how many numbers will be left?
(1) 24 (2) 23 (3) 22 (4) 25

**53.** In the following number-series, one term is wrong. Which term is wrong?
5, 12, 19, 33, 47, 75, 104
(1) 33 (2) 47 (3) 75 (4) 104

**54.** The position of A in a class is 5th from the top and position of B is 7th from the bottom. If C is at 6th place after A and 6th place before B, how many students are there in the class?
(1) 25 (2) 23 (3) 21 (4) 22

**55.** Suppose $X = 2^{100}$, $Y = 3^{100}$ and $Z = 4^{100}$, exactly one of the following is true. Which is it?
(1) X + Y = Z (2) X + Y < Z (3) X + Y > Z (4) XY = Z

**Directions: Q. 56-59:** Study the following information to answer the given questions;

i) In a family of 6 persons, there are two couples

ii) The lawyer is the head of the family and has only two sons-Mukesh and Rakesh - both teachers,

iii) Mrs, Reena and her mother-in-law both are lawyers.

iv) Mukesh's wife is a doctor and they have a son, Ajay.

**56.** What is the profession of Rakesh's wife?
(1) Teacher (2) Doctor (3) Lawyer (4) None of these

**57.** How many male members are there in the family?
(1) Two (2) Three (3) Four (4) None of these

**58.** What is/was Ajay's grandfather's occupation 7
(1) Teacher (2) Lawyer (3) Doctor (4) cannot be determined

**59.** What is the profession of Ajay?
(1) Teacher (2) Lawyer (3) Doctor (4) Cannot be determined

**Directions: Q 60:** In the following question below are given two statements followed by four conclusions numbered I, II, III, IV. You have to take the two given statements to be true even if they seem to be at variance from commonly known facts. Read all the conclusions and then decide which of the given conclusions logically follows from the two given statements, disregarding commonly known facts.

**60.** Statements:
(A) Some green are blue (B) No blue is white

Conclusions

(I) Some blue are green II) Some while are green
(III) Some green are not white IV) Ail white are green

(1) Only I follows (2) Only II and III follows

(3) Only I and III follows (4) Only I and II follows

**Directions: Q. 61-63:** Read the information given below and answer the questions that follow:

Four persons A, B, C and D play a cards game. They put Rs. 500 as stake money. When the game is over 'C' receives Rs. 19 more that 'D' and 'B' receives Rs. 21 less than 'A' whose amount was Rs. 2 less than the quarter of Rs. 500

**61.** How much money did 'C' gel?

(1) Rs. 147 (2) Rs. 136 (3) Rs. 144 (4) Rs. 159

**62.** How much money did 'B' get?
(1) Rs. 102 (2) Rs. 107 (3) Rs, 108 (4) Rs. 110.

**63.** Who get highest amount?
(1) A (2) B (3) C (4) D

**Directions: Q.64- 66;** In The following diagram circle stands for 'educated', square for 'hardworking', triangle for 'urban people', and rectangle for 'honest'. Different regions in the diagram arc numbered from 2 to 12. Study the diagram carefully and answer.
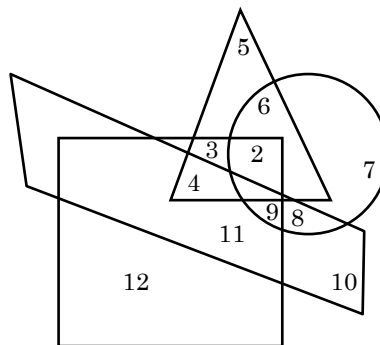


**64.** Educated, hard-working and urban people are indicated by
(1) 7 (2) 2 (3) 3 (d) 4

**65.** Non-urban educated people who are neither hardworking nor honest are indicated by
(1) 5            (2) 7            (3) 10            (4) 12

**66.** Honest, educated and hardworking non urban people are indicated by
(1) 3            (2) 4            (3) 6            (4) 9

**67.** Five persons A, B, C, D and E were travelling in a car. There were two ladies in the group. Two knew car driving, of them one was a lady. A is brother of D. B, wife of D drove at the beginning. E drove at the end. Who was the other lady in the group?
(1) D            (2) B            (3) C            (4) E

**68**. Choose which pair of numbers carries next in the following sequence:
61, 57, 50, 61, 43, 36, 61
(1) 29, 61            (2) 27, 20            (3) 31, 61            (4) 29, 22

**Directions: Q. 69-71:** In each of the 3 questions below, are given four statements followed by four conclusions numbered I, II, III, IV. You have to take the given statements to be true if they seem to be at variance from commonly known facts. Read all the conclusions and then decide which of the given conclusions logically follows from the given statements disregarding commonly known facts,

**69.** Statements: Some doctors are lawyers. All teachers are lawyers. Some engineers are lawyers. All engineers are businessman.

**Conclusions:**
(I) Some teachers are doctors.            II) Some businessmen are lawyers.
(III) Some businessmen are teachers.            (IV) Some lawyers are teachers

(1) none follows        (2) only II follows        (3) Only III follows        (4) Only Ii and IV follow

**70**. Statements: All plastics arc glasses. Some sponges are glasses. All sponges are clothes. All clothes are liquids.

**Conclusions:**
(I) AM liquids are sponges.            II) Sonic plastics arc clothes.

(III) All glasses are plastics.            IV) All liquids are clothes,

(1) none follows            (2) only either II or IV follows
(3) only III and TV follow            (4) only I and IV follow

**71.** Statements: All sands are beaches, All shores are beaches. Some beaches are trees. All trees are hotels.
Conclusions:
I) Some shores are hotels.            II) All beaches are shores.
III) Some beaches are hotels.            IV) Some sands are trees
(I) only III follows      (2) only II follows      (3) only IV follows      (4) none of these

**72.** In a certain code, RIPPLE is written as 6133S2 and LIFE is written as S192. How is FILLER written in that code?
(1) 318826            (2) 318286            (3) 618826            (4) 328816

**73.** A doctor said to his compounder "I go to see the patients at their residence after every 3:30 hours. I have already gone to the patient 1:20 hours ago and next time I shall go at 1.40 pm". At what time this information was given to the compounder by the doctor?
(1) 10.10 a.m.       (2) 11.30 a.m.       (3) 11.20 a.m.       (4) none of these

**74** Mr. X left his entire estate to his wife, his daughter, his son and the cook. His daughter and son got half the estate, sharing in the ratio of 4 to 3. His wife got twice as much as the son. If the cook received a bequest of 500, then the entire estate was
(1) `3,500         (2) `5,500         (3) `6,500         (4) `7,000

**75.** At a dance party a group of girls and boys exchange dances as follows:
One boy dances with 5 girls. Second boy dances with 6 girls, and so on last boy dances with all girls. If b represents then number of boys and B represents then number of girls, then
(1) b = g            (2) b = g/ 5            (3) b = g − 4            (4) b = g − 5

**76.** The average age of husband and wife was 22 years when they were married five years back. What is the present average age of the family if they have a three year old child?
(1) 19 Years      (2) 25 Years      (3) 27 Years      (4) 28$^{1/2}$ Years

**77.** Which of the following will be acceptable for establishing a fact?
(1) Opinion of large number of people
(2) Traditionally in practice over a long period of time
(3) Availability of observable evidences
(4) References in the ancient literature

**Directions: Q. no. 78-81:** Six scientists A, B, C, D, E and F are to present at paper each at a one-day conference. Three of them will present their papers in the morning session before the lunch break whereas the other three will be presented in the afternoon session. The lectures have to be scheduled in such a way that they comply with the following restrictions:

B should present his paper immediately before C's presentation; their presentations cannot be separated by the lunch break. D must be either the first or the last scientist to present his paper.

**78.** In case C is to be the fifth scientist to present his paper, men 8 must be
(1) first      (2) second      (3) third      (4) fourth

**79.** B could be placed for any of the following places in the order of presenters EXCEPT
(1) second      (2) third      (3) fourth      (4) fifth

**80.** Incase F is to present his paper immediately after D presents his paper, C' s could be scheduled for which of the following places in the order of presenters ?
(1) second      (2) third      (3) fourth      (4) fifth

**81.** Incase F and E are the fifth and sixth presenters respectively then which of the folio wing must be true?
(1) A is first in the order of presenters      (2) A is third in the order of presenters
(3) A is fourth in the order of presenters      (3) B is first in the order of presenters

**82.** Assume that the following three statements arc true:
I. All freshmen are human
II. All students are human
III. Some students think

Given the following four statements:

(1) All freshmen are students      (2) Some humans think.
(3) No freshmen think      (4) Some humans who think are not students

Those which are logical consequences of 1, II and III are
(1) 2      (2) 4      (3) 2, 3      (4) 1, 2

**Directions: Q. 83-85:**

Mrs. Thomes received a large order for stitching school uniforms from Mayflower school and Little flower school. She has two cutters who will cut the fabric, five tailors who will do the stitching and two assistants to stitch the buttons and button holes. Each of these nine persons will work for exactly 10 hours a day. Each of the Mayflower uniforms requires 20 min for cutting the fabric, one hour for stitching, and 15 min for stitching buttons and button holes, whereas the Little flower uniform require 30min, 1 hour and 30 min respectively for these activities.

**83.** What is the number of Little flower uniforms that Mrs. Thomes can complete in a day?
(1) 50      (2) 20      (3) 40      (4) 30

**84.** On a particular day, Mrs. Thomes decided to complete 20 Little flower uniforms. How many Mayflower uniforms can she complete on that day?
(1) 30      (2) 40      (3) 20      (4) 0

**85.** If she hires one more assistant, what is the maximum number of May flower uniforms that she can complete in a day?
(1) 40      (2) 50      (3) 60      (4) 30

## COMPUTER AWARENESS

86. Consider x and y be some Boolean variables, + denotes the OR operation and "." denotes the AND operation. What will be the simplified form of the Boolean expression: x. (x + y)?
    (1) y              (2) 1              (3) 0              (4) x

87. Which one of the following is not a valid rule of Boot can algebra?
    (1) A + 1 = 1      (2) A = A'         (3) AA = A         (4) A + 0 = A

88. When two binary numbers are added, then an overflow will never occur if
    (1) Both numbers of same sign
    (2) The carry into the sign bit position and out of sign bit position are not equal
    (3) The carry into the sign bit position and out of sign bit position are equal
    (4) The carry into the sign bit position is 1

90. The sum of 11010 + 01111 equals
    (1) 101001        (2) 101010        (3) 110101        (4) 101000

90. Which protocol needs to be installed for Internet access on a network?
    (1) TCP/IP        (2) TELNET        (3) IPX/SPX       (4) Net BEUI

91. A petabyte represents approximately
    (1) 1000 gigabytes                    (2) 1000 kilobytes
    (3) 1000 terabytes                    (4) l000 yottabytes

92. The least significant bit of the binary number, which is equivalent to any odd decimal number is
    (1) 0             (2) 1             (3) 1 or 0        (4) All of the above

93. Which of the following Boolean expression represents the shaded portion of the Venn diagram?
    **Note**: Here "." represents an AND operation and "+"denotes an OR operation.
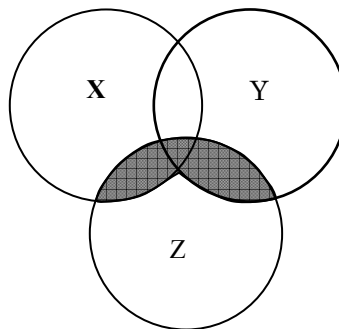


    (1) Z' + (X.Y)    (2) Z. (X + Y)    (3) (Z.X') + Y    (4) Z'.(X + Y)

94. The ASCII code of 'A' is
    (1) 66D           (2) 41H           (3) 01000010      (4) 01100011

95. An eight bit byte is capable of representing how many different characters?
    (1) 64            (2) l28           (3) 256           (4) 512

## GENERAL ENGLISH

Answer following **four** questions based on the given paragraph:

A recent experimental study showed for the first time that pulmonary exposure to the Particulate Matter (PM) within diesel exhaust enhances atherogenesis. The human blood vessel endothelium is a sensitive target for air pollutants. The interactions of the inflammation and coagulation systems are of the main mechanisms involved in impairment of endothelial function and eventually cardiovascular diseases. The effect of air pollution on inflammation, oxidative stress and cardiovascular risk factors has been demonstrated not only in older adults, but also in young adults as well as in children and adolescents. The inflammation process stimulates the coagulation system and result in increased secretion of Tissue Factor (TF). Endothelial function has key roles in anticoagulant and fibrinolytic systems. In vitro studies have demonstrated significant decrease in endogenous anticoagulation activity, Thrombo Modulin (TM), endothelial protein C receptor antigen and culture of endothelial cells during the inflammation process. A growing body of evidence suggests that the effects of air pollution on the inflammation and the coagulation systems may have a role in endothelial dysfunction and in turn in the progression of cardiovascular diseases. Findings of experimental studies suggest that exposure to air pollution may result in increase in TF and decrease in TM. Atherogenesis starts from the fetal life through interrelations of traditional risk factors with inflammatory, immune and endothelial biomarkers. Air pollution has various harmful effects on this process from early life. Studying the effects of environmental factors on early stages of atherosclerosis in early life can help identify the underlying mechanisms.

**96.** Choose the option for the human system mechanisms whose interactions: eventually result into cardiovascular diseases due to air pollution?
(1) inflammation      (2) Coagulation      (3) Antigen      (4) Both (1) and (2)

**97.** Which is the central syndrome talked about in the paragraph?
(1) Inflammation      (2) Atherogenesis
(3) Secretions of tissue factors      (4) Thrombo Modulin

**98.** Which of the following is true?
i) Exposure to air pollution may result in increase in TF and decrease in TM
ii) Effect of air pollution is severe on humans and occurs after adolescence
iii) Endothelial cells arc sensitive target for air pollutants
(1) All are true      (2) Only (i) and (ii) are true
(3) Only (i) and (iii) are true      (4) Only (ii) and (iii) are true

**99.** The primary cause of cardiovascular disease due to factors discussed in paragraph is
(1) Lack of immunity      (2) Anticoagulation
(3) Thrombomodulin      (4) Endothelial Dysfunction

**100.** RETROGRADE
[*no correct answer was given in choices, correct answer should be reclining*]

(1) progressing      (2) veclining      (3) evaluating      (4) directing

**Directions: Q. 101-105:** For each numbered blank space in the paragraph given below, choose the correct response.

### Paragraph

Books are 101 the most 102 product of human effort. Temples 103 to ruin, pictures and statues 104; but books 105.

**101.** Answer choices
(1) decidedly      (2) definitely      (3) by far      (4) certainly

**102.** Answer choices
(1) lasting      (2) everlasting      (3) temporary      (4) permanent

**103.** Answer choices
(1) break down      (2) fall      (3) broken      (4) crumble

**104.** Answer choices
(1) die
(2) decay
(3) fade
(4) disappear

**105.** Answer choices
(1) live
(2) survive
(3) last
(4) disappear

**106.** Profound
*[directions for this question is missing]*

(1) Shallow
(2) Sonorous
(3) Superficial
(4) Lofty

**107.** Give the analogy for ELSUSIVE : CAPTURE :
(1) Elastic: Stretch
(2) Headstrong: Control
(3) Sensible: Decide
(4) Persuasive: Convince

**108.** The meaning of word EGRESS is
(1) Entrance
(2) Exit
(3) Double
(4) Program

**109.** Choose the wrongly spelt word
(1) Deficient
(2) Efficient
(3) Magnificent
(4) Reticent

**110.** I have been working here _____ six months.
(1) since
(2) by
(3) for
(4) in

**111.** Defile
(1) Pollute
(2) Disapprove
(3) Delay
(4) Reveal

**Directions: Q.112 to 115:** Each question consists of a word printed in capital letters, followed by four words or phrases. Choose the word or phrase that is most similar in meaning to die word in capital letters:

**112.** POLEMIC
(1) black
(2) magnetic
(3) grimace
(4) controversial

**113.** The synonym for word FOOLHARDY is
(1) Erudite
(2) Unwise
(3) Rusty
(4) Roll

**114.** Deep
(1) low
(2) distracted
(3) flat
(4) awake

**115.** Give the antonym for CRYPTIC
(1) Futile
(2) Candid
(3) Famous
(4) Indifferent

**116.** The people _____you socialize are called friends.
(1) with whom
(2) who
(3) with who
(4) whom

**117.** Every one of them_____ to the music every day
(1) Listen
(2) Listening
(3) Listens
(4) None of these

**118.** I didn't work hard when I was _____ school.
(1) in
(2) on
(3) at
(4) by

**119.** Where are you _____?
(1) from
(2) by
(3) of
(4) to

**120.** Which of these is an adjective in "It is _____"
(1) Hard
(2) Hardly
(3) Hardship
(4) Harden

## ANSWER KEY NIMCET 2011

| 1. | (3) | 21. | (*) | 41. | (4) | 61. | (1) | 81. | (3) | 101. | (1) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2. | (2) | 22. | (1) | 42. | (3) | 62. | (1) | 82. | (1) | 102. | (1) |
| 3. | (1) | 23. | (2) | 43. | (3) | 63. | (3) | 83. | (3) | 103. | (4) |
| 4. | (3) | 24. | (3) | 44. | (4) | 64. | (2) | 84. | (1) | 104. | (2) |
| 5. | (3) | 25. | (3) | 45. | (4) | 65. | (2) | 85. | (2) | 105. | (3) |
| 6. | (1) | 26. | (*) | 46. | (4) | 66. | (4) | 86. | (4) | 106. | (*) |
| 7. | (2) | 27. | (1) | 47. | (2) | 67. | (3) | 87. | (2) | 107. | (2) |
| 8. | (2) | 28. | (1) | 48. | (2) | 68. | (4) | 88. | () | 108. | (2) |
| 9. | (3) | 29. | (3) | 49. | (2) | 69. | (4) | 89. | (1) | 109. | (3) |
| 10. | (2) | 30. | (3) | 50. | (3) | 70. | (1) | 90. | (1) | 110. | (3) |
| 11. | (3) | 31. | (*) | 51. | (2) | 71. | (1) | 91. | (3) | 111. | (1) |
| 12. | (2) | 32. | (4) | 52. | (4) | 72. | (1) | 92. | (2) | 112. | (3) |
| 13. | (3) | 33. | (1) | 53. | (4) | 73. | (2) | 93. | (2) | 113. | (2) |
| 14. | (3) | 34. | (2) | 54. | (2) | 74. | (4) | 94. | (3) | 114. | (1) |
| 15. | (3) | 35. | (2) | 55. | (2) | 75. | (3) | 95. | (3) | 115. | (2) |
| 16. | (2) | 36. | (1) | 56. | (3) | 76. | (1) | 96. | (4) | 116. | (1) |
| 17. | (4) | 37. | (2) | 57. | (2) | 77. | (3) | 97. | (2) | 117. | (3) |
| 18. | (4) | 38. | (3) | 58. | (4) | 78. | (4) | 98. | (3) | 118. | (3) |
| 19. | (2) | 39. | (4) | 59. | (4) | 79. | (2) | 99. | (4) | 119. | (1) |
| 20. | (2) | 40. | (2) | 60. | (3) | 80. | (4) | 100. | (1) | 120. | (1) |

**\* Represents questions with error**