NIMCET (Actual- 2011)

MATHEMATICS

1. A Polygon has 44 diagonals, the number of its sides is
(a) 9 (b) 10 (c) 11 (d) 12

2. 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 $n(X)$ is equal to
(a) 600 (b) 700
(c) 800 (d) 900

3. 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
(a) atleast 30 (b) atmost 20
(c) exactly 25 (d) exactly 28

4. 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
(a) 16 (b) 36 (c) 60 (d) 180

5. An anti-aircraft gun can take a maximum of four slotsat an enemy plane moving away from it. The probabilities 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
(a) 0.5 (b) 0.7235 (c) 0.6976 (d) 1.0

6. If the mean of the squares of first n natural numbers be 11, then n is equal to
(a) –13/2 (b) 11 (c) 5 (d) 4

7. 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
(a) 2000 (b) 9802
(c) 9950 (d) 8000

8. Two variables have least square regression lines $3x + 2y = 26$ and $6x + y = 31$, then correlation between x and y is
(a) 0.5 (b) 0.7 (c) –0.7 (d) –0.5

9. A car completes the first half of its journey with a velocity v_1 and the rest half with a velocity v_2. Then the average velocity of the car for the whole journey is
(a) $\frac{v_1 + v_2}{2}$ (b) $\sqrt{v_1 v_2}$
(c) $\frac{2v_1 v_2}{v_1 + v_2}$ (d) None of these

10. The mean of first n natural numbers is equal to $\frac{n+7}{3}$, then 'n' is equal to
(a) 9 (b) 10 (c) 11 (d) 12

11. 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
(a) 1/81 (b) 2/82
(c) 5/81 (d) 7/81

12. The sum of $11^2 + 12^2 + \ldots\ldots + 30^2$
(a) 8070 (b) 9070
(c) 1080 (d) 9700

13. If A and B are two square matrices such that $B = -A^{-1}BA$, then $(A+B)^2 =$
(a) 0 (b) $A^2 + 2AB + B^2$
(c) $A^2 + B^2$ (d) $A + B$

14. 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
(a) infinitely many solutions
(b) exactly 3 solutions
(c) a unique solution
(d) no solutions

15. If α, β are the roots of the equation $x^2 - 2x + 4 = 0$, then the value of $\alpha^6 + \beta^6$ is
(a) 64 (b) 128 (c) 256 (d) 132

16. The least integral value of K for which $(K-2)x^2 + 8x + K + 4 > 0$ for all $x \in R$, is
(a) 5 (b) 4
(c) 3 (d) 6

17. If for $n \in N$, $\sum_{K=0}^{2n} (-1)^K \left[\binom{2n}{K}\right]^2 = A$, then the value of $\sum (-1)^K (K - 2n)\left[\binom{2n}{K}\right]^2$ is
(a) nA (b) $-nA$ (c) 0 (d) A

18. Solution set of the inequality
$\log_3 (x+2)(x+4) + \log_{\frac{1}{3}}(x+2) < \frac{1}{2}\log_{\sqrt{3}} 7$ is
(a) (–2, –1) (b) (–2, 3)
(c) (–1, 3) (d) $(3, \infty)$

19. If three positive real numbers $a, b, c\,(c > a)$ are in H.P. then $\log(a+c) + \log(a - 2b + c)$ is
(a) $2\log(c-b)$ (b) $2\log(a+c)$
(c) $2\log(c-a)$ (d) $\log a + \log b + \log c$

20. The area enclosed within the lines $|x| + |y| = 1$ is
(a) 1 (b) 2 (c) 3 (d) 4

21. If $2x+3y-6=0$ and $9x+6y-18=0$ cuts the axes in concyclic points, then the centre of the circle is
(a) (2, 3) (b) (3, 2)
(c) (5, 5) (d) (5/5, 5/2)

22. 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
(a) 0,1, 2, 3, 4 or 5 (b) 0, 1 or 3
(c) 0, 1, 2 or 4 (d) 0, 2, 3 or 3

23. The vertex of parabola $y^2-8y-x+19=0$ is
(a) (3, 4) (b) (4, 3)
(c) (1, 3) (d) (3, 1)

24. The eccentricity of ellipse $9x^2+5y^2-30y=0$ is
(a) 1/3 (b) 2/3 (c) 3/4 (d) 1/4

25. If the function $f:[1,\infty)\to[1,\infty)$ is defined by $f(x)=2^{x(x-1)}$, then $f^{-1}(x)$ is
(a) $(1/2)^{x(x-1)}$ (b) $\frac{1}{2}\left\{1+\sqrt{1+4\log_2 x}\right\}$
(c) $\frac{1}{2}\left\{1-\sqrt{1+4\log_2 x}\right\}$ (d) not defined

26. The minimum value of $px+qy$ when $xy=r^2$ is
(a) $2r\sqrt{pq}$ (b) $2pq\sqrt{r}$
(c) $-2r\sqrt{pq}$ (d) $\sqrt{pqr}$

27. If 'a' is a positive integer, then the number of values satisfying
$\int_0^{\pi/2}\left\{a^2\left(\frac{\cos 3x}{4}+\frac{3}{4}\cos x\right)+a\sin x-20\cos x\right\}dx\le\frac{-a^2}{3}$ is
(a) only one (b) two
(c) three (d) four

28. Find $\frac{d}{dx}\left(\sqrt{x}-\frac{5}{\sqrt{x}}\right)$
(a) $\frac{1}{2\sqrt{x}}+\frac{3}{2}x^{-3/2}$ (b) $2x-\frac{5}{2}x^{3/2}$
(c) $2x+\frac{5}{2}x^{-3/2}$ (d) None of these

29. $\lim_{x\to\infty}\sqrt{\frac{(x+\sin x)}{(x-\cos x)}}$ equal to
(a) 0 (b) 1 (c) –1 (d) None

30. If $f(x)=\int_0^x t\sin t\,dt$, then $f'(x)$ is
(a) $\cos x+x\sin x$ (b) $x\sin x$
(c) $x\cos x$ (d) $x^2/2$

31. $\int_0^{1/2}\frac{dx}{\sqrt{x-x^2}}=$
(a) 1/2 (b) π (c) $\pi/3$ (d) $\pi/4$

32. 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
(a) $2A+1$ sq. units (b) $2A$ sq. units
(c) $2A+2$ sq. units (d) $A+2$ sq. units

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

34. 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 angle 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 π. Then the set of all possible values of *x* is
(a) {1, 2} (b) {–2, –3}
(c) $\{x:x<0\}$ (d) $\{x:x>0\}$

35. 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
(a) –1 (b) $-\sqrt{10}-\sqrt{6}$
(c) $\sqrt{59}$ (d) $\sqrt{10}+\sqrt{6}$

36. If θ is the angle between $\vec{a}$ and $\vec{b}$ and $|\vec{a}\times\vec{b}|=|\vec{a}.\vec{b}|$, then θ is equal to
(a) 0 (b) π (c) $\pi/2$ (d) $\pi/4$

37. *ABCD* is a parallelogram with *AC* and *BD* as diagonals. Then $\overrightarrow{AC}-\overrightarrow{BD}$ is equal to
(a) $4\overrightarrow{AB}$ (b) $3\overrightarrow{AB}$ (c) $2\overrightarrow{AB}$ (d) $\overrightarrow{AB}$

38. If $\sin x$, $\cos x$ and $\tan x$ are in GP then $\cot^6 x-\cot^2 x=$
(a) 2 (b) –1 (c) 1 (d) 0

39. The greatest angle of the triangle whose sides are x^2+x+1, $2x+1$, x^2-1 is
(a) 150° (b) 90° (c) 135° (d) 120°

40. The general value of θ satisfying the equation $2\sin^2\theta-3\sin\theta-2=0$ is
(a) $n\pi+(-1)^n\frac{\pi}{6}$ (b) $n\pi+(-1)^n\frac{\pi}{2}$
(c) $n\pi+(-1)^n\frac{5\pi}{6}$ (d) $n\pi+(-1)^n\frac{7\pi}{6}$

41. The value of $\sin 30° \cos 45° + \cos 30° \sin 45°$

(a) $\frac{1-\sqrt{3}}{2}$ (b) $\frac{1-\sqrt{3}}{2\sqrt{2}}$

(c) $\frac{2}{\sqrt{3}}$ (d) $\frac{\sqrt{3}}{2}$

42. The solution of ΔABC given that $B = 45°$, $C = 105°$ and $c = \sqrt{2}$ is

(a) $A = 30°, a = \sqrt{3} - 1, b = \sqrt{2}(\sqrt{3} - 1)$

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

(c) $A = 30°, a = 1 - \sqrt{3}, b = \sqrt{2}(\sqrt{3} + 1)$

(d) $A = 30°, a = \sqrt{3} - 1, b = \sqrt{2}(\sqrt{3} + 1)$

43. If $\tan\theta = \frac{b}{a}$, then the value of $a\,Cos\,2\theta + b\,Sin\,2\theta$ is

(a) b (b) a (c) $\frac{a}{b}$ (d) $\frac{a}{a+b}$

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

(a) $2n\pi \pm \frac{\pi}{6}$ (b) $2n\pi \pm \frac{\pi}{3}$

(c) No Solution (d) $n\pi \pm \frac{\pi}{6}$

45. The value of $\frac{1-\tan^2 15°}{1+\tan^2 15°}$ is

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

46. If the system of equations

$ax + y + z = 0,$
$x + by + z = 0$
$and\ x + y + cz = 0, (a,b,c \neq 1)$ has a non-trivial

solution,then the value of $\frac{1}{1-a} + \frac{1}{1-b} + \frac{1}{1-c} = ?$

(a) a (b) 1
(c) 0 (d) -1

47. If α is a non-real root of $x^6 = 1$,then evaluate

$$\frac{\alpha^5 + \alpha^3 + \alpha + 1}{\alpha^2 + 1}$$

(a) α^2 (b) 0

(c) α (d) $-\alpha^2$

48. Find the minimum and maximum values of the function $(10\cos\theta + 24\sin\theta)$

(a) -10,24 (b) -25,25
(c) -26,26 (d) 10,24

49. From the top of a mountain of 60m height, the angles of depression of the top and the bottom of a tower are observed to be 30^0 and 60^0 respectively.Find the height of the tower.

(a) 40m (b) 50m (c) 55m (d) 30m

50. The length and breadth of a rectangle formed by the lines x+y=5, x-y=0, x+y=10 and x-y=4 is

(a) $2\sqrt{2}, \sqrt{12.5}$ (b) 4,5

(c) 1,10 (d) $\sqrt{12.5}, \sqrt{20.5}$

ANALYTICAL ABILITY AND LOGICAL REASONING

Directions : Q. 51 - 53 :
Mrs. Thomes received a large order for stitching school uniforms from Mayflower school and Littleflower school. She has two cutters who will cut the fabric, five tailors who will do the stitching and two assistants to stitch the 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 Littleflower uniform requires 30 min., 1 hour and 30 min. respectively for these activities.

51. What is the number of Littleflower uniforms that Mrs. Thomes can complete in a day ?
(a) 50 (b) 20
(c) 40 (d) 30

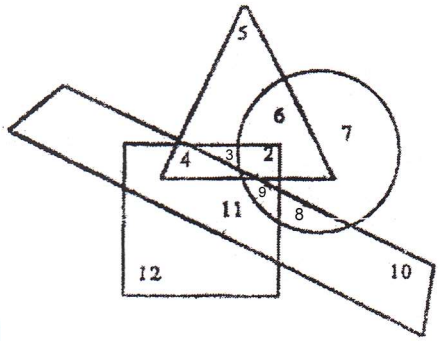
52. On a particular day, Mrs. Thomes decided to complete 20 Littleflower uniforms. How many Mayflower uniforms can she complete on that day ?
(a) 30 (b) 40
(c) 20 (d) 0

53. If she hires one more assistant, what is the maximum number of Mayflower uniforms that she can complete in a day ?
(a) 40 (b) 50 (c) 60 (d) 30

54. Assume that the following three statements are 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 I, II and III are
(a) 2 (b) 4 (c) 2, 3 (d) 1, 2

Directions : Q. 55-57 : In the following diagram circle stands for 'educated' square for 'hardworking', triangle for

'urban people' and rectangle for 'honest'. Different regions in the diagram are numbered from 2 to 12. Study the diagram carefully and answer.



55. Educated, hard-working and urban people are indicated by
(a) 7 (b) 2 (c) 3 (d) 4

56. Non-urban educated people who are neither hardworking nor honest are indicated by
(a) 5 (b) 7 (c) 10 (d) 12

57. Honest, educated and hardworking non urban people are indicated by
(a) 3 (b) 4 (c) 6 (d) 9

58. 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 ?
(a) 32 (b) 36 (c) 48 (d) 60

59. If from 4 to 55 the numbers 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 ?
(a) 24 (b) 23 (c) 22 (d) 25

60. In the following number-series, one term is wrong. Which term is wrong ?
5, 12, 19, 33, 47, 75, 104
(a) 33 (b) 47 (c) 75 (d) 104

61. 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 ?
(a) 25 (b) 23 (c) 21 (d) 22

62. Suppose $X = 2^{100}$, $Y = 3^{100}$ and $Z = 4^{100}$. Exactly one of the following is true. Which is it ?
(a) $X + Y = Z$ (b) $X + Y < Z$
(c) $X + Y > Z$ (d) $XY = Z$

Directions : Q. 63 : 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.

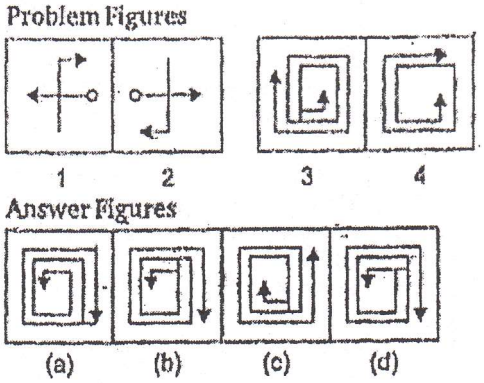
63. **Statements :**
i) Price rise is a natural phenomenon
ii) If production increases prices fall
iii) High prices affect the poor
Conclusion : If production rises the poor feel relieved.
Answer Choises :
(a) Only i and ii (b) Only i and iii
(c) Only ii and iii (d) Data Insufficient

64. Correct the following equation by inter-changing two signs. $3 - 9 \times 27 + 9 \div 3 = 3$
(a) + and – (b) × and +
(c) × and ÷ (d) × and –

65. 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 ?
(a) 6 years (b) 8 years
(c) 10 years (d) 12 years

66. 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 ?
(a) 11.40 p.m. (b) 12.48 p.m.
(c) 12 noon (d) 10 p.m.

67. Choose the best answer figure to substitute element 4 in the 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. 68 - 71 : 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.

68. What is the profession of Rakesh's wife ?
(a) Teacher (b) Doctor
(c) Lawyer (d) None of these

69. How many male members are there in the family ?
(a) Two (b) Three
(c) Four (d) None of these

70. What is/was Ajay's grandfather's occupation ?
(a) Teacher (b) Lawyer
(c) Doctor (d) Cannot be determined

71. What is the profession of Ajay ?
(a) Teacher (b) Lawyer
(c) Doctor (d) Cannot be determined

72. 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 Rs.500, then the entire estate was
(a) Rs. 3,500 (b) Rs. 5,500
(c) Rs. 6,500 (d) Rs. 7,000

73. 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 the number of boys and *g* represents the number of girls, then
(a) $b = g$ (b) $b = g/5$
(c) $b = g - 4$ (d) $b = g - 5$

74. 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 ?
(a) 19 Years (b) 25 Years
(c) 27 Years (d) $28\frac{1}{2}$ Years

75. Which of the following will be acceptable for establishing a fact ?
(a) Opinion of large number of people
(b) Traditionally in practice over a long period of time
(c) Availability of observable evidences
(d) References in the ancient literature

Directions : Q. 76 : 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 logically follows from the two given statements, disregarding commonly known facts.

76. Statements :
A) Some green are blue B) No blue is white
Conclusions
I) Some blue are green
II) Some white are green
III) Some green are not white
IV) All white are green
(a) Only I follows (b) Only II and III follows
(c) Only I and III follows (d) Only I and II follows

77. 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 ?
(a) D (b) B (c) C (d) E

78. Choose which pair of numbers carries next in the following sequence :
61, 57, 50, 61, 43, 36, 61
(a) 29, 61 (b) 27, 20
(c) 31, 61 (d) 29, 22

Directions : Q. 79-81 : 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

79. How much money did 'C' get ?
(a) Rs. 147 (b) Rs. 136
(c) Rs. 144 (d) Rs. 159

80. How much money did 'B' get ?
(a) Rs. 102 (b) Rs. 107
(c) Rs. 108 (d) Rs. 110

81. Who get highest amount ?
(a) A (b) B (c) C (d) D

82. In a certain code, RIPPLE is written as 613382 and LIFE is written as 8192. How is PILLER written in that code ?
(a) 318826 (b) 318286
(c) 618826 (d) 328816

83. 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 ?
(a) 10.10 a.m. (b) 11.30 a.m.
(c) 11.20 a.m. (d) None of these

Directions : Q. 84-86 : 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.

84. 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.
(a) None follows (b) Only II follows
(c) Only III follows (d) Only II and IV follow

85. Statements : All plastics are glasses.
Some sponges are glasses.
All sponges are clothes.
All clothes are liquids.
Conclusions : I) All liquids are sponges.
II) Some plastics are clothes.
III) All glasses are plastics.
IV) All liquids are clothes.
(a) None follows (b) Only either II or IV follows
(c) Only III and IV follows (d) Only I and IV follows

86. 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.
(a) Only III follows (b) Only II follows
(c) Only IV follows (d) None of these

Directions : Q. 87-90 : 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 shoud 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.

87. In case C is to be the fifth scientist to present his paper, then B must be
(a) first (b) second
(c) third (d) fourth

88. B could be placed for any of the following places in the order of presenters EXCEPT
(a) second (b) third
(c) fourth (d) fifth

89. In case 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 ?
(a) second (b) third
(c) fourth (d) fifth

90. In case F and E are the fifth and sixth presenters respectively then which of the following must be true ?
(a) A is first in the order of presenters
(b) A is third in the order of presenters
(c) A is fourth in the order of presenters
(d) B is first in the order of presenters

COMPUTER AWARENESS

91. Which protocol needs to be installed for Internet access on a network ?
(a) TCP/IP (b) TELNET
(c) IPX/SPX (d) Net BEUI

92. A petabyte represents approximately
(a) 1000 gigabytes (b) 1000 kilobytes
(c) 1000 terabytes (d) 1000 yottabytes

93. The ASCII code of 'A' is
(a) 66D (b) 41H
(c) 01000010 (d) 01100011

94. An eight bit byte is capable of representing how many different characters ?
(a) 64 (b) 128 (c) 256 (d) 512

95. When two binary numbers are added, then an overflow will never occur if
(a) Both numbers of same sign
(b) The carry into the sign bit position and out of sign bit position are not equal
(c) The carry into the sign bit position and out of sign bit position are equal
(d) The carry into the sign bit position is 1

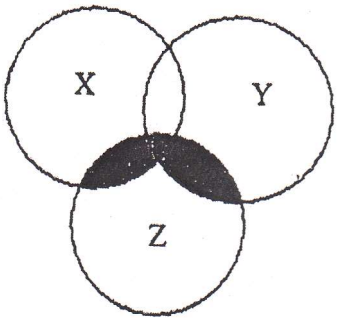
96. The sum of $11010 + 01111$ equals
(a) 101001 (b) 101010
(c) 110101 (d) 101000

97. 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 : $x.(x+y)$?
(a) y (b) 1
(c) 0 (d) x

98. Which one of the following is not a valid rule of Boolean algebra ?
(a) $A+1=1$ (b) $A=A'$
(c) $AA=A$ (d) $A+0=A$

99. The least significant bit of the binary number, which is equivalent to any odd decimal number is
(a) 0 (b) 1
(c) 1 or 0 (d) All of the above

100. 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.



(a) $Z'+(X.Y)$ (b) $Z.(X+Y)$
(c) $(Z.X')+Y$ (d) $Z'.(X+Y)$

GENERAL ENGLISH

101. The people ..... you socialise are called friends.
(a) with whom (b) who
(c) with who (d) whom

102. Every one of them ..... to the music every day.
(a) Listen (b) Listening
(c) Listens (d) None of these

103. I didn't work hard when I was ..... school.
(a) in (b) on (c) at (d) by

104. Where are you .....?
(a) from (b) by (c) of (d) to

105. Which of these is an adjective in "It is ....."
(a) Hard (b) Hardly
(c) Hardship (d) Harden

106. I have been working here .....six months.
(a) since (b) by
(c) for (d) in

107. Defile
(a) Pollute (b) Disapprove
(c) Delay (d) Reveal

Directions : Q. 108-111 : 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 the word in capital letters :

108. POLEMIC

(a) black (b) magnetic
(c) grimace (d) controversial

109. The synonym for word FOOLHARDY is
(a) Erudite (b) Unwise
(c) Rusty (d) Roll

110. Deep
(a) low (b) distracted
(c) flat (d) awake

111. Give the antonym for CRYPTIC
(a) Futile (b) Candid
(c) Famous (d) Indifferent

112. Profound
(a) Shallow (b) Sonorous
(c) Superficial (d) Lofty

113. Give the analogy for ELSUSIVE : CAPTURE ::
(a) Elastic : Stretch (b) Headstrong : Control
(c) Sensible : Decide (d) Persuasive : Convince

114. The meaning of word EGRESS is
(a) Entrance (b) Exit
(c) Double (d) Program

115. Choose the wrongly spelt word
(a) Deficient (b) Efficient
(c) Magnificient (d) Reticent

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 systerms 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 secrection 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.

116. Choose the option for the human system mechanisms whose interactions eventually result into cardiovascular diseases due to air pollution ?
(a) Inflammation (b) Coagulation
(c) Antigen (d) Both a and b

117. Which is the central syndrome talked about in the paragraph ?
(a) Inflammation
(b) Atherogenesis
(c) Secretions of tissue factors
(d) Thrombo Modulin

118. 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 are sensitive target for air pollutants
(a) All are true
(b) Only (i) and (ii) are true
(c) Only (i) and (iii) are true
(d) Only (ii) and (iii) are true

119. The primary cause of cardiovascular disease due to factors discussed in paragraph is
(a) Lack of immunity (b) Anticoagulation
(c) Thrombomodulin (d) Endothelial Dysfunction

120. RETROGRADE
(a) progressing (b) veclining
(c) evaluating (d) directing

NIMCET(Actual-2011)

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