

APPENDIX - II

**DEPARTMENT OF PSYCHOLOGY
PSG COLLEGE OF ARTS AND SCIENCE
COIMBATORE - 641 014.**

MATHS ACHIEVEMENT TEST @

This test is based on the portions done in your Mathematics Course.

Each of the questions or incomplete statement in this test is followed by three suggested answers. You have to decide which one of these answers is correct and write the letter a, b, or c corresponding to the correct answer. Write your answer by putting a tick mark against the answer. Choose only one answer. If you want to change after marking your answer, score out well the answer you marked first and write the answer you think is correct. Be sure to answer all the questions because your score will be the number of answers that you get correct. Therefore, work speedily and carefully but don't spend too much time on any one question, as the time you take to complete this test will be noted.

@ Thirty eight items were only selected after item-analysis. Hence the final format of the MAT contains items which are indicated by an asterisk (*) mark.

* 1. The order of $\sqrt{5}$ is

48%

0.35 (1) 2 (2) 25 (3) 5^2

* 2. The base of $5\sqrt{11}$

58%

0.37 (1) 5 (2) 2 (3) 11

* 3. Mixed Surd of $\sqrt{50}$

30%

0.35 (1) $5\sqrt{2}$ (2) $\sqrt{5} \times 10$ (3) $2\sqrt{5}$

* 4. The approximate value of $\sqrt{2}$

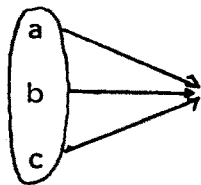
58%

0.46 (1) 1.732 (2) 2.236 (3) 1.414

* 5.

52%

0.31



(F) The type of this function is

(1) Many-one function (2) Constant function (3) One-one function.

6. If $f(n) = n+5$, the value of $f(0)$ is

71%

0.17 (1) 0 (2) 5 (3) 10

7. Which describe an inverse variation.

41%

0.24 (1) $Mn = 4$ (2) $d = 40f$ (3) $Y = 40$

8. What is the co-efficient of X^2 in $X^7 + X^6 - 4X^2 + 3X + 1$
68%

0.09 (1) 3 (2) -4 (3) 1

9. What is the degree of $X^3 (2 + 2X^2)$
54%

0.03 (1) 4 (2) 5 (3) 6

10. Simplify : $3X^3 + 2X^2 - 7X^3 - 2X^2 - 10X^3$
16%

0.06 (1) 0 (2) $20X^3 + 4X^2$ (3) 1

11. The remainder when we divide $X^3 - X^2 + X + 1$ by
32% $(X+1)$ is

0.03 (1) -2 (2) 2 (3) 3

12. The co-efficient of X in $(X^2 + 2X + 1) +$
28% $(X^3 - X^2 + 1) - (X^2 + X^3 + 2X + 1)$ is

0.11 (1) 4 (2) 0 (3) 10

* 13. The value of $\text{Log } a^a$
25%

0.40 (1) a (2) a^2 (3) 1

14. Find the compound interest for Rs.100 for 2 years at
20% the rate of 10%

0.12 (1) Rs.20 (2) Rs.21 (3) Rs.22

* 15. If one angle of a right angled triangle is 45° ,
 58% then their sides are in the ratio
 0.32 (1) 3 : 2 (2) 1 : 1 : 2 (3) 1 : 2 : 3

16. The area of a triangle is
 70%
 0.12 (1) $\frac{1}{2} bn$ (2) $\sqrt{3/4} a^2$ (3) $\sqrt{S(S-a)(S-b)(S-c)}$

* 17. The area of a square is
 70%
 0.31 (1) a^2 (2) $4a$ (3) $\frac{1}{2} \int$

* 18. The length of the arc of a sector is
 46%
 0.41 (1) $\frac{D}{360} \pi r^2$ $\frac{D}{360} 2\pi r$ (3) $\frac{D}{360} 2\pi r^2$

19. The area of a sector is
 48%
 0.03 (1) $\frac{D}{360} \pi r$ (2) $\frac{D}{360} 2\pi r^2$ (3) $\frac{lr}{2}$

20. The angles formed by the intersection of
 78% two lines are
 0.11 (1) Complementary (2) Supplementary (3) Equal

21. Two non-intersecting lines in the same plane are
 81% called
 0.24 (1) Perpendicular lines (2) Line segment
 (3) Parellel lines

22. Where does the circumcentre lie in a right angled triangle?
43%

- 0.22 (1) Within the triangle (2) Outside the triangle
(3) The mid point of the hypotenuse.

23. Sum of the opposite angles of a cyclic quadrilateral is
43%

- 0.22 (1) Supplementary (2) Complementary (3) Right angle

24. The equation to the straight line passing through the origin is
17%

- 0.09 (1) $Y = mx$ (2) $Y = mx + c$ (3) $x = 0$

25. The slope of the line $Y = 2x + 3$ is
9%

- 0.00 (1) 2 (2) 3 (3) $3/2$

26. The slope of the straight line joining the two points (x_1, y_1) and (x_2, y_2) is
59%

- 0.03 (1) $Y = mx$ (2) $\frac{Y_2 - Y_1}{X_2 - X_1}$ (3) $Y - Y_1 = m(x - x_1)$

27. The degree of the polynomial x^3 is
40%

- 0.16 (1) 3 (2) 1 (3) 0

28. Name the Polynomial of $0x^2 + 0x + x$
45%

- 0.03 (1) Trinomial (2) Zero Polynomial
(3) Quadratic Polynomial

29. The co-efficient of X in $4x^2 + 5x + 2$ is

36%

0.01 (1) 4 (2) 5 (3) 2

* 30. If $A = \{1, 2, 3\}$ then $n(P(A)) =$

54%

0.35 (1) 2 (2) 3 (3) 8

31. $(\sqrt[3]{5})^3 =$

19%

0.00 (1) 3 (2) 5 (3) 125

32. Simplify $4\sqrt{35} \div 3\sqrt{7}$

83%

0.09 (1) 4 (2) 3 (3) $\frac{4}{3}\sqrt{5}$

* 33. Successor of 445_5 is

68%

0.33 (1) 1000_5 (2) 1000_2 (3) 445_5

34. Predecessor of 1001_2 is

62%

0.09 (1) 11000_2 (2) 1000_2 , (3) 1010_2

35. Simplify $223_5 \times 35$

58%

0.11 (1) 669_5 (2) 669_2 (3) 1124_5

36. A subset common to all set is
66%
0.14 (1) Singleton set (2) equal set (3) nullset
37. If $n(A) = 3$, $n(B) = 4$, then $n(A \times B)$
67%
0.19 (1) 7 (2) 12 (3) 1
38. The mapping where the codomain and range are not
29%
0.08 (1) Into mapping (2) Onto mapping (3) Identity
mapping
39. Find the cube of $a-b$.
37%
0.11 (1) $a^3 - b^3$ (2) $a^3 + b^3$ (3) $a^3 - 3a^2b + 3ab^2 - b^3$
- * 40. If $A \times B = \{(1,2) (1,3) (2,2), (2,3)\}$, then find the
50%
0.31 (1) $\{1,2\}$ (2) $\{2,3\}$ (3) $(1,2)$
- * 41. If $A = \{1,2,3\}$, $B = \{4,5\}$, then find $A \cap B$
70%
0.35 (1) $\{1,2,3\}$ (2) $\{4,5\}$ (3) $\{ \}$
- * 42. $2/\sqrt{5}$ - Rationalise the denominator
39%
0.33 (1) $2\sqrt{5}/5$ (2) $\frac{4}{2\sqrt{5}}$ (3) $2/5$

43. Factorise $25a^2 - 16b^2$

40%

0.19 (1) $(5a - 4b)(5a + 4b)$ (2) $(5a - 4b)(5a - 4b)$

(3) $(a + b)(a - b)$

* 44. If $2x + 3 = 7$, then find the value of x

59%

0.51 (1) 4 (2) 2 (3) 3

45. If $n > m$, then find $a^m \div a^n$

21%

0.08 (1) $\frac{1}{a^{n-m}}$ (2) a^{n-m} (3) $\frac{1}{a^{m-n}}$

46. Rewrite the given equation using exponent

30%

$\text{Log}_{10} 25.3 = 1.4031$.

0.09 (1) $10^{1.4031} = 25.3$ (2) $\text{LOG}_{10} 10^{1.4031} = 25.3$

(3) $1.4031^{10} = 25.3$

47. The formula to find compound interest is

74%

0.16 (1) $\frac{Pnr}{100}$ (2) $P \left(1 + \frac{r}{100} \right)^n - P$ (3) $\frac{100 I}{Pn}$

* 48. The formula to find the area of a regular hexagon

50%

is

0.43 (1) $6 \frac{3}{4} a^2$ (2) $\frac{3}{4} a^2$ (3) $6a^2$

49. The sum of measures of a quadrilateral is

50%

0.26 (1) 45° (2) 180° (3) 360°

50. If linear pairs are equal then each of the adjacent
49% angle is

0.24 (1) 90° (2) 45° (3) 60°

* 51. In which quadrant does $(-3, -2)$ lies?

53%

0.45 (1) first (2) second (3) third

52. The sum of measures of a supplementary angle is
62%

0.24 (1) 100° (2) 180° (3) 360°

53. What are the angles of an isosceles right angled
50% triangle?

0.26% (1) $90^\circ ; 60^\circ ; 60^\circ$ (2) $90^\circ ; 60^\circ ; 30^\circ$ (3) $90^\circ ; 45^\circ ; 45^\circ$;

54. Simplify $10_2 + 101_2$

85%

0.09 (1) 111_2 (2) 110_2 (3) 11_2

55. The co-efficient of x^4 in the polynomial
33% $4x^3 + 3x^2 - 5x + 5$ is

0.27 (1) 4 (2) 3 (3) 0

56. The standard form of $x^2 - 4x^4 - 2x^2 + 16$ is
46%

0.26 (1) $16 - 4x^3 + 2x^2 - 4x^2$ (2) $x^4 + x^3 - 2x^2 + 16$
(3) $-4x^4 + x^3 - 2x^2 + 16$.

* 57. The negative of a polynomial $x^2 - 4x - 20$ is

68%

0.35 (1) $-x^2 + 4x + 20$ (2) $x^2 + 4x - 20$ (3) $x^2 + 1/x^2$

58. $\frac{x^2 - 1}{x + 4}$ Is this represent a polynomial?

47%

0.17 (1) Yes (2) No (3) None of the both

59. The angles of a triangle are in the ratio 1:2:3.

84%

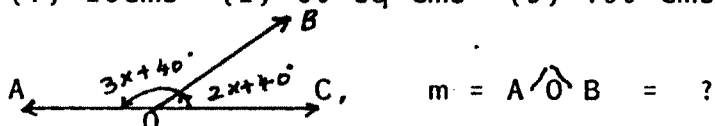
Its smallest side is 6 cms, then its biggest side is

0.11 (1) 10 cms (2) 6 cms (3) 12 cms

60. The radius of a section is 8 cms. The length of the arc is 20 cms. Then its area is

33%

0.26 (1) 28cms (2) 80 sq cms (3) 180 cms²

* 61.  $m = \angle AOB = ?$

36%

0.31 (1) 80° (2) 100° (3) 128°

62. What type is this function $\{(3,6) (-4,-8) (5,10)\}$?

35%

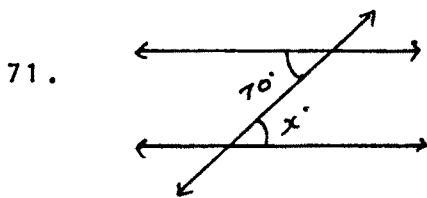
0.19 (1) Indirect variate function (2) Constant function
(3) direct variate function

* 63. In which quadrant this point $(-4, -6)$ lies?

58%

0.33 (1) first quadrant (2) second quadrant (3) third quadrant

64. In a $\triangle ABC$ $\overline{AB} = \overline{AC}$; $m\angle B = 50^\circ$. $m\angle A = ?$
 34%
 0.04 (1) 50° (2) 90° (3) 80°
- * 65. In a cyclic quadrilateral ABCD, $A = 75^\circ$. $C = ?$
 26%
 0.40 (1) 115° (2) 105° (3) 265°
66. What should be added with $x^2 + 16$ to make it a
 27% perfect square?
 0.06 (1) $\pm 8x$ (2) $+ 4x$ (3) $- 2x$
67. The number of diagonals of a regular hexagon are
 20%
 0.14 (1) 9 (2) 6 (3) 5.
68. If in a regular polygen the exterior angle is 36° ,
 21% then the number of its sides are
 0.014 (1) 8 (2) 24 (3) 10
69. If an interior angle of a regular hexagon is 120° ,
 75% the measure of the exterior angle is
 0.24 (1) 70° (2) 340° (3) 60°
- * 70. If the angle at the centre of the section is 90° ,
 50% what part of the circumference of the circle forms
 the length of the section.
 0.56 (1) $1/6$ (2) $1/5$ (3) $1/4$.



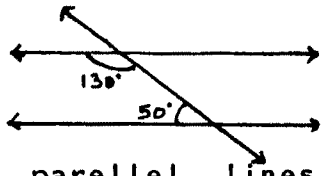
In figure $x = ?$

43%

0.03

- (1) 60° (2) 110° (3) 70°

* 72. In the figure m_1 and m_2 lines are called



74%

0.32

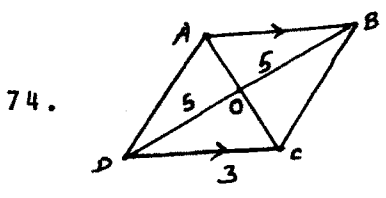
- (1) perpendicular lines (2) parallel lines (3) medians

73. A straight line and a point that does not lie on that line are needed to determine a

64%

0.27

- (1) line segment (2) plane (3) ray



In the figure $\overline{OA} = ?$

41%

0.22

- (1) 72 (2) 3 (3) 6

75.

x	1	10	p
y	5	1/2	20

Find 'P' if the table represent the indirect function

51%

0.22

- (1) 1/4 (2) 2 (3) 1/8

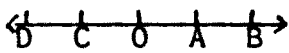
* 76. If 2nd April is Monday, what day is 26th April (same year)

61%

0.35

- (1) Saturday (2) Wednesday (3) Thursday

77. In the figure $\overline{CO} \parallel \overline{OA}$?



45%

0.16 (1) \overleftarrow{CA} (2) point $\{O\}$ (3) \overrightarrow{CA}

78. If in a quadrilateral $n_1 = 6$ cms, $n_2 = 4$ cms, area = 500 sq cms. The length of a diagonal is

41%

0.19 (1) 100 cms (2) 10 cms (3) 25 cms

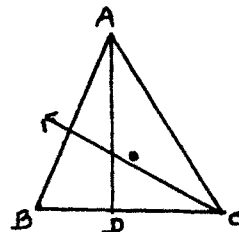
79. In $\triangle ABC$, AD, OF are medians.

32%

AO : OD = ?

0.16

(1) 1:5 (2) 1:2 (3) 2:1



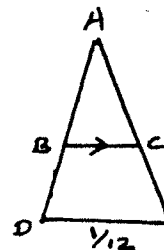
* 80. In $\triangle ADE$, B, C are the mid points of

66%

AD ; AE respectively. If DE = 12 units, BC =

0.46

(1) 18 (2) 6 (3) 1/2



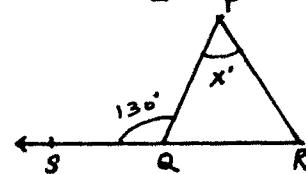
81. In the figure RQ is extended upto S.

36%

$m\angle PQS = 130^\circ$ $m\angle x = ?$

0.14

(1) 140 (2) 60 (3) 80



* 82. Simplify $5\sqrt{3} + 4\sqrt{3} - 2\sqrt{3}$

51%

0.48 (1) $7\sqrt{3^2}$ (2) $11\sqrt{3}$ (3) $7\sqrt{3}$

83. Write in logarithmic form $5^2 = 25$

25%

0.06 (1) $2 = \log_5 25$ (2) $\log_2 25$ (3) $\log 5^2 = 25$

* 84. The sum of the three angles of triangle is

53%

0.38 (1) 360° (2) 90° ; (3) 180°

85. $\frac{x}{4} + 1 = 4x = ?$

35%

0.22 (1) $\frac{5}{4}$ (2) 3 (3) 12

86. $\frac{x}{15} = 1/0.5 x = ?$

33%

0.09 (1) 75 (2) 30 (3) 50

87. If a, b, c are the sides of an equilateral triangle,

26%

its circumference is

0.20 (1) $\sqrt{S(s-a)(s-b)(s-c)}$ (2) $\frac{a+b+c}{2}$ (3) $a+b+c$

88. If $15 = x \pmod{5}$, $x = ?$

64%

0.22 (1) 0 (2) 1 (3) 2

* 89. $A U A^{-1} = ?$

44%

0.46 (1) $(A U A)^{-1}$ (2) A^{-1} (3) E_1

90. $5x^2 - 2x^2 + 4x^2 = ?$

26%

0.04 (1) $7x^2$ (2) $-40x^2$ (3) $-7x^2$

91. $(a+b) (a^2 - ab + b^2) = ?$

33%

0.11 (1) $(a+b)^3$ (2) $(a^3 - b^3)$ (3) $a^3 + b^3$

* 92. $(n+a) (n-a) = ?$

50%

0.33 (1) $(n+a)^2$ (2) $(n-a)^2$ (3) $n^2 - a^2$

93. $\frac{2a}{7} - \frac{a}{7} = ?$

54%

0.12 (1) $\frac{-3a}{4a}$ (2) $\frac{-a^2}{4a}$ (3) $\frac{a}{7}$

94. The equation to the X axis is

40%

0.25 (1) $Y = 0$ (2) $X = 0$ (3) $X = C$

95. The factors of $x^2 + 7x + 12$ is

41%

0.17 (1) $(x+4) (x+3)$ (2) $(x+4) (x-3)$ (3) $(x+6) (x+1)$

96. $(A^{-1})^{-1} =$

50%

0.27 (1) A^{-1} (2) $(A^{-1})^2$ (3) A

97. $11_2 = ?$

66%

-01_2

0.17 (1) 21 (2) 10_2 (3) 22_2

* 98. $n(A) = 5 : n(P(A)) = ?$

58%

0.79 (1) 5^4 (2) 5^5 (3) 32

* 99. The area formula for a trapezium is

71%

0.37 (1) $1/2 bh$ (2) $1/2 bh (d_1 + d_2)$ (3) $1/2 h (a+b)$

* 100. A side of a hexagon is 10 cms. Its circumference is

71%

0.33 (1) 6cms (2) 12 cms (3) 60 cms

101. $a^2 \times a^2 \times a^2 = ?$

51%

0.06 (1) a^8 (2) a^6 (3) a^4

* 102. $\frac{x^{10}}{x^4} = ?$

x
48%

0.50 (1) x^6 (2) x^{14} (3) x^8

103. Simplify $a\sqrt{2} + 6\sqrt{2} - 3\sqrt{2}$

31%

0.20 (1) $5 + \sqrt{2}$ (2) $10\sqrt{2}$ (3) $7\sqrt{2}$

* 104. Add $123_5 + 104_5$

73%

0.40 (1) 302_5 (2) 232_5 (3) 411_5

105. If $A = \{1, 2\}$ $B = \{0, 3\}$ $A \times B = ?$

66%

- 0.25 (1) $\{(1, 6)\}$ (2) $\{(1, 0), (1, 3), (2, 0), (2, 3)\}$
(3) $\{(0, 1), (0, 2)\}$

106. How many measurements are needed to draw a quadrilateral?

64%

- 0.16 (1) 4 (2) 6 (3) 5

107. If $\frac{x}{3} = 5$ then $x = ?$

83%

- 0.16 (1) 17 (2) 2 (3) 15

108. Each angle of an equilateral triangle is

79%

- 0.27 (1) 180° (2) 120° (3) 60°

109. If $\frac{x}{2} + 4 = 8$, $x = ?$

61%

- 0.19 (1) 4 (2) 5 (3) 8

* 110 $17 = x \pmod{3}$, $n = ?$

66%

- 0.43 (1) 4 (2) 2 (3) 5

* 111. If $82 + 14 = n \pmod{5}$. $n = ?$

48%

- 0.48 (1) 2 (2) 1 (3) 3

112. $(a - b)(a^2 + ab + b^2) = ?$

39%

0.14 (1) $a^2 - b^2$ (2) $a^3 - b^3$ (3) $(a - b)^3$

* 113. $(a^2 - b^2) = ?$

60%

0.33 (1) $a + b$ (2) $(a - b)$ (3) $a - b$

114. $\frac{n}{5} + \frac{4n}{5} = ?$

25%

0.24 (1) 1 (2) n (3) $\frac{5}{N}$

* 115. The equation of the Y axis is

42%

0.40 (1) $X = 0$ (2) $Y = 0$ (3) $a = c$

116. $[(A \cup B)'] = ?$

51%

0.24 (1) A (2) $A \cup B$ (3) $A \cap B$

117. Is 1 rational number or irrational number?

22%

0.03 (1) Rational number (2) Irrational number (3) None of the both.