EXAM NUMBER : .....

# GOVERNMENT HIGHER SECONDARY SCHOOL – THAZHUTHALI

## ONE MARK TEST – 1

**Time : 30 minutes** **X STD – MATHS** **Total Marks : 25**

**Answer all the questions:** $25 \times 1 = 25$

1. A = { a , b , p } , B = { 2 , 3 } , C = { p , q , r , s } , then $n[(A \cup C) \times B]$ is

(A) 8 (B) 20 (C) 12 (D) 16

2. The range of the relations R = { $(x, x^2)$ | $x$ *is* $a$ prime number less than 13 } is

(A). {2,3,5,7} (B).{2,3, 5,7,11} (C). {4,9,25,49,121} (D). {1,4,9,25,49,121}

3. If { ( $a$ , 8 ) , ( 6 , $b$ ) } represents an identity function, then the value of $a$ and $b$ are respectively.

(A).( 8 , 6 ) (B).( 8 , 8 ) (C).( 6 , 8 ) (D).( 6 , 6 )

4. If $f : A \to B$ is a bijective function and if $n(B) = 7$, then $n(A)$ is equal to

(A). 7 (B). 49 (C). 1 (D). 1

5. $f(x) = (x+1)^3 - (x-1)^3$ represents a function which is

(A). linear (B). cubic (C).reciprocal (D).quadratic

6. If the HCF of 65 and 117 is expressible in the form of $65m - 117$, then the value of $m$ is

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

7. Given $F_1 = 1$ , $F_2 = 3$ and $F_n = F_{n-1} + F_{n-2}$ , then $F_5$ is

(A ). 3 (B ). 5 (C ). 8 (D ). 11

8. If 6 times of 6$^{th}$ term of an A.P is equal to 7 times the 7$^{th}$ term , then the 13$^{th}$ term of the A.P is

(A). 0 (B). 6 (C). 7 (D). 13

9. In an A.P , the first term is 1 and the common difference is 4. How many terms of the A.P must be taken for their sum to be equal to 120 ?

(A). 6 (B). 7 (C). 8 (D). 9

10. The next term of the sequence $\frac{3}{16}$ , $\frac{1}{8}$ , $\frac{1}{12}$ , $\frac{1}{18}$, …… *is*

(A). $\frac{1}{24}$ (B). $\frac{1}{27}$ (C). $\frac{2}{3}$ (D). $\frac{1}{81}$

11. A system of three linear equations in three Variables is inconsistent if their planes

(A).intersect only at a point (B). intersect in a line (C). Coincides with each other (D). do not intersect

12. If $(x-6)$ is the HCF of $x^2 - 2x - 24$ *and* $x^2 - kx - 6$ , then the value of $k$ is

(A).3 (B). 5 (C). 6 (D). 8

13.The square root of $\frac{256\,x^8\,y^4\,z^{10}}{25\,x^6\,y^6\,z^6}$ is equal to

(A). $\frac{16}{5}\left|\frac{x^2z^4}{y^2}\right|$ (B). $16\left|\frac{y^2}{x^2z^4}\right|$ (C ). $\frac{16}{5}\left|\frac{y}{xz^2}\right|$ (D). $\frac{16}{5}\left|\frac{xz^2}{y}\right|$

14. Graph of a linear polynomial is a .....

(A). straight line (B). circle (C). Parabola (D). hyperbola

15. The solution of $(2x-1)^2=9$ is equal to

(A). $-1$ (B). 2 (C). $-1,2$ (D). None of these

16.. If in triangle ABC and EDF , $\frac{AB}{DE}=\frac{BC}{FD}$ , then they will be similar , when

(A). $\angle B=\angle E$ (B). $\angle A=\angle D$ (C ). $\angle B=\angle D$ (D). $\angle A=\angle F$

17. If $\Delta\,ABC$ is an isosceles triangle with $\angle C=90°$ and AC = 5 cm , then AB is

(A). 2.5 cm (B). 5 cm (C). 10 cm (D). $5\sqrt{2}$ cm

18. If in $\Delta\,ABC$ , $DE \parallel BC$ , AB = 3.6 cm , AC = 2.4 cm and AD = 2.1 cm , then the length of AE is

(A). 1.4 cm (B). 1.8 cm (C).1.2 cm (D). 1.05 cm

19.The area of triangle formed by the point $(-5\,,0\,),(\,0\,,-5\,)\ and\ (\,5\,,0\,)$ is

(A). 0 sq.units (B). 25 sq.units (C ). 5 sq.units (D). none of these

20.The straight line given by the equation $x=11$ is

(A). parallel to X-axis (B). parallel to Y-axis

(C). Passing through the origin (D). passing through the point ( 0, 11 )

21. The slope of the line joining ( 12 , 3 ) , ( 4 , $a$ ) is $\frac{1}{8}$. The value of $'a'$ is

(A). 1 (B). 4 (C). $-5$ (D). 2

22. The equation of a line passing through the origin and perpendicular to the line $7x-3y+4=0$

(A). $7x-3y+4=0$ (B). $3x-7y+4=0$ (C). $3x+7y=0$ (D). $7x-3y=0$

23. ( 2 , 1 ) is the point of intersection of two lines

(A). $x-y-3=0\ ;\ 3x-y-7=0$ (B). $x+y=3\ ;\ 3x+y=7$

(C ). $3x+y=3\ ;\ x+y=7$ (D). $x+3y-3=0\ ;\ x-y-7=0$

24. The value of $sin^2\theta+\frac{1}{1+tan^2\theta}$ is equal to

(A). $tan^2\theta$ (B). 1 (C). $cot^2\theta$ (D). 0

25. If $sin\theta+cos\theta=a\ and\ sec\theta+cosec\theta=b$ , then the value of $b(a^2-1)$ is equal to

(A). 2a (B). 3a (C). 0 (D). 2ab

EXAM NUMBER : .....

# GOVERNMENT HIGHER SECONDARY SCHOOL – THAZHUTHALI

## ONE MARK TEST – 2

**Time : 30 minutes** **X STD – MATHS** **Total Marks : 25**

**Answer all the questions:** $25 \times 1 = 25$

1. If there are 1024 relations from a set A = { 1 , 2 , 3 , 4 , 5 } to a set B , then the number of elements in B is

(A). 3 (B).2 (C) 4 (D) 8

2. If the ordered pairs $( a + 2 , 4 )$ and $( 5 , 2a + b )$ are equal then ( a , b ) is

(A). $(2, -2)$ (B). ( 5 , 1 ) (C). ( 2 , 3 ) (D). ( 3 , −2 )

3. If $n(A \times B) = 6$ and A = { 1 , 3 } , then $n ( B )$ is

(A) 1 (B) 2 (C) 3 (D) 6

4. Let A = { 1 , 2 , 3 , 4 } and B = { 4 , 8 , 9 , 10 }. A function $f: A \to B$ given by $f = \{(1 , 4), (2 , 8), (3 , 9), (4 , 10)\}$ is a

(A). Many – one function (B).Identity function (C ). One to one function (D). Into function

5. If $g = \{ (1 ,1), (2 , 3 ), (3 , 5 ), (4 , 7 ) \}$ is function given by $g(x) = \alpha x + \beta$ , then value of $\alpha$ and $\beta$ are

(A).(−1 , 2 ) (B).( 2, −1 ) (C). (−1, −2) (D).( 1 , 2 )

6. Using Euclid's division lemma, if the cube of any positive integer is divided by 9 then the possible remainders are

(A). 0 , 1 , 8 (B). 1 , 4 , 8 (C). 0 , 1 , 8 (D).1 , 3 , 5

7. The sum of the exponents of the prime factors in the prime factorization of 1729 is

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

8. $7^{4k} \equiv$ ..... $( mod 100 )$

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

9. An A.P consists of 31 terms. If its 16th term is $m$ , then the sum of all the terms of this A.P is

(A). 16m (B). 62m (C). 31m (D). $\frac{31}{2}$ m

10. The value of $( 1^3 + 2^3 + 3^3 + \cdots + 15^3) - ( 1 + 2 + 3 + \cdots \ldots + 15)$ is

(A).14400 (B).14200 (C).14280 (D).14520

11. The solution of the system $x + y - 3z = -6$, $-7y + 7z = 7$ , $3z = 9$ is

(A). $x = 1, y = 2 , z = 3$ (B).$x = -1, y = 2 , z = 3$ (C).$x = -1, y = -2 , z = 3$ (D). $x = 1, y = -2 , z = 3$

12. $\frac{3y - 3}{y} \div \frac{7y - 7}{3y^2}$ is

(A). $\frac{9y}{7}$ (B). $\frac{9y^2}{( 21y - 21 )}$ (C ).$\frac{21y^2 - 42y + 21}{3y^3}$ (D).$\frac{7(y^2 - 2y + 1)}{y^2}$

13. $\frac{x}{x^2-25}-\frac{8}{x^2+6x+5}$ gives

(A). $\frac{x^2-7x+40}{(x-5)(x+5)}$ (B). $\frac{x^2+7x+40}{(x-5)(x+5)(x+1)}$ (C ). $\frac{x^2-7x+40}{(x^2-25)(x+1)}$ (D). $\frac{x^2+10}{(x^2-25)(x+1)}$

14. Which of the following should be added to make $x^4+64$ a perfect square ?

(A). $4x^2$ (B). $16x^2$ (C). $8x^2$ (D). $-8x^2$

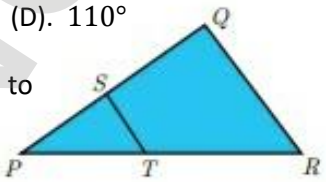
15. The number of points of intersection of the quadratic polynomial $x^2+4x+4$ with the X-axis is

(A). 0 (B). 1 (C). 0 or 1 (D). 2

16. In $\Delta LMN$, $\angle L=60°$, $\angle M=50°$. If $\Delta LMN \sim \Delta PQR$, then the value of $\angle R$ is

(A). $40°$ (B). $70°$ (C). $30°$ (D). $110°$

17. In a given figure $ST \parallel QR$, PS = 2 cm and SQ = 3 cm. Then the ratio of the area of $\Delta PQR$ to the area of $\Delta PST$ is




(A). 25 : 4 (B). 25 : 7 (C). 25 : 11 (D). 25 : 13

18.In a $\Delta ABC$, AD is the bisector of $\angle BAC$. If AB = 8 cm, BD = 6 cm and DC = 3 cm .The length of the side AC is

(A). 6 cm (B). 4 cm (C). 3 cm (D). 8 cm

19. If ( 5 , 7 ) , ( 3 , $p$ ) and ( 6 , 6 ) are collinear , then the value of $p$ is

(A). 3 (B). 6 (C). 9 (D). 12

20. If slope of the line PQ is $\frac{1}{\sqrt{3}}$ , then the slope of the perpendicular bisector of PQ is

(A). $\sqrt{3}$ (B). $-\sqrt{3}$ (C). $\frac{1}{\sqrt{3}}$ (D). 0

21. The point of intersection of $3x-y=4$ and $x+y=8$ is

(A).( 5 , 3 ) (B).( 2 , 4 ) (C).( 3 , 5 ) (D).( 4 , 4 )

22. A straight line has equation $8y=4x+21$. Which of the following is true ?

(A). The slope is 0.5 and $y$ intercept is 2.6 (B). The slope is 5 and $y$ intercept is 1.6

(C ). The slope is 0.5 and $y$ intercept is 1.6 (D). The slope is 5 and $y$ intercept is 2.6

23.When proving that a quadrilateral is a trapezium, it is necessary to show ?

(A). Two sides are parallel (B). Two parallel and two non-parallel sides

(C ). Opposite sides are parallel (D). All sides are of equal length

24. $tan\theta\ cosec^2\theta - tan\theta$ is equal to

(A). $sec\theta$ (B). $cot^2\theta$ (C). $sin\theta$ (D). $cot\theta$

25. If $sin\theta = cos\theta$ , $then$ $2tan^2\theta + sin^2\theta - 1$ is equal to

(A). $\frac{-3}{2}$ (B). $\frac{3}{2}$ (C). $\frac{2}{3}$ (D). $\frac{-2}{3}$

EXAM NUMBER : .....

# GOVERNMENT HIGHER SECONDARY SCHOOL – THAZHUTHALI

## ONE MARK TEST – 3

**Time : 30 minutes** **X STD – MATHS** **Total Marks : 25**

**Answer all the questions:** $25 \times 1 = 25$

1. If A = { 1 , 2 } , B = { 1 , 2 , 3 , 4 } , C = { 5 , 6 } and D = { 5 , 6 , 7 , 8 }, then state which of the following statement is true

(A).$(A \times C) \subset (B \times D)$ (B) $(B \times D) \subset (A \times C)$ (C).$(A \times B) \subset (A \times D)$ (D) $(D \times A) \subset (B \times A)$

2. Let $n(A) = m$ and $n(B) = n$, then the total number of non-empty relations that can be defined from A to B is

(A). $m^n$ (B). $n^m$ (C). $2^{mn} - 1$ (D). $2^{mn}$

3. If $f(x) = 2x^2$ and $g(x) = \frac{1}{3x}$, then $f \circ g$ is

(A). $\frac{3}{2x^2}$ (B). $\frac{2}{3x^2}$ (C). $\frac{2}{9x^2}$ (D). $\frac{1}{6x^2}$

4. Let $f$ and $g$ be two functions given by $f = \{ (0,1), (2,0), (3,-4), (4,2), (5,7) \}$, $g = \{ (0,2), (1,0), (2,4), (-4,2), (7,0) \}$ then the range of $f \circ g$ is

(A).{ 0 , 2 , 3 , 4 , 5 } (B).{ −4 , 1 , 0 , 2 , 7 } (C).{ 1 , 2 , 3 , 4 , 5 } (D).{ 0 , 1 , 2 }

5. Let A = { 1 , 2 , 3 , 4 } and B = { 4 , 8 , 9 , 10 }. A function $f: A \to B$ given by $f = \{(1,4), (2,8), (3,9), (4,10)\}$ is a

(A). Many – one function (B).Identity function (C ). One to one function (D). Into function

6. Euclid's divisions lemma states that for positive integers $a$ and $b$, there exists unique integers $q$ and $r$ such that $a = bq + r$, where $r$ must satisfy

(A). $1 < r < b$ (B). $0 < r < b$ (C). $0 \leq r < b$ (D). $0 < r \leq b$

7. The least number that is divisible by all the numbers from 1 to 10 ( both inclusive ) is

(A). 2025 (B). 5220 (C). 5025 (D). 2520

8. The first term of an arithmetic progression is unity and the common difference is 4. Which of the following will be a term of this A.P.

(A). 4551 (B). 10091 (C). 7881 (D). 13531

9. If $A = 2^{65}$ *and* $B = 2^{64} + 2^{63} + 2^{62} + \cdots \ldots + 2^0$ Which of the following is true ?

(A). B is $2^{64}$ more than A (B).A and B are equal (C).B is larger than A by 1 (D).A is larger than B by 1

10. If the sequence $t_1$ , $t_2$ , $t_3$ , .... are in A.P. , then the Sequence $t_6$ , $t_{12}$ , $t_{18}$, ..... is

(A). a Geometric Progression (B).An Arithmetic Progression

(C). Neither an A.P nor a G.P (D). a constant sequence

11. $y^2 + \frac{1}{y^2}$ is not equal to

( A ). $\frac{y^4 + 1}{y^2}$ (B ). $\left(y + \frac{1}{y}\right)^2$ (C ). $\left(y - \frac{1}{y}\right)^2 + 2$ ( D ).$\left(y + \frac{1}{y}\right)^2 - 2$

12. The values of $a$ and $b$ if $4x^4 - 24x^3 + 76x^2 + ax + b$ is a perfect square

(A). 100 , 120 (B). 10 , 12 (C). −120 , 100 (D). 12 , 10

13.If the roots of the equation $q^2x^2 + p^2x + r^2 = 0$ are the squares of the roots of the equation $qx^2 + px + r = 0$, then $q$ , $p$ , $r$ are in.....

(A). A.P (B). G.P (C). Both A.P and G.P (D). None of these

14. A system of three linear equations in three Variables is inconsistent if their planes

(A).intersect only at a point (B). intersect in a line (C). Coincides with each other (D). do not intersect

15. The solution of $(2x - 1)^2 = 9$ is equal to

(A). $-1$ (B). 2 (C). $-1,2$ (D). None of these

16. The perimeters of two similar triangle $\Delta ABC$ and $\Delta PQR$ are 36 cm and 24 cm respectively. If PQ =10 cm , then the length of AB is22

(A). $6\frac{2}{3}$ cm (B). $\frac{10\sqrt{6}}{3}$ cm (C). $66\frac{2}{3}$ cm (D). 15 cm

17. In $\Delta LMN$ , $\angle L = 60°$ , $\angle M = 50°$ . If $\Delta LMN \sim \Delta PQR$ , then the value of $\angle R$ is

(A). $40°$ (B). $70°$ (C). $30°$ (D). $110°$

18. If in $\Delta ABC$ , $DE \parallel BC$ , AB = 3.6 cm , AC = 2.4 cm and AD = 2.1 cm , then the length of AE is

(A). 1.4 cm (B). 1.8 cm (C).1.2 cm (D). 1.05 cm

19. The slope of the line which is perpendicular to line joining the points ( 0 , 0 ) and $(-8 , 8)$ is

(A). $-1$ (B). 1 (C). $\frac{1}{3}$ (D). $-8$

20.Consider four straight line $(i). l_1: 3y = 4x + 5$ $(ii). l_2: 4y = 3x - 1$ $(iii). l_3: 4y + 3x = 7$ $(iv). l_4: 4x + 3y = 2$

Which of the following statement is true ?

(A). $l_1$ $and$ $l_2$ are perpendicular (B). $l_1$ $and$ $l_4$ are parallel

(C ). $l_2$ $and$ $l_4$ are perpendicular (D). $l_2$ $and$ $l_3$ are parallel

21. When proving that a quadrilateral is a Parallelogram by using slopes you must find

(A). The slopes of two sides (B). The slopes of two pair of opposite sides

(C). The length of all sides (D). Both the lengths and slopes of two sides.

22.The straight line given by the equation $x = 11$ is

(A). parallel to X-axis (B). parallel to Y-axis

(C). Passing through the origin (D). passing through the point ( 0, 11 )

23. If A is a point on the Y-axis whose ordinate is 8 and B is a point on the X-axis whose abscissae is 5 , then the equation of the line AB is

(A). $8x + 5y = 40$ (B). $8x - 5y = 40$ (C). $x = 8$ (D). $y = 5$

24. $(1 + tan\theta + sec\theta)(1 + cot\theta - cosec\theta)$ is equal to

(A). 0 (B). 1 (C) . 2 (D) – 1

25. If $5x = sec\theta$ $and$ $\frac{5}{x} = tan\theta$ , $then$ $x^2 - \frac{1}{x^2}$ is equal to

(A). 25 (B). $\frac{1}{25}$ (C). 5 (D). 1

# ONE MARK TEST – KEY ANSWER

| ONE MARK TEST – 1 | | | | | | |
|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| C | C | A | A | D | B | D |
| 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| A | C | B | D | B | D | A |
| 15 | 16 | 17 | 18 | 19 | 20 | 21 |
| C | C | D | A | B | B | D |
| 22 | 23 | 24 | 25 | | | |
| C | B | B | A | | | |
| **ONE MARK TEST – 2** | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| B | D | C | C | B | A | C |
| 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| A | C | C | A | A | C | B |
| 15 | 16 | 17 | 18 | 19 | 20 | 21 |
| B | B | A | B | C | B | C |
| 22 | 23 | 24 | 25 | | | |
| A | B | D | B | | | |
| **ONE MARK TEST – 3** | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| A | C | C | D | C | C | D |
| 8 | 9 | 10 | 11 | 12 | 13 | 14 |
| C | D | B | B | C | B | D |
| 15 | 16 | 17 | 18 | 19 | 20 | 21 |
| C | D | B | A | B | C | A |
| 22 | 23 | 24 | 25 | | | |
| B | A | C | B | | | |