# MODEL PAPER -1
# MATHEMATICS, Paper – I
*(English version)*
**(Parts A and B)**

*Time: 2 hrs. 45 min.]*         *[Maximum Marks: 40*

*Instructions:*

1.   *In the time duration of 2 hours 45 minutes, 15 minutes of time is allotted to read and understand the Question paper.*
2.   *Answer **all** the questions under **Part-A** on a separate answer book.*
3.   *Write the answers to the questions under **Part- B** on the Question paper itself and attach it to the answer book of **Part- A***

## Part - A

*Time : 2 hours*         **Marks : 35**

**NOTE** : (i)   *Answer all the questions from the given three sections.*
       ***I, II, and III of Part - A***
    (ii)   *In section III, every question has internal choice.*

### SECTION-I

(*Marks : 7 X 1 = 7)*

**NOTE** *: (i)   Answer **all** the following questions.*
       *(ii)   Each question carries **1** mark.*

1. Evaluate the value of $\text{Log}_7^{343}$ ?

2. $A = \{ x : x^2 = 16 \text{ and } 2x + 3 = 11 \}$ is not an empty set why ?

3.    Check Whether -2 and 2 are the Zeroes of the Polynomial $X^4-16$ ?

4.    4x-6y-15=0 and 2x-ky-5=0 are two parallel lines then find the 'K' Value ?

5. Write the nature of roots of the Quadratic equation $2x^2-3x-+5=0$

6. Find the Sum of first 100 natural numbers ?

7. Verify whether the points A (1,5), B(2,3) , and C (-2,-1) are collinear or not ?

## ,SECTION-II

Note :  (i) Answer all the problems.

(ii) Each Question carries 2 Marks.

8.    Find the HCF and LCM of 12 and 18 by the prime Factorization Method. ?

9.    Find the area of a triangle whose Vertices are (1,-1),(-4,6)and (-3,-5)?

10.    Solve the following pair of Linear Equation using. Elimination method?

3x+2y=11

2x+3y=4

11.    Find the $11^{th}$ term form the end of the A.P:10,7,4,----------- -62.

12.    Find the roots of the equation x $-\dfrac{1}{3x}=\dfrac{1}{6}$ (x≠0).

13.    Find the quadratic polynomial whose zero  are 2 and  - $\dfrac{1}{3}$ ?

# SECTION – lll

14. If $(2.3)^x=(0.23)^y=1000$, then find the value of $\frac{1}{x}-\frac{1}{y}$ ?

(OR)

Prove that $\sqrt{2}+\sqrt{3}$ is an irrational number ?

15. Draw the graph of the polynomial $p(x)=x^2-6x+9$ and find the zero, justify the answer?

(OR)

Draw the gaph for the following pair of liner equation in two variables and find their solution from the graph ?

$$2x-3y=5, \quad 4x-6y=15.$$

16. IF the geometric progressions 162, 54, 18,…………………..and $\frac{2}{81},\frac{2}{27},\frac{2}{9}$ ,……………have their $n^{th}$ term equal .find the value of 'n'?

(OR)

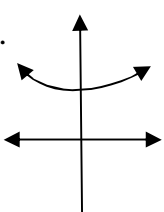Find the co-ordinates of the points of trisection of the line segment joining the points A(2,-2) and B(-7,4)?

17. If  A={3,6,9,12,15,18,21},  B={4,8,12,16,20},

  C={2,4,6,8,10,12,14,16} ,  D={5,10,15,20} then find.?

  1. AΩB  2.BÚC  3.A-B  4.C-B

(OR)

In a class test, the sum of mounika's marks in Mathematics and English is 30, If she got 2 marks more in mathematics and 3 marks less in English .the products of her marks would have been 210. Find the marks in two subjects.

18. Find the 21$^{st}$ term of the A.P whose first two term are -3 and 4 is ( )

    A] 17   B] 137   C]143   D]-143

19. AOBC is a rectangle whose four vertices are A(0,3),O(0,0),B(5,0),C(5,3) the length of

    its diagonal is _____units ( )

    A]5        B]3        C]$\sqrt{34}$        D] 4

20. The decimal Expression of the rational number is $\frac{43}{2^4 \cdot 5^3}$ terminates after which place of

    the decimal point ( )

    A]7        B]4        C]3        D]8

21. If a pair of linear equation is constant, then the lines will be ( )

    A]    Parallel                    B] Always coincident

    C]    Intersecting (or) coincident          D]Always intersecting

22. A={2,5,10,17,26} which of the following is the set builder form of the set 'A' ( )

A]A={x:x=$n^2$+1;n€N,n≤4}        B]A={ x:x=$n^2$-1;n€N,1≤ n ≤5}                    C]A={

x:x=$n^2$+1;n€N ,n≤5}      D]A={ x:x=$n^2$+2;n€N,n≤5}

23.which of the following is not a quadratic expression ( )

A]$(x + 1)^2$=2(x-3)              B]$x^2$+8x= -2$(1 − 23)^2$

C](x+2) (X-1)=$x^2$+3x-2        D]$x^3 + x^2$-2x+1=$(x + 1)^3$

24. 4$^{th}$ and 5$^{th}$ terms of G.P are $\frac{1}{24}$ and $\frac{1}{8}$ then the common ration is ….. ( )

    A]$\frac{1}{3}$        B] 3        C]$\frac{1}{192}$        D]12

25.         y=P(x)     The graph of y=P(x) has how many zeros____ ( )

                    A]2        B]1        C]4     D] no zeros

**P.T.O**

26.P,Q are zero values of polynomial P(x) $2x^2 - 7x-3$ then $P^2 + Q^2 =$ how many zeros_____

$\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad$ (　　)

A] $\frac{1}{4}$　　　　B] 1　　　　　　C] $\frac{3}{4}$　　　　D] None

27.If $A(x_1,y_1)$ $B(x_2, y_2)$ $C(x_3, y_3)$ are vertices of a triangle ABC.which of the following

represents centroid. $\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad$ (　　)

A] $\left[\frac{\cdot x_1+x_2+x_3}{3}, \quad \frac{y_1+y_2+y_3}{3}\right]$　　　　B] $\left[\frac{y_1+y_2+y_3}{3}, \quad \frac{x_1+x_2+x_3}{3}\right]$

C) $\left[\frac{x_1+y_2+y_3}{3}, \quad \frac{y_1+x_2+x_3}{3}\right]$　　　　D] $\left[\frac{x_2+y_3+y_1}{3}, \quad \frac{y_2+x_2+x_3}{3}\right]$

**The end**