# BRINDHAWANs狽 FINAL REVISION EXAMINATION 2024 

10th Standard Maths

Exam Time : 03:00:00 Hrs
Reg.No. : $\square \square \square \square \square \square$
Total Marks : 100
PART - A
$14 \times 1=14$

## Choose the correct Answer

1) If $f(x)=2 x^{2}$ and $g(x)=\frac{1}{3 x}$, then $f$ o $g$ is
(a) $\frac{3}{2 x^{2}}$
(b) $\frac{2}{3 x^{2}}$
(c) $\frac{2}{9 x^{2}}$
(d) $\frac{1}{6 x^{2}}$
2) The domain of the function ' f ' given by $f(x)=\frac{1}{x^{2}-5 x+6}$
(a) $\mathrm{R}-\{2,3\}$
(b) $\mathrm{R}-\{-2,3\}$
(c) $\mathrm{R}-\{2,-3\}$
(d) $R-\{-2,-3\}$
3) An A.P. consists of 31 terms. If its $16^{\text {th }}$ term is $m$, then the sum of all the terms of this A.P. is
(a) 16 m
(b) 62 m
(c) 31 m
(d) $\frac{31}{2} \mathrm{~m}$
4) The Value of $r_{1}$ such that $1+r+r^{2}+r^{3}+$ $\qquad$ $=3 / 4$
(a) $1 / 3$
(b) $-1 / 3$
(c) 3
(d) -3
5) The solution of $(2 x-1)^{2}=9$ is equal to
(a) -1
(b) 2
(c) $-1,2$
(d) None of these
6) If number of columns and rows are not equal in a matrix then it is said to be a
(a) diagonal matrix
(b) rectangular matrix
(c) square matrix
(d) identity matrix
7) In a given figure $S T \| Q R, P S=2 \mathrm{~cm}$ and $S Q=3 \mathrm{~cm}$. Then the ratio of the area of $\triangle P Q R$ to the area $\triangle \mathrm{PST}$ is

(a) $25: 4$
(b) $25: 7$
(c) $25: 11$
(d) $25: 13$
8) 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
9) The condition for the lines $a_{1} x+b_{1} y+c_{1}=0$ and $a_{2} x+b_{2} y+c_{2}=0$ to be perpendicular is $\qquad$
(a) $a_{1} a_{2}+b_{1} b_{2}=0$
(b) $a_{1} b_{1}+a_{2} b_{2}=0$
(c) $a_{1} a_{2}-b_{1} b_{2}=0$
(d) $a_{1} b_{1}-a_{2} b_{2}=0$
10) $(1+\tan \theta+\sec \theta)(1+\cot \theta-\operatorname{cosec} \theta)$ is equal to
(a) 0
(b) 1
(c) 2
(d) -1
11) The volume (in $\mathrm{cm}^{3}$ ) of the greatest sphere that can be cut off from a cylindrical log of wood of base radius 1 cm and height 5 cm is
(a) $\frac{4}{3} \pi$
(b) $\frac{10}{3} \pi$
(c) $5 \pi$
(d) $\frac{20}{3} \pi$
12) The ratio of the volumes of a cone, a hemisphere and a cylinder have equal bases. The heights of the cone and cylinder are equal and are same as the common radius.
(a) $1: 2: 3$
(b) $2: 1: 3$
(c) $1: 3: 2$
(d) $3: 1: 2$
13) Which of the following is incorrect?
(a) $\mathrm{P}(\mathrm{A})>1$
(b) $0 \leq \mathrm{P}(\mathrm{A}) \leq 1$
(c) $\mathrm{P}($ ф) $=0$
(d) $\mathrm{P}(\mathrm{A})+\mathrm{P}(\bar{A})=1$
14) If the sum and mean of a data are 407 and 11 respectively, then the number of observations in the data are
(a) 37
(b) 35
(c) 11
(d) 121

## PART - B

## Answer Any 10 Questions.Quetion No. 28 is Compulsory

15) Let $A=\{1,2,3\}$ and $B=\{x \mid x$ is a prime number less than 10$\}$. Find $A x B$ and $B \times A$.
16) A relation ' f ' $X \rightarrow Y$ is defined by $\mathrm{f}(\mathrm{x})=\mathrm{x}^{2}-2$ where $\mathrm{x} \in\{-2,-1,0,3\}$ and $\mathrm{Y}=\mathrm{R}$
(i) List the elements of f
(ii) Is f a function?
17) ' $a$ ' and ' $b$ ' are two positive integers such that $a^{b} \times b^{a}=800$. Find ' $a$ ' and ' $b$ '
18) Find the sum of the following
$102,97,92, \ldots$ up to 27 terms.,
19) If $a$ and $\beta$ are the roots of $x^{2}+7 x+10=0$ find the values of
( $a-\beta$ )
20) If $A=\left[\begin{array}{ll}2 & 5 \\ 4 & 3\end{array}\right], \mathrm{B}=\left[\begin{array}{cc}1 & -3 \\ 2 & 5\end{array}\right]$ find $\mathrm{AB}, \mathrm{BA}$ and check if $\mathrm{AB}=\mathrm{BA}$ ?
kindly send me your key Answers to our email id - padasalai.net@gmail.com
21) Find the length of the tangenfadmadiNefrom a point whosevelistanmepfrom the centre of a circle is 5 cm and radius of the circle is 3 cm .
22) Find the equation of a straight line whose Slope is 5 and y intercept is -9
23) Find the equation of a straight line which is parallel to the line $3 x-7 y=12$ and passing through the point $(6,4)$.
24) A road is flanked on either side by continuous rows of houses of height $4 \sqrt{3} \mathrm{~m}$ with no space in between them. A pedestrian is standing on the median of the road facing a row house. The angle of elevation from the pedestrian to the top of the house is $30^{\circ}$. Find the width of the road.
25) Find the diameter of a sphere whose surface area is $154 \mathrm{~m}^{2}$.
26) A cone of height 24 cm is made up of modeling clay. A child reshapes it in the form of a cylinder of same radius as cone. Find the height of the cylinder.
27) Find the standard deviation of first 21 natural numbers.
28) In a two children family, find the probability that there is at least one girl in a family.

## PART - C

$10 \times 5=50$

## Answer Any 10 Questions.Quetion No. 42 is Compulsory

29) Represent each of the given relations by (a) an arrow diagram, (b) a graph and (c) a set in roster form, wherever possible.
$\{(\mathrm{x}, \mathrm{y}) \mid \mathrm{x}=2 \mathrm{y}, \mathrm{x} \in\{2,3,4,5\}, \mathrm{y} \in\{1,2,3,4\}$
30) The function ' $t$ ' which maps temperature in Celsius ( C ) into temperature in Fahrenheit ( F ) is
defined by $\mathrm{t}(\mathrm{C})=\mathrm{F}$ where $\mathrm{F}=\frac{9}{5} \mathrm{C}+32$. Find,
(i) $\mathrm{t}(\mathrm{O})$
(ii) $t(28)$
(iii) $\mathrm{t}(-10)$
(iv) the value of C whenn $\mathrm{t}(\mathrm{C})=212$
(v) the temperature when the Celsius value is equal to the Fahrenheit value.
31) Prove that $2^{n}+6 \times 9^{n}$ is always divisible by 7 for any postive integer $n$,
32) Determine the general term of an A.P. whose $7^{\text {th }}$ term is -1 and $16^{\text {th }}$ term is 17 .
33) Find the GCD of the polynomials $x^{3}+x^{2}-x+2$ and $2 x^{3}-5 x^{2}+5 x-3$.
34) Solve the following quadratic equations by formula method
$36 y^{2}-12 a y+\left(a^{2}-b^{2}\right)=0$
35) Find $X$ and $Y$ if $X+Y=\left[\begin{array}{ll}7 & 0 \\ 3 & 5\end{array}\right]$ and $X-Y=\left[\begin{array}{ll}3 & 0 \\ 0 & 4\end{array}\right]$
36) Basic Proportionality Theorem (BPT) or State and prove Thales theorem?
37) Let $A(3,-4), B(9,-4), C(5,-7)$ and $D(7,-7)$. Show that $A B C D$ is a trapezium.
38) if $\operatorname{cosec} \theta+\cot \theta=\mathrm{p}$, then prove that $\cos \theta=\frac{p^{2}-1}{p^{2}+1}$
39) A solid sphere of radius 6 cm is melted into a hollow cylinder of uniform thickness. If the external radius of the base of the cylinder is 5 cm and its height is 32 cm , then find the thickness of the cylinder.
40) The internal and external radii of a hollow hemispherical shell are 3 m and 5 m respectively. Find the T.S.A. and C.S.A. of the shell.

41) Three fair coins are tossed together. Find the probability of getting
(i) all heads
(ii) atleast one tail
(iii) atmost one head
(iv) atmost two tails
42) Find the area of the quadrilateral whose vertices, taken in order, are $(-4,-2),(-3,-5),(3,-2)$ and $(2$, 3).
43) a) Draw a circle of radius 4.5 cm . Take a point on the circle. Draw the tangent at that point using the alternate segment theorem.
b) Construct a triangle similar to a given triangle PQR with its sides equal to $\frac{3}{5}$ of the corresponding sides of the triangle PQR (scale factor $\frac{3}{5}<1$ )
44) a) Graph the following quadratic equations and state their nature of solutions. $\mathrm{x}^{2}-6 \mathrm{x}+9=0$
(OR)
b) A two wheeler parking zone near bus stand charges as below

| Time in hours (x) | 4 | 8 | 12 | 24 |
| :--- | :---: | :---: | :---: | :---: |
| Amount Rs. (y) | 60 | 120 | 180 | 360 |

Check if the amount charged are in direct variation or in inverse variation to the parking time. Graph the data. Also
(i) find the amount to be paid when parking time is 6 hr ;
(ii) find the parking duration when the amount paid is Rs. 150.

