# ARMY PUBLIC SCHOOL SHILLONG <br> ANNUAL EXAMINATION 2022-23 <br> SUBJECT: MATHEMATICS <br> CLASS: VIII 

## Time: 2 Hour 30minutes

Maximum Marks: 80

## General instructions:

- All questions are compulsory. There are thirty-nine questions in all.
- The question paper is divided into five sections.
- Section A has 20 questions of 1 mark each, section B has 8 questions of 2 marks each, section C has 4 questions of 3 marks each, section D has 5 questions of 4 marks each and section E has 2 questions of 6 marks each.
- There is no overall choice in the question paper. However internal choice has been provided in few questions of section B,C and D.


## SECTION: A

## Fill in the blanks:

1) The perimeter of a parallelogram whose parallel sides have lengths equal to 12 cm and 7 cm 1 is $\qquad$ .
a) 21 cm
b) 42 cm
c) 19 cm
d) 38 cm
2) $\qquad$ gives the number of times a particular entry occurs.
a) Organisation of data
b) Collection of Data
c) Representation of Data
d) Frequency distribution table
3) A polynomial contains $\qquad$ number of terms.
a) One
b) Two
c) Three
d) Any
4) A cuboid has $\qquad$ pairs of identical faces.
a) 2
b) 3
c) 4
d) 5
5) $100^{0}+20^{0}+5^{0}$ is equal to $\qquad$ .
a) 125
b) 25
c) $1 / 125$
d) 3

## State true or false:

6) Pictorial representation of data using symbols is known as Bar graph.
7) A square is a 3D shape.1
8) If $x$ and $y$ are inversely proportional, then $x y=$ constant.1
9) A graph that displays data that changes continuously over periods of time is called histograph.
10) A cone has one vertex.

## Choose the correct option:

11) Each of the angles of a square is $\qquad$ .
a) Acute angle
b) Right angle
c) Obtuse angle
d) 180 degree
12) The volume of a cuboid with length, breadth and height as $5 x, 3 x^{2}$ and $7 x^{4}$ respectively is:
a) $105 x^{7}$
b) $105 x^{2}$
c) $105 x^{4}$
d) $105 x$
13) The side-view of a cone appears as:
a) Circle
b) Square
c) Rectangle
d) Triangle
14) The area of a rhombus is $240 \mathrm{~cm}^{2}$ and one of the diagonals is 16 cm . Find the other diagonal.
a) 16 cm
b) 20 cm
c) 30 cm
d) 36 cm
15) The multiplicative inverse of $7^{-2}$ is:
a) $7^{2}$
b) 7
c) $1 / 7^{2}$
d) $1 / 7$
16) The common factor of $a^{3} b^{3}$ and $a b^{2}$ is:
a) $a^{2} b^{2}$
b) $a b^{2}$
c) $a^{2} b$
d) ab
17) The factorisation of $12 a^{2} b+15 a b^{2}$ gives:
a) $3 a b(4 a b+5)$
b) $3 \mathrm{ab}(4 \mathrm{a}+5 \mathrm{~b})$
c) $3 a(4 a+5 b)$
d) $3 b(4 a+5 b)$
18) Which point lies only on y-axis?
a) $(-2,0)$
b) $(2,0)$
c) $(0,-2)$
d) $(2,-2)$
19) The number 2146587 is divisible by:
a) 7
b) 3
c) 11
d) None of the above
20) The generalised form of 129 is:
a) $100+90+2$
b) $100+20+9$
c) $100+2+9$
d) None of the above

## SECTION: B

21) A tetrahedron has 4 vertices and 6 edges. Find the number of faces it has.
22) Factorize : $(10 x-25) \div(2 x-5) \quad$ OR $a^{2}+8 a+16$
23) In the given figure, $A B C D$ is a parallelogram. Find $x$.

24) A flooring tile has the shape of a parallelogram whose base is 24 cm and the corresponding 2 height is 10 cm . How many such tiles are required to cover a floor of area $1080 \mathrm{~m}^{2}$ ?
25) Find the value of: $\left(3^{-1} \times 9^{-1}\right) \div 3^{-2}$
26) Find $x$ so that $(-5)^{x+1} \times(-5)^{5}=(-5)^{7}$
27) The following line graph shows the yearly sales figures for a manufacturing company.

$\begin{array}{lll}\text { (a) What were the sales in } & \text { (i) } 2002 & \text { (ii) } 2006 \text { ? }\end{array}$
(b) Compute the difference between sales in 2002 and 2006.
28) Find the values of P and Q from the given addition problem

|  | 3 | P | 4 | 3 |
| :---: | :---: | :---: | :---: | :---: |
| $+$ | 4 | 2 | 7 | Q |
|  | 7 | 9 | 1 | 7 |

## SECTION: C

29) Subtract: $3 \mathrm{a}(\mathrm{a}+\mathrm{b}+\mathrm{c})-2 \mathrm{~b}(\mathrm{a}-\mathrm{b}+\mathrm{c})$ from $4 \mathrm{c}(-\mathrm{a}+\mathrm{b}+\mathrm{c})$
30) In a stack there are 5 books each of thickness 20 mm and 5 paper sheets each of thickness 0.016 mm . What is the total thickness of the stack?
31) A farmer has enough food to feed 20 animals in his cattle for 6 days. How long would the food last if there were 10 more animals in his cattle?

OR
A photograph of a bacteria enlarged 50,000 times attains a length of 5 cm , as shown in the diagram. What is the actual length of the bacteria? If the photograph is enlarged 20,000 times only, what would be its enlarged length?
32) Factorise : $12 x y\left(9 x^{2}-16 y^{2}\right) \div 4 x y(3 x+4 y)$

## SECTION : D

33) The opposite angles of a parallelogram are $(3 x+5)^{\circ}$ and $(61-x)^{\circ}$. Find the measure of four angles.
34) A closed cylindrical tank of radius 7 cm and height 5 m is made from a sheet of metal. If the 4 breadth of the rectangular sheet is 10 m , then find the length of the sheet.

## OR

The internal measures of a room are $12 \mathrm{~m} \times 8 \mathrm{~m} \times 4 \mathrm{~m}$. Find the total cost of white washing all four walls of a room if the cost of white washing is Rs 5 per sq m .
35) Draw a line passing through $(2,3)$ and $(3,2)$. Find the coordinates of the points at which this 4 line meets the x - axis and y -axis.

## OR

Use the tables below to draw linear graphs:
The number of days a hillside city received snow in different years.

| Year | 2006 | 2007 | 2008 | 2009 |
| :--- | :--- | :--- | :--- | :--- |
| Days | 10 | 8 | 14 | 9 |

36) Evaluate: $(2 x y) \times\left(x^{2} y / 4\right) \times\left(x^{2}\right) \times\left(y^{2}\right)$ when $x=2$, and $y=-1$.
37) Factorise the following using the identities :
a) $25 m^{2}+30 m+9$
b) $9 x^{2} y^{2}-16$

## SECTION: E

38) A school is an educational institution designed to provide learning spaces and learning environments for the teaching of students under the direction of teachers. Sheela goes to school at an average speed of $12 \mathrm{~km} / \mathrm{hr}$ in 20 min and Syna goes to school by motor cycle at an average speed of $40 \mathrm{~km} / \mathrm{hr}$. Sheela wants to reach her school in 15 minutes.


Answer the following questions :
i) What should be the average speed of Sheela to reach school in 15 min ?
ii) What is the distance of school from Sheela's house?
39) The following pie chart depicts the percentage of students, nationwide.


What is the percentage of : i) Indian students
ii) African students

