## Group-A

Read the following stems and answer any three of the following questions:
$10 \times 3=30$

1. 23805 and 651201 are two numbers:
a) Give reason whether the number 21952 be a perfect square number or not.

2
b) What is the least number which is to be divided by the first number so that the quotient would be a perfect square number?
c) What is the least number which is to be subtracted from the second number, so that the difference is a perfect square number.
2. The ratio of weight of milk and water in first mixture is $6: 7$. The ratio of weight of water and sugar in second mixture is $8: 5$ and the weight of the second mixture is 650 gm .
a) Find the successive ratio of milk, water and sugar. 2
b) what will be the ratio of milk, water and sugar if we mix the two mixtures?
c) How much sugar is to be added in the second mixture to make the ratio 12:11.
3. $A=x^{2}-x y+y^{2}, B=x+y$ and $C=x^{6}-y^{6}$
a) Multiply B by $(x-y)$.2
b) Prove that, $A B=x^{3}+y^{3}$. 4
c) Find the value of $C \div A B$. 4
4.

a) Find the pairs of alternate angles and write down two properties of alternate angles. 2
b) Prove that $\angle \mathrm{BPQ}=\angle \mathrm{PQC}$.
c) If $\angle \mathrm{APE}=120^{\circ}$ and $\mathrm{PQ}=\mathrm{PR}$, then prove that $\triangle \mathrm{PQR}$ is an equilateral triangle.

## Group-B

Choose the correct answer and write in answer script.

1) If 97969 trees are arranged in square form, what will be the number of rows and columns?
a) 303
b) 313
c) 323
d) 333
2) Which one is an irrational number?
a) 234
b) 3.45
c) $\frac{13}{7}$
d) $6.24381 \ldots \ldots$
3) What is the least number which is to be added with 136 so the summation would be perfect square?
a) 4
b) 8
c) 16
d) 36
4) What will be the digits in unit place in the square root of the numbers 169 and 289 ?
a) 7,7
b) 7,3
c) 3,7
d) 3,3
5) i. 256 is a perfect square number.
ii. 1057 is not a perfect square number.
iii. the square root of 841 is 29 .

Which one of the following is correct?
a) $i$
b) i and ii
c) ii and iii
d) i, ii and iii
6) How many digits are there in the square root of 3228853329 ?
a) 9
b) 5
c) 6
d) 4
7) Determine the fourth proportional of $15,25,33$.
a) 35
b) 33
c) 55
d) 66
8) If first and third value of a successive ratio is 6 and 24 , what is the second value?
a) 12
b) 18
c) 22
d) 16
9) If the ratio of water and milk in the first mixture is $6: 5$ and in the second mixture is $5: 6$, then what is the mix ratio?
a) $30: 25: 30$
b) $6: 5: 6$
c) $6: 10: 6$
d) $1: 1$
10) If TK 6300 is divided among three boys of age 5,7 and 9 years according to their age. How much will get the boy 9 ?
a) 1500
b) 2100
c) 1800
d) 2700
11) If $\frac{1}{3}: \frac{1}{5}:: x: \frac{3}{10}$ then what is the value of $x$ ?
a) $\frac{1}{4}$
b) $\frac{2}{5}$
c) $\frac{1}{2}$
d) $\frac{4}{10}$
12) In the proportion-
i. there are four quantity.
ii. each quantity is called proportional
iii. the ratio of 1 st and $2^{\text {nd }}$ quantity and the ratio of $3{ }^{\text {rd }}$ and $4^{\text {th }}$ quantity are equal to each other.

Which one of the following is correct?
a) $i$ and ii
b) i and iii
c) ii and iii
d) i, ii and iii
13) Which one of the following is the product of $-3 a^{2} b$ and $-4 a b^{2}$ ?
a) $-12 a^{3} b^{3}$
b) $\mathbf{1 2} a^{3} b^{2}$
c) $-12 a^{2} b^{3}$
d) $12 a^{3} b^{3}$
14) When $\left.289 \llbracket x^{9} y\right|^{6}$ is divided by $17 x \square^{3} y \square^{2}$ then which one of the following is the quotient?
a) $17 x \square^{3} y \square^{3}$
b) $17 x x^{3} y \|^{4}$
c) $17 \square x^{6} y \square^{3}$
d) $\left.17 \square x^{6} y\right|^{4}$
15) What is the product of $(4 x+13)$ and ( $4 x-13$ )?
a) $16 x \square^{2}+169$
b) $16\left\lfloor x^{2}+52 x \square+169\right.$
c) $16 x \square^{2}-52 x \square-9$
d) $16 x \square^{2}-169$
16) $x^{8} \div x^{-3}$
a) $\boldsymbol{x}^{11}$
b) $x^{5}$
c) $x^{-11}$
d) $\boldsymbol{x}^{-5}$
17) $\frac{-25 x^{3} y}{5 x y^{3}}=$ ?
a) $-5 x^{2} y^{2}$
b) $5 x^{2} y^{2}$
c) $\frac{5 x^{2}}{y^{2}}$
d) $-\frac{5 x^{2}}{y^{2}}$

## Answer to the questions no. 18, 19 and 20.



In the figure, if $\mathrm{PQ} \| \mathrm{SR}, \mathrm{PQ}=\mathrm{PR}$ and $\angle S R L \| \neq 70^{\circ}$
18) What is the value of $\triangle P R Q$ ?
a) $60^{\circ}$
b) $70^{\circ}$
c) $80^{\circ}$
d) $50^{\circ}$
19) What is the value of IQPR?
a) $40^{\circ}$
b) $50^{\circ}$
c) $60^{\circ}$
d) $70^{\circ}$
20) If $\mathrm{PQ} \| \mathrm{SR}, \mathrm{PQ}=\mathrm{PR}$ and $\mathbb{\pm} \ddagger 55^{\circ}$, al what is the value of $\angle \mathrm{PRS}$ ?
a) $55^{\circ}$
b) $60^{\circ}$
c) $65^{\circ}$
d) $70^{\circ}$

