Pre-competency Question Bank for STD 10 (SSC and CBSE board)

1.	Write first four multiples of i) 4, ii) 7, iii) 21, iv) 35
2.	Eighth multiple of 42 is ……
3.	Is 14 a factor of 84? (Yes/No) ……
4.	Find the factors of the following i) 142, ii) 221, iii) 484, iv) 562
5.	Using factor tree method find prime factors of the following i) 84, ii) 147, iii) 246, iv) 828
6.	Using division method find prime factors of the following i) 148, ii) 259, iii) 727, iv) 434
7.	Find LCM of i) 82 and 172, ii) 25 and 195
8.	Write all prime numbers between 50 and 100.
9.	Add following fraction i) $\frac{1}{8}+\frac{3}{16}$, ii) $8+2\frac{3}{4}+\frac{3}{8}$
10.	Subtract i) $\frac{1}{2}-\frac{5}{12}$, ii) $2-\frac{4}{5}$
11.	$2\frac{4}{7}+4\frac{5}{14}-3\frac{4}{3}$
12.	Reduce to the lowest form i) $\frac{35}{63}$, ii) $\frac{124}{328}$
13.	Arrange the following in descending order $\frac{3}{4},\frac{7}{12},\frac{5}{9},\frac{14}{27}$
14.	$4\frac{3}{9}\times 3\frac{4}{5}$
15.	$5\frac{1}{2}\div 2\frac{1}{5}$
16.	In the decimal fraction 42.789 what is the difference in place values of digits 7 and 9?
17.	Write number names of i) 42.84, ii)2.225
18.	Write expanded forms of i) 14.282, ii) 4.325
19.	Write as mixed fractions i) 12.82, ii) 20.104
20.	Write in number format i) Twenty-eight and five hundredth, ii) Hundred and one thousandth
21.	Change the following into like decimals i) 0.2, 0.02, 0.0042, 0.25, ii) 4.2, 42.2, 424.22, 4242.424
22.	11.11 + 1.111 + 111.1 =?
23.	10.001 - 9.22 - 4.222 =?
24.	Sum of two decimals is 2.4. If one of them is 0.99, find the other.
25.	A wall having area 1 m^2 is painted in three different colors. Red color occupies 0.25 m^2 and green color occupies 0.72 m^2 area. If rest of the wall is colored in blue, find the area occupied by blue color.
26.	i) 8.05 × 16, ii) 0.025 × 120
27.	i) 0.4 ÷ 0.2, ii) 13 ÷ 0.013
28.	Convert into decimal number i) $4\frac{3}{8}$, ii) $\frac{3}{15}$, iii) $3\frac{3}{4}$

29.	If 960 ÷ 12 = 80 and 960 × 12 = 11520, find i) 9.6 × 1.2, ii) 0.096 × 120, iii) 9.6 ÷ 0.12, iv) 0.0096 ÷ 1.2
30.	i) 0.0075 × …… = 750, ii) 1.34 ÷ …… = 0.00134, iii) 0.5 ÷ ……. = 50, iv) 0.05 × ……. = 0.005
31.	if each boy consumes 0.375 kg rice daily, find total weight of rice required for 15 boys in 30 days.
32.	If each tablet weighs 50 mg, how many tablets can be made from 1.25 kg material?
33.	Round the following in the nearest hundred i) 16 × 125, ii) 42 × 120, iii) 847 ÷ 24, iv) 989 ÷ 31
34.	Find average of i) $\frac{1}{4}, \frac{2}{5}, \frac{3}{6}, \frac{5}{4}$, ii)1.25, 1.02,1.225,1.195
35.	In a country with population 8.7 crores, 72% population is Christian, 12% is Islamic, 0.5% is Hindu and rest is of other religions. Find population of each religion.
36.	Find the temperature for which both Celsius and Fahrenheit scales match. ^{0}C to ^{0}F - multiply by 9/5 add 32 i.e. a^{0}C = (a × 9/5 + 32)^{0}F
37.	Using distributive property of multiplication solve i) 157 × 97, ii) 241 × 107, iii) 768 × 58 + 768 × 42, iv) 32 × 125 - 32 × 24 -32
38.	State whether the given numbers are co-prime or not i) 7 and 21, ii) 36 and 25, iii) 48 and 10, iv) 84 and 9
39.	Express the smallest five digit number as product of prime numbers.
40.	Check whether given numbers are divisible by 2,3,4,5,6 and 7. i) 484, ii) 112
41.	State the least number that should be added to 101 so that it becomes divisible by 3
42.	Find HCF (GCD) of 84, 112, 196
43.	Find LCM of 12, 15, 18
44.	write any three integers which are i) less than -28, ii) greater than -7
45.	i) -3 + (-7)- (-9) = ?, ii) -4-(-4)+(-4)=?
46.	i) -6 × [9 + (-11)] =?, ii) 18 × [(-3) + 2] =?
47.	i) 18 × $(-1)^5$ =?, ii) $(-2)^3 \times (3)^2$ =?
48.	Express the following ratios in the simplest form i) 5 L and 0.25 L, ii) 8 kg and 500 gm
49.	In a garden there are 120 mango trees, 150 coconut trees and 60 Jamun trees. Find the ratio of i) mango trees to coconut trees, ii) jamun trees to coconut trees
50.	Write numer which is i) 6 less than two third of x, ii) 10 more than twice of y
51.	Form algebraic equations for the following statements i) Diameter of circle is twice its radius, ii) Age of father is 6 years more than twice the age of the son
52.	Evaluate a-4b+2 when a=2, b=-1
53.	Solve the following equations

	i) 4x-3=2x+1, ii) $x+\frac{8}{2}=12$, iii) $\frac{x}{4}+3=2$, iv) $y+\frac{3}{2}=5$
54.	Which of the following has larger area and by how much? i) A rectangle with sides 42cm and 28cm, ii) A square of side 39cm
55.	What will happen to area of square if i) its side is doubled ?, ii) its side is halved?
56.	A square tile is having side of length 15cm. How much tiles are required to cover the square floor of a bathroom having side 3m?
57.	Arrange the following rational numbers in descending order $-\frac{4}{7},\frac{-5}{-2},\frac{18}{30},-\frac{1}{5}$
58.	Find thevalue of x in each case i) $\frac{x}{4}=\frac{16}{20}$, ii) $\frac{3}{x}=\frac{21}{33}$, iii) $\frac{3x}{8}=\frac{6}{16}$, iv) $\frac{8}{4x}=\frac{2}{3}$
59.	i) $\frac{121}{x}=\frac{-11}{12}$, Find value of x, ii) $\frac{y}{75}=\frac{48}{90}$, Find value of y
60.	i) $\frac{4}{-7}\times\frac{-14}{21}$, ii) $\frac{9}{5}\times\frac{-2}{27}+\frac{7}{30}$, iii) $\left(\frac{5}{11}\right)^{-1}-\frac{13}{5}+\frac{3}{15}$, iv) $\frac{-4}{3}\times\frac{-5}{-8}+\frac{1}{2}$
61.	i) 2.7 × 1.5 × 2.1 , ii) 12 × 13.6 × 0.25 , iii) (75.05 ÷ 0.05) × 0.001 + 2.351
62.	$\frac{0.4\times0.04\times0.005}{0.1\times10\times0.001}-\frac{1}{2}+\frac{1}{5}$
63.	Write the following in normal form i) 5.3×10^{5}, ii) 3.09×10^{-3}
64.	Write the following using powers of 10. i) 0.000042, ii) 45000000
65.	$i)\ \left(-\frac{7}{8}\right)^{-3}\times\left(\frac{9}{5}\right)^{0}\times8^{-2}\times\left(\frac{1}{7}\right)^{-1}=?$ $ii)\ \left[\left(\frac{2}{3}\right)^{2}\right]^{-6}\times\left(\frac{2}{3}\right)^{2}\times\left(\frac{3}{2}\right)^{-10}=?$
66.	$i)\ \left(\frac{p}{q}\right)^{m}=\frac{p^{\square}}{q^{\square}}\ fill\ in\ the\ blanks.$ $ii)\ x^{m}\times x^{n}=x^{\square}\ fill\ in\ the\ blanks.$ $iii)\ \frac{1}{x^{m}}=x^{\square}\ fill\ in\ the\ blanks.$
67.	Find HCF (GCD) of $3a^2b^2, 6ab^2c^2, 12a^2b^2c^2$
68.	$i)\ (13ax-4)(5ay+1)$ $ii)\ \left(\frac{3}{5}x-\frac{2}{9}y\right)(15x-9y)$
69.	Factorize : $i)\ x^2-6x+9$, $ii)\ 4x^2-16x+16$
70.	$i)\ Find\ x\ if\ \frac{x}{2}+\frac{x}{3}-\frac{x}{4}=7$ $ii)\ Find\ x\ if\ \frac{2x+14}{3x+6}=4$
71.	A table costs Rs. 200 more than a chair. The price of two tables and three chairs is Rs. 1400. Find the cost of each.
72.	A man travelled 2/5th of his journey by train, 1/3rd by taxi, 1/6th by bus and remaining 10 km journey on foot. Find the total distance travelled by the man.
73.	Find square root of 10 up to 4 decimal places (using long division method).
74.	$i)\ 3\times16^{\frac{3}{4}}$, $ii)\ 2\times27^{-\frac{2}{3}}$
75.	$i)\ 8^{255}=32^{x}, find\ x$
76.	In 25 days, the earth picks up 6×10^{8} pounds of dust from the atmosphere. How much dust will be picked up in 15 days?

77.	Smita read 20 pages of a book every day and completed the book in 5 days. How many days would she have taken to read the book if she would have read 25 pages a day?
78.	Evaluate the following using suitable algebraic identities. $i)\ 399^2, \quad ii)\ 62^2, \quad iii)\ 10.1^2, \quad iv)\ 103 \times 97$
79.	Simplify the following : $(i)\ (a+b)^2 + (a-b)^2, \quad ii)\ (a^2-b^2)(a^2+b^2) - (a^2-b^2)^2$
80.	$i)\ (4x^2 + 7x - 11) \div (2x - 4), \quad ii)\ (q^4 + 3q^2 - 4) \div (q^2 - 1)$
81.	The sum of two consecutive multiples of 6 is 66. Find these multiples.