SHIKSHA CLASSES

Sub : Maths | **Question Paper** | **Total Marks :** 30
Class : IX | 1: Number System | **Time :** 1 Hour

Section : A (Each 1 Marks)

Multiple choice Questions (MCQs).

Q.1) The decimal expansion of $\sqrt{2}$ is.

a) Finite decimal
b) 1.4121
c) Non-terminating recurring
d) Non-teminating non-recurring.

Q.2) Which of the following is an irrational number?

a) $\sqrt{23}$
b) $\sqrt{225}$
c) 0.3752
d) $7.\overline{4781}$

Q.3) The value of $(125)^{-1/3}$ is :

a) 25
b) $\frac{1}{5}$
c) 5
d) $\frac{1}{25}$

Q.4) $(5+\sqrt{8})+(3-\sqrt{2})-(\sqrt{2}-6)$ when simplified gives :

a) A positive and irrational number
b) A negative and irrational number
c) A positive and rational number
d) A negative and rational number

Q.5) Find the value of $\sqrt[4]{64^{-2}}$

a) $\frac{1}{8}$
b) $\frac{1}{2}$
c) 8
d) $\frac{1}{64}$

Q6) When $15\sqrt{15}$ is divided by $3\sqrt{3}$ find the quotient.

a) $5\sqrt{3}$
b) $3\sqrt{5}$
c) $5\sqrt{5}$
d) $3\sqrt{3}$

Q7) Which of the following numbers is an irrational number?

a) $\sqrt{16}-4$
b) $\left(3-\sqrt{3}\right)\left(3+\sqrt{3}\right)$
c) $\sqrt{5}+3$
d) $-\sqrt{25}$

Q8) Can we write 0 in the form of p/q?

a) yes
b) no
c) cannot be explained
d) none of the above

Q9) Three rational numbers between 3 and 4 are

a) $\frac{5}{2},\frac{6}{2},\frac{7}{2}$ b) $\frac{13}{4},\frac{14}{4},\frac{15}{4}$ c) $\frac{12}{7},\frac{13}{7},\frac{14}{7}$ d) $\frac{11}{4},\frac{12}{4},\frac{13}{4}$

For question number 10 to 11 two statement are given one labeled Assertion and other labeled Reason select the correct answer to these questions from the codes (a), (b), (c) and (d) as given below

a.) Both Assertion and Reason are correct and Reason is the correct explanation for Assertion

b.) Both Assertion and Reason are correct and Reason is not the correct explanation for Assertion.

c.) assertion is true but the reason is false.

d.) both assertion and reason are false.

Q.10) Assertion: every integer is a rational number

Reason: every integer is expressed in the form of m/1 so it is rational number

Q.11) Assertion: 0.468 is a terminating decimal.

Reason: A decimal in which a digit or a set of digits is repeated periodically, is called a repeating, or a recurring decimal.

Section : B (Each 2 Marks)

Q.12) Rationalize the denominator of $\frac{1}{\sqrt{7}-\sqrt{6}}$

Q.13) Find the value of x.

$$\left(\frac{3}{4}\right)^{3}\cdot\left(\frac{4}{3}\right)^{-7}=\left(\frac{3}{4}\right)^{2x}$$

OR

Show that $\frac{x^{a(b-c)}}{x^{b(a-c)}}\div\left(\frac{x^{b}}{x^{a}}\right)^{c}=1$

Section : C (Each 3 Marks)

Q.14) Prove that : $\frac{1}{1+x^{a-b}}+\frac{1}{1+x^{b-a}}=1$

OR

Prove that : $\left(x^{a-b}\right)^{(a+b)}.\left(x^{b-c}\right)^{(b+c)}.\left(x^{c-a}\right)^{(c+a)}=1$

Q.15) Represent $\sqrt{9.3}$ on the number line.

SECTION - D(Each 5 Marks)

Q.16) Evaluate $\left(\frac{81}{16}\right)^{-3/4}\times\left[\left(\frac{9}{25}\right)^{3/2}\div\left(\frac{5}{2}\right)^{-3}\right]$

OR

Prove that $\frac{16\times 2^{n+1}-4\times 2^{n}}{16\times 2^{n+2}-2\times 2^{n+2}}=\frac{1}{2}$

Section : E

Q.17 : Case Study : (Any Four) **4**

Two classmates salma and Anil simplified two different expression during the revision hour and explained to each other their simplifictions.

Salma explains simplification of $\frac{\sqrt{2}}{\sqrt{5}+\sqrt{3}}$ by rationalising the denominator and Anil explains simplification of $\left(\sqrt{2}+\sqrt{3}\right)\left(\sqrt{2}-\sqrt{3}\right)$ by using the identity (a + b) (a – b)

Answer the following questions.

i) What is the conjugate of $\sqrt{5}+\sqrt{3}$?

a) $\sqrt{5}+\sqrt{3}$ b) $\sqrt{5}-\sqrt{3}$

c) $\sqrt{5}\times\sqrt{3}$ d) $\frac{\sqrt{5}}{\sqrt{3}}$

ii) By rationalising the denominator of $\frac{\sqrt{2}}{\sqrt{5}+\sqrt{3}}$ salma got the answer

a) $\frac{\sqrt{2}}{\sqrt{5}-\sqrt{3}}$ b) $\frac{\sqrt{2}\left(\sqrt{5}-\sqrt{3}\right)}{2}$

c) $\sqrt{5}-\sqrt{3}$ d) $\frac{\sqrt{2}\left(\sqrt{5}+\sqrt{3}\right)}{2}$

iii) Anil applied .....identity to solve $\left(\sqrt{5}+\sqrt{7}\right)\left(\sqrt{5}-\sqrt{7}\right)$

a) (a + b) (a + b) b) (a + b) (a – b)

c) (a – b) (a – b) d) (x + a) (x + b)

iv) $\left(\sqrt{2}+\sqrt{3}\right)\left(\sqrt{2}-\sqrt{3}\right)=$

a) – 1 b) 1

c) 5 d) – 5

v) Addition of two irrational numbers is equal to

a) Rational b) Irrational

c) Integers d) whole numbers

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