



TEST PAPER: MATHEMATICS

Time: 50 Minutes

Class: 10th C.B.S.E.

Max. Marks: 30 Marks

Date: 11th April, 2018

Marking Scheme: Three questions carry 10 marks each. Question 1 has 10 MCQ's of 1 mark each. Questions 2 and 3 have 3 subparts each. Subparts (a) and (b) carry 3 marks each and subpart (c) carries 4 marks. Question 1 is compulsory. Attempt any 2 out of questions numbers 2, 3 and 4.

Question 1:

- The decimal expansion of number $\frac{441}{2^2 \times 5^3 \times 7}$ has:
(a) a terminating decimal
(b) non-terminating but repeating
(c) non-terminating non repeating
(d) terminating after two places of decimal
- If $p(x) = ax^2 + bx + c$, then $-\frac{b}{a}$ is equal to
(a) 0
(b) 1
(c) product of zeroes
(d) sum of zeroes
- For any positive integer a and 3, there exist unique integers q and r such that $a = 3q + r$, where r must satisfy :
(a) $0 \leq r < 3$
(b) $1 < r < 3$
(c) $0 < r < 3$
(d) $0 < r \leq 3$
- A fraction becomes $\frac{1}{4}$, when 2 is subtracted from the numerator and it becomes $\frac{1}{4}$ when 8 is added to its denominator. Find the fraction.
(a) $\frac{4}{12}$
(b) $\frac{3}{13}$
(c) $\frac{5}{12}$
(d) $\frac{11}{7}$
- If $p(x)$ is a polynomial of at least degree one and $p(k) = 0$, then k is known as
(a) value of $p(x)$
(b) zero of $p(x)$
(c) constant term of $p(x)$
(d) none of these
- If $p(x) = ax + b$, then zero of $p(x)$
(a) a
(b) b
(c) $-\frac{a}{b}$
(d) $-\frac{b}{a}$
- If two positive integers a and b are written as $a = x^3y^2$ and $b = xy^3$; x, y are prime numbers, then HCF (a, b) is
(a) xy
(b) xy^2
(c) x^3y^3
(d) x^2y^2
- If two positive integers p and q can be expressed as $p = ab^2$ and $q = a^3b$; a, b being prime numbers, then LCM (p, q) is
(a) ab
(b) a^2b^2
(c) a^3b^2
(d) a^3b^3
- If graph of a polynomial does not intersects the x-axis but intersects y-axis in one point, then no. of zeroes of the polynomial is equal to
(a) 0
(b) 1
(c) 0 or 1
(d) none of these
- A polynomial of degree n has
(a) only 1 zero
(b) exactly n zeroes
(c) atmost n zeroes
(d) more than n zeroes

Question 2:

- The product of two numbers is 120. If their H.C.F. is 6 what is their L.C.M.
 - For what value of k , (-4) is a zero of the polynomial $x^2 - x - (2k + 2)$?
- Two pens and one eraser cost Rs. 35 and 3 pencil and four erasers cost Rs. 65. Find the cost of pencil and eraser separately.
- Find all the zeroes of the polynomial $2x^4 + -19x^2 + 7x - 14x + 30$, if two of its zeroes are $\sqrt{2}$ and $-\sqrt{2}$

Question 3:

- Show that the square of an odd positive integer is of the form $8m + 1$, for some whole number m .
- Find the remainder and quotient on division of $2x^2 + 3x + 1$ by $x + 2$ using division algorithm.
- Prove that $\sqrt{3}$ is irrational. Hence prove that $\sqrt{3} + 5$ is also irrational.

Question 4:

- Solve the system of equations: $2x - 3y = 1$ and $3x - 4y = 1$ by graphical method.
- Use the method of substitution to solve each other of the pair of simultaneous equations:
 - $x + y = 15$ $x - y = 3$
 - $x + y = 0$ $x - y = 2$
- On dividing $x^3 - 3x^2 + x + 2$ by a polynomial $g(x)$, the quotient and remainder were $x - 2$ and $-2x + 4$, respectively. Find $g(x)$.