

Answers to this Paper must be written on the paper provided separately. The time given at the head of this Paper is the time allowed for writing the answers. Attempt all questions from Section A and any four questions from Section B. All working, including rough work, must be clearly shown, and must be done on the same sheet as the rest of the answer.

Section- A (40 Marks)**(Attempt all questions from this Section)****Question 1****Choose the correct answers to the questions from the given options:****[15]****(i)** A perfect square can never have the digit _____ at the units place

(a) 1

(c) 2

(b) 4

(d) 9

(ii) $\frac{3}{8} \div \left(\frac{-51}{24} \div \frac{17}{12} \right)$ is equal to 1(a) $\frac{3}{4}$ (c) $\frac{1}{4}$ (b) $\frac{-1}{4}$ (d) $\frac{5}{48}$ **(iii)** The value of x if $[2^{2x-2} + 10] \div 13 = 12$ is

(a) 1

(c) 4

(b) 3

(d) 2

(iv) The factors of $2x^2 - 32$ are(a) $2(x + 4)(x - 4)$ (c) $2(x - 4)(x - 4)$ (b) $2(x + 4)(x + 4)$

(d) None of these

(v) What is 5% of 5% 500 ?

(a) 12.5

(c) 1.25

(b) 25

(d) 6.25

(vi) What is the coefficient of x^2y In the product $(7x^2 - 5y)(x^2 + 3y)$

(a) -16

(c) 26

(b) 16

(d) -26

(vii) $(x - y)(x - y) - (x + y)(x + y)$ equal to(a) $2x^2 - 4xy$ (c) $2x^2 - 2y^2$ (b) $4xy + 2y^2$ (d) $-4xy$

(viii) $(x + 2)(x - 2)$ are factors of the expression

(a) $x^2 - 8$

(c) $3x^2 - 12$

(b) $x^4 - 64$

(d) $1x^2 - 16$

(ix) If $\frac{2}{3}x + \frac{1}{2} = \frac{3}{5}x - \frac{5}{6}$ then $2x + 53$ equals

(a) 13

(c) 7

(b) -13

(d) -7

(x) One of the factors of $p^2 + q^2 + 2pq - r^2$

(a) $(p - q + r)$

(c) $(-p - q + r)$

(b) $(p + q - r)$

(d) $(p - q - r)$

(xi) If $\left(\frac{a}{b}\right)^{x-1} = \left(\frac{b}{a}\right)^{x-3}$, then the value of x is

(a) $\frac{1}{2}$

(c) 2

(b) 1

(d) $\frac{7}{2}$

(xii) What is the smallest number among the following

(a) $[(5^{-2})]$

(c) 360

(b) 1620

(d) 1980

(xiii) How much is $\sqrt{0.9} \times \sqrt{1.6}$

(a) 0.12

(c) 12

(b) 1.2

(d) 0.012

(xiv) If $-15mn^4p^2$ is divided by $\frac{1}{6}m^4n^4p^2$ the quotient is

(a) $\frac{-5}{3m^3}$

(c) $\frac{-90}{m^3}$

(b) $\frac{-90n^8p^4}{m^3}$

(d) $1-90m^3$

(xv) If 80% of x is 256, then the value of x is

(a) 350

(c) 320

(b) 300

(d) 400

Question 2

[4+4+4]

(i) Construct a rhombus ABCD in which AC = 4 cm and BD = 5cm. Also measure and write the side length of the rhombus.

(ii) Divide $8x^3 - 27$ by $2x - 3$

(iii) Express as a positive power of 3 (using laws of exponents)

$$\frac{(9)^{-1} \times (27)^{-2}}{(81)^{-2} \times 3^6}$$

Question 3**[4+4+(3+2)]**

- (i) B's salary is 25% less than A's salary .By what percent is A's salary more than B's salary?
- (ii) Find the square root of 1227.8016 by long division method.
- (iii) a) Insert 6 rational numbers between $\frac{1}{2}$ and $\frac{1}{3}$
 b) Without actual multiplication find the value of 505×495

SECTION B (40 Marks)**(Attempt any four questions from this Section.)****Question 4****[3 +3+4]**

- (i) Simplify $\frac{2 \times 3^{n+1} + 7 \times 3^{n-1}}{3^{n+1} - 2(\frac{1}{3})^{1-n}}$
- (ii) A man loses 20 % of his money .After spending 25%of the remainder, he has ₹480 left. What is the amount of money he originally had?
- (iii) Construct a quadrilateral PQRS in which PQ = 3.5cm QR =5.5cm RS =4.5cm PS =5cm and PR = 7cm.

Question 5**[3+3+4]**

- (i) Find the product of $4a^2 - 6a + 5$ and $3a + 2$
- (ii) Find the least perfect square number which is also divisible by each of 12, 15 and 30.
- (iii) Simplify $(\frac{-4}{5} \times \frac{15}{8}) + (\frac{-1}{3} \times \frac{-9}{7}) - (\frac{2}{9} \times \frac{27}{14})$

Question 6**[3+3+4]**

- (i) Subtract $a^2 - b^2 - c^2$ from the sum of $2a^2 + 3b^2 - c^2$ and $4a^2 - 3b^2 + 5c^2$
- (ii) Factorise completely : $x^2 - 11x + 30$
- (iii) Find the smallest number by which 9408 must be divided so that it becomes a perfect square . Also find the square root of the perfect square so obtained .

Question 7**[3+3+4]**

- (i) Represent $\frac{-3}{2}$ and $\frac{1}{2}$ on the same number line.
- (ii) Solve $\frac{(x-4)(3x+2)-3x^2+4}{x-3} = 2$
- (iii) Factorise completely $5(3x - 4y)^2 - 20(2x - y)^2$

Question 8**[3+3+4]**

- (i) Find $a^3 - \frac{1}{a^3}$ if $a - \frac{1}{a} = 4$
- (ii) The denominator of a fraction is 3 more than its numerator .If the numerator is increased by 7 and the denominator is decreased by 2 , the fraction is equal to 2 . What is the sum of the denominator and numerator of the fraction?
- (iii) Construct a parallelogram ABCD in which AB = 4cm , BC = 5cm and $\angle B = 60^\circ$

*****ALL THE BEST*****