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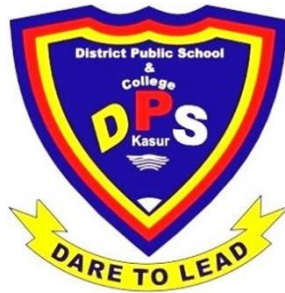
Established Since 1988

Class   **8th**

Subject   **Mathematics**

Term   **1st**

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Chapter: 01
Operations on Sets

Multiple Choice Questions
1   if U = {1,2,3,4,5,....10} , which is the subset of U?
        (a)   {2,11}   (b) {11,13,15}   (c) {2,7}   (d) {10,20}
2   which is the improper subset of A = {20,40,60}
        (a) {20}   (b) {20,40}   (c) {20,40,60}   (d) {20,60}
3   which is correct for associative law.
        (a) AU(B∩C) = (AUB)∩(AUC)   (b) A∩(BUC) = (A∩B)U(A∩C)
        (c) AU(BUC) = (AUB)UC   (d) AU(B∩C) = (AUB)∩C
4   how many subsets does the set A = {a,b,c,d,e } have?
        (a) 25   (b) 16   (c) 32   (d) 18
5   φUA-------- φ
        (a) =   (b) ⊂   (c) ≠   (d) ∩
6   if AUB = B and A∩B = B then A-------B
        (a) =   (b) ≠   (c) ⊆   (d) ⊃
7   every set is a subset of _____.
        (a) Itself   (b) null   (c) unit set   (d) singleton set
8   power set of null set contains _____ subsets
        (a) one   (b) two   (c) three   (d) four
9   An improper subset is _____ to the original set.
        (a) Equal   (b) lesser   (c) greater   (d) not equal
10   AU(B∩C) = _____
        (a) (AUB)∩(AUC)   (b) (AUB)UC   (c) (A∩B)∩C   (d) (AUB)∩(BUC)
11   (A∩B)^c = ---------
        (a) A^c∩B^c (b) A^c UB^c (c) A∩B   (d) (AUB)^c
12   If A = { a,b,c} , AUB = { a, b, c, f, g, h} and A∩B = φ , then B = _____
        (a) { a, b, c, f }   (b) { f, g, h }   (c) { a, b, c, g } (d) { c, f, g, h }
13   If U = {1, 2, 3, …. 10}, A = {1, 3, 5, 7, 9 } and B = { 2, 4, 6, 8, 10 } then (A – B)^c =
        _____
        (a) U   (b) A   (c) B   (d) φ
14   _____ is the subset of every set.
        (a) Super set   (b) power set   (c) unit set   (d) empty set
15   If AUB = A then
        (a) A⊆B   (b) B ⊇ A   (c) A = B   (d) A ⊇ B

Define the followings

Set:

Subset:

Proper Subset:

Improper Subset:

Power Set:

Commutative property of union and intersection of sets:

Associative property of union and intersection of sets:

Distributive property of union over intersection:

Distributive property of intersection over union:

Solve the following questions

Q#1: List the member of the power set of the following

(a) {a,b,c,d}   (b) {1,2,3}

Q#2: List the member of the intersection of each pair of sets

(a) {c,a,t} ,{d,o,g}   (b) {3,6,9,12} ,{2,3,4,5,6}

Q#3: List the member of the union of each pair of sets

(a) {a,c,d} ,{a,b,c,d}   (b) {3,6,9,12} ,{2,4,6,8}

Q#4: If U={1,2,3,4,5,6,7} ,A={1,2,5,7} ,B={1,3,6,7}, find :

(a) A$'$ **(b) (AUB)$'$**   **(c) (A∩B)$'$**

Q#5: If U={1,2,3,4,5}, A={1,3} , B={2,4} , C={5}, find:

(a) (AUB)UC   **(b) (A∩B)∩C**   **(c) A∩(BUC)**

Q#6: If U={1,2,3,4,5}, A={1,3} , B={2,4} , C={5}, Prove that:

A$'$ ∩B$'$=(AUB)$'$

Q#7: If A={2,3,4} ,B={3,5,6} ,C={5,7,9}, Prove the commutative property of the union of set

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Q#8: If A={1,2,3,4},B={3,4,5,6}, and U={1,2,3,4,5,6}, prove the De Morgan's laws

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Chapter: 05

Exponents and Radicals

Multiple Choice Questions

1 $a^m \times a^n = \underline{\hspace{2cm}}$
   (a) a^{m+n} (b) a^{m-n} (c) a^{mn} (d) no one

2 $a^{m-n} = \underline{\hspace{2cm}}$
   (a) $a^{m \times n}$ (b) $a^m \div a^n$ (c) a^{m+n} (d) $a^m \div^n$

3 $(\frac{a}{b})^m = \underline{\hspace{2cm}}$
   (a) $a^m \div a^n$ (b) $(ab)^m$ (c) $(a-b)^m$ (d) $(a+b)^m$

4 Any number other than zero raised to the power of zero is ....
   (a) 0   (b) 1   (c) 10   (d) 2^0

5   = ...
   (a) 2   (b) $\sqrt[3]{2}$ (c) 8   (d) 8^3

6 $a^{\frac{1}{n}} = $ ....
   (a) a^n (b) $\sqrt[n]{a}$ (c)   (d) $a^{n \times \frac{1}{n}}$

7 $3\sqrt{2}$ and $5\sqrt[3]{2}$ are called ----------
   (a) simple   (b) similar   (c) dissimilar   (d) mixed

8 $5\sqrt[3]{2}$ is ----------- surd.
   (a) simple   (b) similar   (c) dissimilar   (d) mixed

9 two surds are said to be similar if their ----------- parts are same.
   (a) similar   (b) irrational   (c) rational   (d) simple

10 $(\sqrt{2})^6 = $ -----------
   (a) 16   (b) 32   (c) 64   (d) 8

11 $4(a^3)^0 = $ -----------
   (a) 1   (b) 0   (c) 4a   (d) 4

12 what power of 10 gives the answer 1,000,000,000
   (a) 10   (b) 11   (c) 9   (d) 12

13 what is the simplest form of $\frac{4}{\sqrt{3}}$
   (a) $\frac{4\sqrt{3}}{3}$ (b) $\frac{4}{9}$ (c) $\frac{2}{3}$ (d) $\frac{2}{\sqrt{3}}$

14 $(2^{\frac{1}{2}})^8 = $ -----------
   (a) 16   (b) 32   (c) 64   (d) no one

15 what is the third power of the base 6
   (a) 216   (b) 886   (c) 512   (d) 226

Define the followings

Exponent:

Surd:

Solve the following questions

Q#1: Express the following as exponents

   (a) $\sqrt{3} \times \sqrt{3} \times \sqrt{3} \times \sqrt{3}$ **(b)** $2^{-3} \times 2^3$

Q#2: State the base and exponent in each of the following:

   (a) x^{-4} **(b)** $\left(\sqrt{3}\right)^{\frac{1}{2}}$ **(c)** $(2^{-3})^5$ **(d)** $(3a^2)^0$

Q#3: Evaluate: $(256)^{\frac{5}{8}}$

Q#4: Evaluate: $\frac{\sqrt{4}}{2^0}$

Q#5: Evaluate: $\left(2^{1/2}\right)^8$

Q#6: Evaluate: $(243)^{-1/5}$

Q#7:Simplify: $\frac{\sqrt{125}+\sqrt{5}}{6}$

Q#8:Simplify: $\frac{\sqrt{27}\times\sqrt{243}\times\sqrt{12}}{\sqrt{125}\times\sqrt{18}}$

Q#9:Simplify: $\sqrt{5a}(\sqrt{5a}+\sqrt{125a^3})$

Q#10:Simplify: $\dfrac{10+8^{\frac{1}{3}}}{\sqrt{12}\times3^{\frac{-1}{2}}}$

Q#11:Simplify: $\left\{\dfrac{\left(\sqrt{3}\right)^{6}\times3^{-2}}{\left(\sqrt{5}\right)^{-2}}\right\}^{-1/2}$

Chapter: 12
Operations on Polynomials

Multiple Choice Questions

1   multiplication of polynomial is based in -------------- law.
     (a) distributive (b) associative   (c) symmetrical(d) multiplication
2   when (a + 12) and (b – 12) are multiplied using the foil methods, the term ----------
     and--------------- are multiplied first
     (a) b & 12   (b) a & b   (c) b & -12   (d) a, 12
3   the foil method is used to multiply …………….
     (a) monomials(b) binomials   (c) trinomials   (d) all
4   when $48x^4 – 18x$ is divided by 6, the answer is ------------------
     (a) $48x^4 – 3x$ (b) $8x^4 – 3x$ (c) $x^4 – 3x$ (d) $x^4 – x$
5   (2a + b) is a -------------------- expression.
     (a) monomial (b) binomial   (c) trinomial   (d) all
6   when $5x4 – 5x3 + 3x2$ is divided by x2, there is ------------ remainder.
     (a) x   (b) x^2 (c) no   (d) 3
7   what is the product of (a+1)(a+2)
     (a) $a^2 + 3a + 3$ (b) $a^2 + 2a + 2$ (c) $a^2 + 3a + 2$ (d) $a^2 + 5a$
8   what is the product of (x + 5)(x – 3)
     (a) $x^2 + 2x – 15$(b) $x^2 + 10x – 25$ (c) $x^2 + 2x – 20$ (d) $x^2 + 3x – 15$
9   what is the first term of quotient in $2x^2 + 7x + 7 \div x + 2$
     (a) 3x   (b) 2x   (c) x   (d) 4x
10   what is the product when (x + 1) is multiplied by $(x^2 + 2x)$?
     (a) $x^3 + 3x^2 + 2x$(b) $x^4 + 2x^2$ (c) $x^2 + 2x + 2$ (d) $2x^2 + x$
11   --------------- method is the best suited for multiply binomials
     (a) grid   (b) long division   (c) long multiplication(d) foil
12   for multiplying other than binomials we use ---------
     (a)Foil method(b) distributive law   (c) Grid method   (d) long division method
13   Dividend = Quotient × Divisor + --------------
     (a)Remainder (b) Product   (c)divisor   (d) none
14   When you need to add exponents, their coefficients should also be ----------
     (a) Subtracted (b) Divided   (c)multiplied   (d) added
15   the division resulting non-zero remainder is known as--------- division.
     (a)proper   (b) improper   (c)exact   (d)inexact

Solve the following questions:

Q#1: Multiply the first expression by second: $m^2 + mn + n^2, m^2 + n$

Q#2: Multiply the first expression by second: $ax^2 + bx + c, px^2 + qx + r$

Q#3: Multiply the first expression by second:

$$1 + x + x^2 + x^3, x^3 - x^2 + x - 1$$

Q#4:Find the continued products of : $m + I, m - 2, m + 3$

Q#5: Find the continued product of: $x + y, x^2 - xy + y^2, x^3 - y^3$

Q#6: Find the continued product of:

$$m^2 + mn + n^2, m^2 - mn + n^2, m^4 - m^2 n^2 + n^4$$

Q#7: A rectangular block measures (x)m by (x+1)m by (x+2)m. What is the volume of the block if x=20?

Q#8: Shazia sells $25x^2 + 5x + 5$ flowers in one day. If she sells the same number of flowers each day for Rs 5x each , how much money will she have at the end of five days?

Q#9: The parking space outside sky towers measures 2x-1 meters by x+2 meters. What is the cost of cleaning the parking area if the cleaner has to paid Rs 50 per m^2 ?

Q#10: Divide the first expression by second: $a^2 + 2ab + b^2 \div a + b$

Q#11: Divide the first expression by second: $a^3 + b^3 \div a + b$

Q#12: Divide the first expression by second: $a^4 - 6a - 4 \div a - 2$

Q#13: Divide the first expression by second: $m^3 - m^2 - 16 \div m^2 - 16$

Q#14: Divide $x^3 - 27$ **by** $x^2 + 3x + 9$

Q#15: If Rs $(a^3 + b^3 + 3a^2b + 3ab^2)$ **are to be distributed equally among a+b persons, how much will each person receive?**

Q#15: The price of a doll is Rs(a+5). If Saana has Rs $a^2 + 11a + 30$**, how many dolls can she buy for her friend?**

Chapter: 13
Algebraic Identities

Multiple Choice Questions

1 $a^3 - b^3 - 3ab(a - b) = ?$
   (a)$(a + b)^3$ (b) $a^3 + b^3$ (c) $a^3 - b^3$ (d) $(a - b)^3$

2 $a^3 - 3a^2b + 3ab^2 - b^3 = ?$
   (a)$(a + b)^3$ (b) $a^3 + b^3$ (c) $(a - b)^3$ (d) $a^3 - b^3$

3 If $a + b = 1 + ab$ then $a^3 + b^3 = ?$
   (a)$1 + a^3b^3$ (b) $1 - 3ab(a + b)$ (c) $1 - a^3b^3$ (d) $1 + 3ab$

4 If $x + \dfrac{1}{x} = 5$ then $x^3 + \dfrac{1}{x^3} = ?$

   (a) 10   (b) 140   (c) 110   (d) 40

5 If $x + y = 4$ then $x^3 + y^3 + 12xy = ?$
   (a) 64   (b) 76   (c) 52   (d) no one

6 simplify $(2x + 3y)^2 + (2x - 3y)^2 = ?$
   (a)$x^2 + y^2$ (b) $6xy$ (c) $8x^2 + 18y^2$ (d) $36x^2y^2$

7 If $x + y = 1$ and $x^2 + y^2 = 13$, then what will be the value of XY?
   (a) 12   (b) -6 (c) 6   (d) -12

8 If $x + y = 3$, $xy = 4$, then what will be the value of $x^2 + y^2$?
   (a) -7 (b) 7   (c) 25   (d) 1

9 Expand by using identity $(\quad + 2x)^2$

   (a)$4x^2 + \dfrac{1}{4x^2}$ (b) $4x^2 + 1$ (c) $4x^2 + \dfrac{1}{4x^2} + 2x$ (d) $4x^2 + \dfrac{1}{4x^2} + 2$

10 find the value of $x^3 + y^3$, if $x + y = 3$ and $xy = \dfrac{5}{3}$

     (a) 12   (b) 15   (c) 3   (d) $\dfrac{9}{15}$

11 find the value of cube with each side $(3x + 5)$cm
   (a) $9x^2 + 30x + 25$ (b) $27x^3 + 45x^2 + 75x + 125$ (c) $12x + 20$ (d) $27x^3 + 125$

12 Expand by using identity $(\dfrac{1}{x} + x)^2$

     (a) $x^2 - \dfrac{1}{x^2}$ (b) $x^2 + \dfrac{1}{x^2} + 2$ (c) $2x^2 - 1$ (d) $x^2 + \dfrac{1}{x^2} + 2x$

13 simplify $(4x + 5y)^2 + (4x - 5y)^2 = ?$
   (a) $20xy$ (b) $40xy$ (c) $x^2 + y^2$ (d) $32x^2 + 50y^2$

14 find the value of $(x + y)$ if $x^2 + y^2 = 19$ and $xy = 3$
     (a) 5   (b) 6   (c) 3.5   (d) 0

15 find the value of xy if $x^3 + y^3 = 12$ and $x + y = 3$

     (a) 15   (b) 12   (c) $\dfrac{5}{3}$ (d) 3

Solve the following questions:

Q#1: Find the product of $(x + 3)(x^2 - 3x + 9)$

Q#2: Find the product of $(6a^3 + b^3)(36a^6 - 6a^3b^3 + b^6)$

Q#3: Find the product of $(x^p + y^q)(x^{2p} - x^p y^q + y^{2q})$

Q#4: Find product $3a\{(2a - 1)^2 - (2a - 1)(a + 1) + (a + 1)^2\}$

Q#5:Find the continued product of

$$(2x + 3y), (4x^2 - 6xy + 9y^2) \ and \ (8x^3 - 27y^3)$$

Q#6: Simplify $(2x + 3)(4x^2 - 6x + 9y^2) + (2x + 1)(4x^2 - 2x + 1)$

Q#7: Find the continued product of

$$(x + y)(x - y)(x^2 + y^2)(x^8 + x^4 y^4 + y^8)$$

Q#8: Simplify : $(a + b)(a - b)(a^2 - ab + b^2)(a^2 + ab + b^2)$

Q#9: Simplify : $(3a + 2)(9a^2 - 6a + 4) - (3a - 2)(9a^2 + 6a + 4)$

Q#10: Multiply : $(x + a)^2 - (x - b)^2 + x^2 + (a - b)x - ab$ **by** $(a + b)$

Chapter: 23
Information Handling

Multiple Choice Questions

1. statistic is a branch of mathematics that involves drawing, conclusion from collected
   _____ data
   (a) raw   (b) primary   (c) numerical   (d) secondary

2. which is the example of primary data?
   (a) Surveys   (b) book   (c) government report   (d) article on internet

3. data is divided into a number of classes each of which is called_____
   (a) class limits   (b) class interval   (c) frequency   (d) no one

4. the maximum and minimum values with in which a class interval lies are called_____
   (a) class limits   (b) class magnitude   (c) range   (d) no one

5. the number of times each item appears in a class interval is called _____
   (a) class size   (b) class mark   (c) frequency   (d) a & b

6. the difference between maximum and minimum scores is known as _____
   (a) class mark   (b) frequency   (c) class limits   (d) range

7. the range of the data 19, 30, 21, 24, 67, 50 is
   (a) 31   (b) 48   (c) 43   (d) 21

8. the mean value of a data set is _____ value of the given data.
   (a) data   (b) certain   (c) middle   (d) average

9. what is the mean of the data set; 4, 8, 12, 16, 20
   (a) 12   (b) 16   (c) 14   (d) 10

10. the most frequent value in the data set is called _____
    (a) mean   (b) median   (c) mode   (d) range

11. what is the median value in the given data set; 2, 55, 12, 8, 19, 4, 7
    (a) 8   (b) 12   (c) 4   (d) 7

12. what is the mean of the data; 7, 2, 34, 90, 8, 43, 11
    (a) 26.8   (b) 27.8   (c) 27.5   (d) 30

13. what is the mode of the data; 5, 10, 15, 20, 10, 30, 40
    (a) 20   (b) 10   (c) 15   (d) 40

14. what is the formula for weighted mean?
    (a) $\frac{\Sigma Fx}{\Sigma F}$ (b) $\frac{\Sigma Fx}{n}$ (c) $\frac{\Sigma F}{\Sigma X}$ (d) $\frac{\Sigma XW}{\Sigma W}$

15. which of these is not an example of secondary data?
    (a) a government report   (b) personal interview
    (c) a newspaper report   (d) a journal article

Define the followings

Mean:

Median:

Mode:

Solve the following questions

Q#1: The class-marks of a distribution are 36, 42, 48, 54 and 60. Find the class size of the distribution.

Q#2: 30 apples picked at random from a consignment weigh:
93, 111, 92, 86, 68, 84, 99, 82, 74, 140, 104, 110,118, 81, 84, 104, 75, 78, 98, 112, 125, 130, 142, 85, 78, 102, 108, 124, 130, 115
Form a frequency distribution table of class-width 20.

Q#3: The following shows the marks obtained by 10 students of a class in a mathematics test out of 50 . Find the range and mean.

40, 35, 24, 18, 32, 22, 45, 38, 30, 20

Q#4: Find the mean of the first ten natural numbers.

Q#5: Determine the mean of first eight odd natural numbers.

Q#6: The following table shows the marks obtained out of 25 by the students of class 8 in English. Determine the average marks obtained by the students.

Marks	11	13	15	18	19	20	21	22
No of students	4	3	7	16	4	3	2	1

Q#7: Find the mean, median, and mode for the given data:

22, 54, 100, 4, 5, 29, 51, 33, 8, 5, 13, 85, 40, 65, 5, 73, 84

Q#8:During the monsoon season, the rain levels in the city were recorded as follows :16 mm, 16 mm, 12 mm, 14 mm, 13 mm, 15 mm, 13 mm, 13 mm, 16 mm,12 mm, 15 mm, 10mm. Find the mean, median and mode.

Q#9: The following table shows how much students of a class weigh (in kg). Determine the mean.

kg	No. of students
28 - 30	4
30 – 32	8
32 – 34	10
34 – 36	5
26 – 38	4
38 – 40	1