Vacation assignment

class-8 (Tipu sir)

1) (i)9 ,17 ,25 ,33…… is a number pattern(ii)5n+9 is an algebraic expression of a number pattern.

a) Express 45 as the sum and difference of two squares
b) Find an algebraic expression for the pattern (i)
c) Find the sum of the first 100 numbers of the pattern(ii)

2) 9 ,14 ,19 ,24….

a) Express 6^{th} term of the list as the sum of two perfect squares
b) Which algebraic expression is followed by the list of the stem? Present it with logic
c) Find the sum of first 120^{th} term of the pattern

3) 0 ,3 ,8 ,15, ……

a) Express 145 as the sum of two perfect squares
b) Which algebraic expression is followed by the list of the stem?
c) Determine the sum of the first 50^{th} terms of the list

4) 7, 12, 17, 22, …….

a) Determine the difference between 5^{th} and 6^{th} tern of the list
b) Express the pattern by an algebraic expression and determine the 50^{th} term
c) Draw the geometrical figure of the pattern

5) (i)8, 13, 18, 23, 28, … (ii)5, 9, 13, 17, ……..

a) How many prime numbers are there between 5^{th} and 8^{th} term of the pattern (5n-1)
b) Find the sum of first 125^{th} term of the pattern (i) By using formula
c) Show that, by which formula make pattern (ii) and build up a formula for finding any term with the help of variable n and draw a geometric pattern of first two terms

Algebraic Formula chapter-4

1. If P= $5x^2$ -3x+2 and Q=2+$5x^2$-3x

(a) Find the value of p^2

(b) Multiply P and Q with the help of formula

(c) If P=0, prove that, $25x^2 + \frac{4}{x^2}$ =24

2. x^2 -3x+1=0 when x> 0

(a) Determine the value of x + $\frac{1}{x}$

(b) What is the value of $\left(x^2 - \frac{1}{x^2}\right)\left(x^3 - \frac{1}{x^3}\right)$

(c) Prove that $x^8 + 1 = 47x^4$

3. $2x^2$ -3x+2 =0 is an algebraic equation

(a) Determine the value of x + $\frac{1}{x}$

(b) What is the value of $\left(x^4 + \frac{1}{x^4}\right)$

(c) Prove that $8x^6$+$9x^3$ +=0

4. $x^2 - \sqrt{5x} + 1 = 0$, x is a positive number

(a) Determine the square of p^2 +p-1

(b) Determine the value of $\left(x^2 - \frac{1}{x^2}\right)^2$

(c) Prove that , $\left(x^2 + \frac{1}{x^2}\right)\left(x^3 - \frac{1}{x^3}\right)$ =12

5. If 1+$x^2 - \sqrt{5x}$ =0

(a) Determine the value of x + $\frac{1}{x}$

(b) Prove that $\left(x^3 - \frac{1}{x^3}\right)$ =4

(c) Find the value of $x^6 - \frac{1}{x^6}$ =?

6. If p^2 -2p-1=0

(a) Find the value of $\left(p - \frac{1}{p}\right)$

(b) What is the value of $\left(p^2 + \frac{1}{p^2}\right)\left(p^3 + \frac{1}{p^3}\right)$

(c) Show that, p^8 -$34p^4 + 1 = 0$

7."a^2+b^2 "and a^6+b^6+$3a^2b^2c^2$ are the two algebraic expression

a) Now find the value of the second expression while a=c and b =- c
b) If, (a+b) =5 and a-b= 4, find the value of a^2+b^2
c) If a^2+b^2 =c^2 and c=2, show that the value of the second expression is 64

8. (ab+bc); $(7x - 6)^3$- $(5x - 6)^3$- 6x(7x-6)(5x-6) and x^3+y^3+6xy are the three expressions

a) Now find the cube of the first expression
b) Simplify the second expression
c) If(x+y)=2, show that the value of the third expression is 8

Multiple Choice Questions: **1×40 = 40**

1) Which natural number can be expressed as the sum of two square as many ways?
   a) 13 c) 8
   b) 10 d) 50
2) Which one is the expression of the sum of two squares of two prime number?
   a) $2=1^2+2^2$ c) $74=5^2+7^2$
   b) c and d d) $52=7^2+3^2$
3) The ratio of the sides of triangle is $1:1:\sqrt{2}$, what is the perimeter of the triangle?
   a) $2+\sqrt{2}$ c) 60^0
   b) 90^0 d) 30^0

Observe the following: x-1, x^3-1, andx^2-1 is the three algebraic expressions

(i) L.C.M of the all expression=x^6-1
(ii) H.C.F of the all expression =x-1
(iii) Sum of the expression=x^3+x^2+x-3

4) Which one of the following is correct?
   a) i and ii c) i and iii
   b) ii and iii d) i, ii and iii
5) Which one is the profit ofTK.10000 at the rate of profit 6% in 2 years?
   a) Tk.300 c) Tk.3000
   b) Tk.3060.30 d) Tk.3060.50
6) What is profit-principal of Tk. 10000 in 2 years at the rate of profit of 6% per annum?
   a) Tk.4800 c) Tk.11200
   b) Tk.12500 d) Tk.1200
7) Which one of the following is the formula of compound principal?
   a) $C=p(1+r)^n$ c) $Profit=(1+r)^n$
   b) Profit=Pnr d) $Profit=p(1+r)^n$-P
8) Weight of 100 liter of pure water is.....=?
   a) 100kg c) 10kg
   b) 100gm d) 1000gm

Observe the following information:

(i) At 4°clsius temperature the weight of 1ccm water is 1 gm
(ii) 1 Acre=4046086sq.m

(iii) 1 Km=0.62 mile

9) Which one of the following is correct?
   a) i, ii
   b) ii, iii
   c) i, iii
   d) i, ii, iii

If Tk.4000 is deposited at the rate of 6%.Now answer the question No. (10-12)

10) What amount will be the profit-principle at the end of 1st year?
   a) Tk.4700
   b) Tk.4550
   c) Tk.4600
   d) Tk. 4240

11) What will be the profit after 10 years?
   a) 2400
   b) 6,600
   c) 5,000
   d) 7,000

12) What will be the compound -profit after 2 years?
   a) Tk494.40
   b) Tk.6494.40
   c) Tk.6050
   d) Tk.6005

13) Which one is the H.C.F of a^2-9, a^3-27,and a^2-8a+15
   a) a+3
   b) a-3
   c) a+5
   d) a+9

14) If (x+y)=2,then what is the value of x^3+y^3+6xy
   a) $6\sqrt{2}$
   b) $2\sqrt{2}$
   c) 8
   d) 12

15) Which one is the sum of first 3 consecutive prime number
   a) 10
   b) 235
   c) 15
   d) nine

Observe that:

(i) $ab=(\frac{a+b}{2})^2-(\frac{a-b}{2})^2$

(ii) $x^3-y^3=(x-y)(x^2+xy+y^2)$

(iii) $x^3+y^3=x^3+y^3+3xy(x+y)$

16) Which one of the following is correct to the above information?
   a) i and ii
   b) i and iii
   c) ii and iii
   d) i, ii and iii

N= {x∈ N, x and $x < 10, x$ is an even number} the set is…..

(i) The set formed as set builder method.

(ii) x={2,4,6,8}

(iii) Natural number of set.

17) Which one of the following is correct?
   a. i and ii
   b. ii and ii
   c. i and iii
   d. i, ii and iii

18) Which one of the following unit is smaller?
   a) Hectometer
   b) Decameter
   c) Decimeter
   d) Meter

Answer the question no. (19-21) according to the following information:

The area of a square garden is 400sq meter. And breadth is 20 meters.

19) What is the length of the garden in meter?
   a) 23
   b) 24
   c) 20
   d) 26

20) What is the perimeter of the garden in meter?
   a) 82
   b) 80
   c) 78
   d) 76

21) To fence the garden what amount is needed at Tk.2 per meter?
   a) 158
   b) 160
   c) 162
   d) 164

22) If x=2, y=1, which one of the following is the value of $(x-y)(x^2+xy+y^2)+\{x+y\}^3$?
   a) 5
   b) 7
   c) 8
   d) 34

23) The present age of father and son is 50 years and 20 years! What was the ratio of their ages after 5 years?
   a. 7:1
   b. 4:1
   c. 3:1
   d. 11:5

Answer the following question no (24-26) according to the following information. A and B sets of all factors of 10 and 25 respectively.

24) What is the set of factors of A?
   a) {1, 2, 3, 5, 6, 10, 15, 30}
   b) {2, 3, 5, 6, 10, 15, 30}
   c) {1, 2, 5, 10, }
   d) {2, 3, 5, 6, 10, 15}

25) Which one is the setoff (A∩B)?
   a) {1 , 5, }
   b) {2, 3, 5, }
   c) {1, 5, ,10, }
   d) {2, , 5, }

26) Which one of the following is the set of (B-A)?
   a) {∅}
   b) {2, 5}
   c) {1, 10}
   d) {25, 50}

27) Pythagoras is a ....scientist?
   a) France
   b) Arab
   c) England
   d) Greek

28) What is the mode of the numbers12, 17, 17, 12,23,23,12?
   a) 12
   b) 17
   c) 23
   d) None

29) To construct a Square how many data are required?
   a) 1
   b) 2
   c) 3
   d) 5

30) A diagonal of a quadrilateral divide it's in how many triangles?

a) 8
b) 1
c) 4
d) 6

31) What is the product of (x-7)(x+7) ?
a) x^2+x-56
b) x^2-x-56
c) x^2-49
d) None

32) The weight of 1 cc water at 4° Celsius is equal to?
a) 1 Gram
b) 1 pound
c) 1 Seer
d) 1 Chatak

33) The data that expressed as parts of 360° is called?
a) Secondary data
b) Primary data
c) a and b
d) Pie-chart
e)

34) A square is also a ….. ?
a) Square
b) Rhombus
c) Parallelogram
d) None

35) The diagonal of Rhombus bisect each other at what angle?
a) 1 right angle
b) 90°
c) 2 right angle
d) Both a and b

36) The sum of the 3angles of a triangle is …….?
a) 180°
b) 460^0
c) 560
d) 300^0

If U= {1,2,3,4,5,6,7,8,9}, A= {1,3,5,7,9} B= {2,4,,6,8}

37) Which one is B^c ?
a) (1, 2, 3, 4, 5}
b) (1, 3, 5, 7,9}
c) {1, 3, 7, 8, 9}
d) None

38) Which one is A∩ *B* ?
a) {1, 2, 3}
b) {2, 4, 6,8}
c) {5}
d) {∅}

39) Which one (A U B) ?
a) {1, 2, 3, 4, 5, 6, 7, 8, 9}
b) {1, 3, 5, 7, 9}
c) {2, 4, 6, 8}
d) { ∅}

40) How many ways data can be expressed?
a) 2
b) 1
c) 3
d) none